THE ENTERPRISERS

THE NEXT GENERATION OF ENGINEERS

Space...
The final frontier
these are the voyages of

THE ENTERPRISERS

Its 6 month mission...

To explore Robotics
to seek out young engineers
to boldly go where no
team has gone before

FTC TEAM 8024

FTC Team 6024

Summary

Scrimmages, Qualifiers/Tourneys

Date/Time	Event	Page	Awards
11/23/13	FTC Qualifier in Flagstaff, AZ	p. 117-118	Inspire Award Winning Captain Alliance
12/01/13	FTC Qualifier in San Diego, CA	p. 121-122	Finalist Alliance Award Connect Award
12/14/13	FTC Scrimmage	p. 127	
12/15/13	FTC Qualifier - Intel, in Folsom CA	p. 128-129	Finalist Alliance Award Inspire Award
01/18/14	No. Nevada FTC Qualifier – Extension Team in Carson City, NV	p. 151-153	
01/18/14	FTC Championship Tournament in Flagstaff, AZ	p. 154-156	Winning Alliance Control Award Promote Award
02/01/14	FTC Nevada State Championship in Las Vegas, NV	p. 165-166	Finalist Alliance Award Motivate Award
02/22-23/2014	NorCal FTC Championship in Newark, CA	p. 179-182	Winning Alliance PTC Award
03/21-23/2014	West FTC Super-Regional Championship in Sacramento, CA	p. 205-206	Event Winning Alliance Think Award
04/23-26/2014	FTC World Championship		

Outreach Summary

Date/Time	Event	Page #
06/15/2013	Carson City Airport Open House	p. 7
07/09-10/2013	SimCity Competition	p. 8
07/29-30/2013	FLL Robotics Camp	p. 13-16
08/26/2013-02/09/2014	Captain's Log (12 episodes) Listen on DVD or website	p. 29-30
08/27/2013	NDIA	p.29-30
09/7/2013	FTC Kickoff	p. 37-38
09/22/2013	Jr.FLL Robotics Camp	p. 49-52
10/9/2013	RAWLA	p. 59-60
10/17/2013	FLL Mentoring	p. 65-66
10/18/2013	WNC Software	p. 69-70
10/26/2013	Nevada Inventors Association	p. 77-78
11/09/2013	FLL Scrimmage	p. 99-100
12/08/2013	Northern Nevada FLL Tournament	p. 125-126
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1/28/2014	Grace Warner Elementary	p. 161-162
3/27/2014	Boys & Girls Club	p. 209-210

List of interviews from the Captain's Log Radio Show

Engineers

Interviewee Name/Type of Engineer	Captain's Log Episode #
Jim Poston - Traffic	Captain's Log #2
Amilio Aviles - Aerospace	
Ray English - Mechanical	Captain's Log #5
Seena Drapala - Mechanical	
Ken Santillan - Field Service	Captain's Log #4

FIRST Teams

Team Name/FLL or FTC	Captain's Log Episode #
AHERT - FTC	
Area 52 - FTC	
The Dynamobots - FLL	Captain's Log #8
Version 4.2 - FTC	Captain's Log #10
Stuffed Dragons - FTC	Captain's Log #12
EFHS Robotics - FTC	
RAWALA - FTC	Captain's Log #6
Brobots - FTC	
Robo Magic - FTC	

FIRST Volunteers

Interviewee Name/Position	Captain's Log Episode #
Rich Gomez - Northern AZ Head Ref	Captain's Log #9
Christine Sapio - Arizona FTC Affiliate	
Dee Frewert - Northern Nevada FIRST Tournament Director	Captain's Log #7
Rathish Jayabharathi - FIRST Volunteer & Coach	

FTC Team 6024

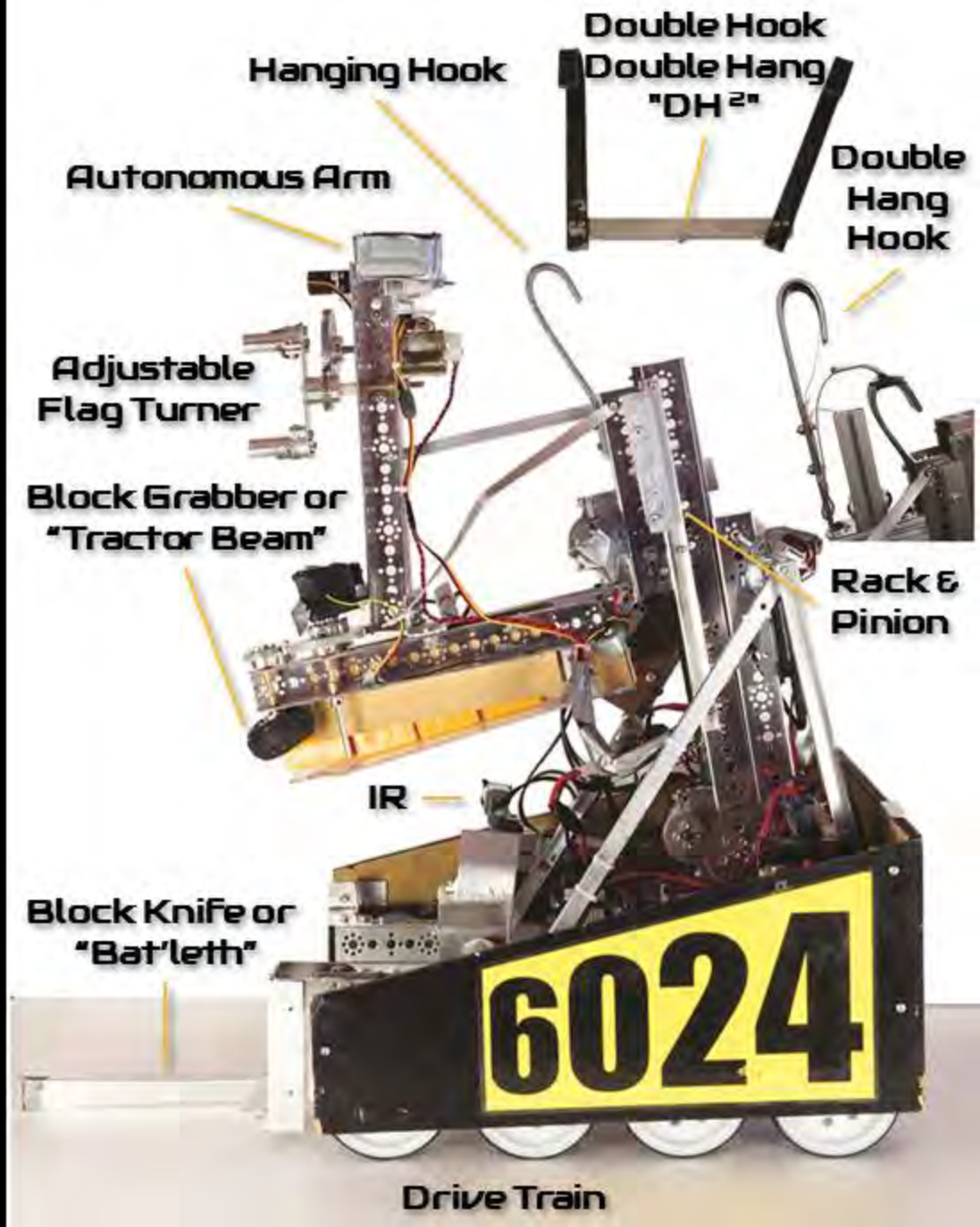
Programming Summary

Component	Description
Robot	• Programmed in Robot C to allow for more programming options, more control, and execution speed for complex programs.q • Programmed to shut down, stop motors and retract block knife when connection to the field is lost to prevent damage to the robot and its components.
Autonomous Mode	• Programmed using advanced Robot C structures. • The primary autonomous program can be customized at the beginning of each match to complement the alliance partner's program: 1. Allows the team to select different start locations. 2. Execution can be delayed to accommodate alliance partner's program 3. Desired parking location on the ramp can be set • The speed of the robot during autonomous mode can be set at the beginning of each match. • The beacon search is simplified by driving to each basket location and checking for presence of the beacon, rather than driving slowly along the pendulum looking for an IR detection. • The code has enumerators programmed into it to help with code comprehension. An enumerator is an efficient way to define a set of constants that may be assigned to a variable. This allows the code to make more sense to the team members. • Simpler autonomous programs are available as backups in the event of unresolved quirks in robot performance (e.g. dumping the block in a nearby basket and parking = 40 points plus a 25% chance at 60 points if it happens to be the IR basket)
IR Sensor	• IR Sensor used to detect IR Beacon on playing field during the autonomous period. • IR sensor can determine which basket to place the scoring element with an extremely high rate of accuracy. • IR sensor is angled so that a narrow detection zone (#4) is used for precise detection.
Touch Sensor	• Touch sensor used to shut off the motor when a certain point is reached on the rack and pinion system to protect it. • The touch sensor keeps the rack and pinion systems from binding, reducing wear and tear on the rack and pinion.
Block Knife or "Bat'leth"	• The Block Knife is controlled by a servo motor that the driver toggles (by button) up or down. • The Block Knife aligns the cubes for extremely fast pick up by the linear "Tractor Beam".
Block Grabber or "Tractor Beam"	• Two continuous rotation servo motors control the gears that control two wheels to suck up and spit out cubes quickly and with precision. • The Tractor Beam has enough control to release one cube at a time, if balancing of the pendulum goal is necessary to score the 50% bonus.
Controllers	• Three modes (Tank, Arcade, and Top Hat) were programmed for the controllers so that individual drivers can select the mode which allows best performance. • The driver can select a different mode in mid-match if necessary.
Wheel Base/ Drive Train	• Encoders were placed on the motors for the wheels for precise location. • Encoders are calibrated for each competition field.
Flag Turner	• Flag Turner was moved to the center "Tractor Beam" to allow for it to be moved up or down. • The drivers can control the height of the flag turner and make adjustments to allow for the 1 inch variance allowed on the playing fields.
Double Hang Bar	• The robot is able to use a servo to deploy a double lift bar during the end game. • The double lift bar increases the chance that our alliance will be able to hang two robots from the pull-up bar at the end game for a possible 50 extra points.
The Hang	• The hook used for the "end game hang" is attached to the rack and pinion system which is controlled by a motor from the joystick controller. • The robot can hang above the bridge and use its wheels to pull forward far enough that an alliance partner's robot can hang from the same bar (if the alliance partner cannot use the Double Lift Bar). This doubles the chances to score the extra 50 points during the end game.

USS Enterprise FTC-6024

Block Party: The Final Frontier

To go *where* no robot has gone before



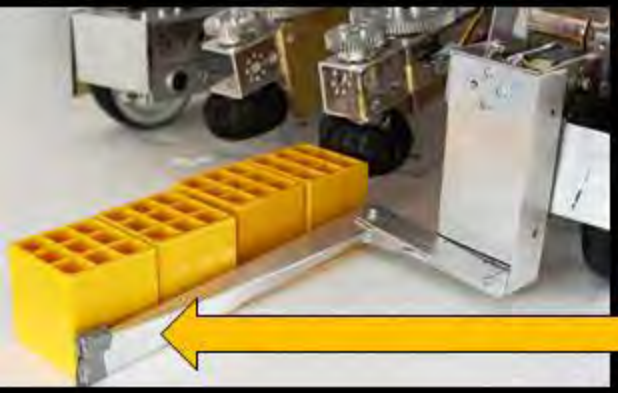
Drive Train and Wheels

Eight 4" wheels driven by four DC motors at a gear ratio of 3:2

= strength & speed on the field

Autonomous Arm

Ability to deposit the preloaded cube into the basket above the IR beacon with an extremely high rate of accuracy



Double Bat'leth (Block Knife)

Servo controlled deployable attachments angled away from center of robot to break up cubes and ensure precise cube alignment from either side

Tractor Beam (Block Grabber)

Suck in cubes fast into its storage by using a 2:1 gear ratio

Can spit them out quickly or one at a time for better balancing

Kling-On

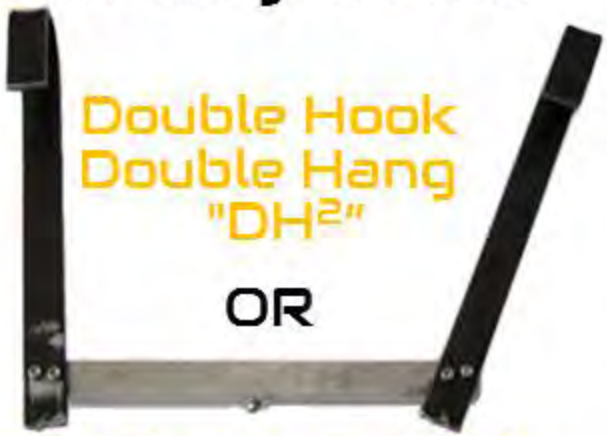
Servo controlled block knife extension to contain the cubes and drive backwards in tight situations

Rack & Pinion

Dual segment rack and pinion drive to
(1) raise and lower the tractor beam
(2) power the adjustable **flag turner**
(3) with its **1:2 gear ratio**, it is able to lift itself using the same system

End Game: Hanging Fast and Consistent

1. Choose your Hook



Double Hook
Double Hang
"DH²"

OR

Double Hang Hook

releases & securely attaches to the hang bar

The Double Hang
easy as 1-2-3

2. we can drive out of the way to let our alliance hang

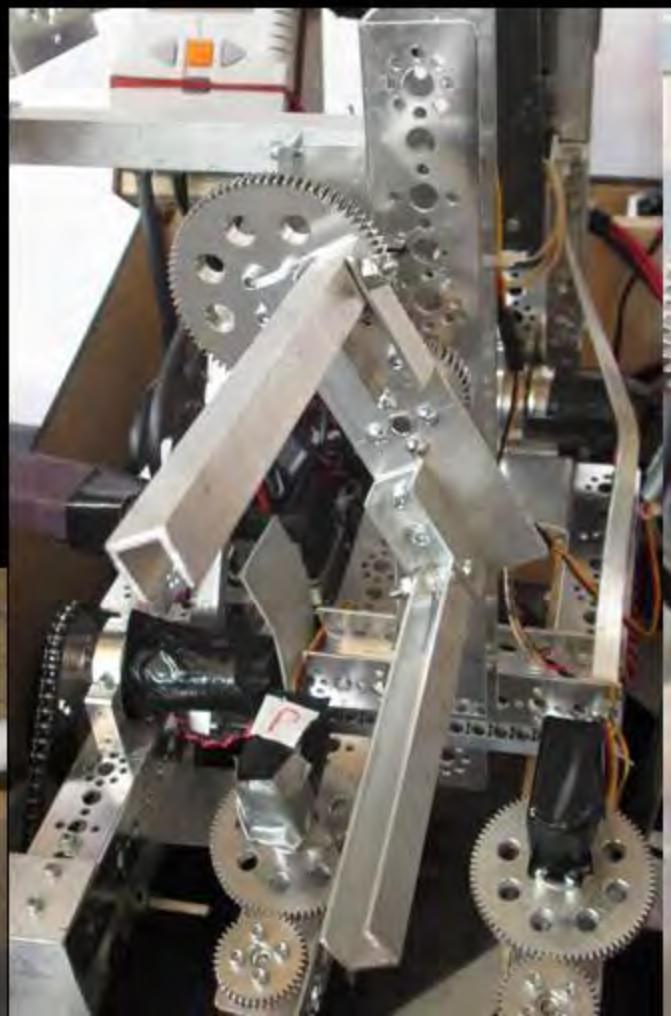
3. we pull up for double hang points!

End Game:

Flag Turner

Can raise the flag at an extremely fast speed with its 1:2 gear ratio

Can be raised or lowered for precise alignment compensating for field differences



FTC Team 6024

Checklist Pre-Game

- ❑ Check battery levels
- ❑ Talk to alliance partners
- ❑ Flag! Get right color
- ❑ Check the bat'leths are able to move
- ❑ Check Joysticks are correct
- ❑ Autonomous cube
- ❑ Pick Autonomous program
- ❑ Line-up Robot
- ❑ Check touch sensor is connected
- ❑ Check NXT connections
- ❑ _____
- ❑ _____
- ❑ _____

FTC Team 6024

Checklist Post-Game

- ❑ Master power off
- ❑ NXT power off
- ❑ Reset arm
- ❑ Reset flag turner
- ❑ Check rubber band so it won't snap (no bites or cuts)
- ❑ Switch out the battery
- ❑ Check chain tension
- ❑ Realign NXT Tires on tractor beam
- ❑ Realign bat'leths
- ❑ Reset double hang hooks
- ❑ Check around motors (loose nuts, wires, misaligned motor mount)
- ❑ Check tires for junk on treads
- ❑ Check wiring connections on controllers
- ❑ Check IR mount and connection
- ❑ _____
- ❑ _____

World Championship - Edison Division

Number	Team Name	Lift	Flag Turner	Autonomous	Blocks	Blocking
92	Junior Bomb Squad					
327	Gamma Factor					
365	MOE					
577	Wreckers Robotics					
724	RedNeck Robotics Wun					
1369	Minotaur					
2753	Team Overdrive					
3162	HHS Gearheads					
3486	Techno Warriors Advanced					
3550	Beta					
3595	Schrödinger's Hat					
3708	Iron Eagles Optimus					
3785	Beastie Bots					
3846	Maelstrom					
4029	2 Bits and a Byte					
4092	Nanites					
4112	Warriors					
4134	Wrench in the Works					
4140	Fish in the Boat					
4150	Dark Matter					
4220	Landroids					
4251	Cougar Robotics Team					
4278	De.Evolution					
4318	Green Machine					
4347	Nanogurus					
4535	RedNek Robotics Too					
4625	Kings and Queens					
4847	CHROME					
4965	Animatores Romani					
4982	Café Bot					
5035	Wired					
5069	Robogamers					
5114	The Knights Who Say C					

World Championship - Edison Division

Number	Team Name	Lift	Flag Turner	Autonomous	Blocks	Blocking
5140	WACO Aerobotics					
5220	Chess Team & Chess Team					
5414	Techie Tornados					
5421	RM-ed and Dangerous					
5501	USS Enterprise					
5609	Ciberbots					
5931	Cru-Botics					
5939	Team AFOOFA					
5977	Cyberswat FTC					
6002	Basilisks					
6024	The Enterprisers					
6100	Chariots of Fire - Black					
6109	Punabots					
6272	Iron Eagles Prime					
6337	Metal Marauders					
6424	Oly Cow					
6433	Neutrinos					
7023	HexaSonics					
7440	Wingus and Dingus					
7591	Voltage of Imagination					
7712	H&M Robotics Club					
8207	CanaBot					
8336	Mars Gypth					
8337	BaCoNeers					
8347	The BOLTS					
8349	I love super big white cat					
8352	Prime Numbers (5850)					
8356	LET					
8357	Desert Matrix					
8359	French Toast Mafia					
8360	Rawabi					

FTC Team 6024

Alliance Partner

Match#	Team#	Team Name	Lift	Flag Turner	Autonomous	Blocks	Blocking	Notes

Opponent

Match#	Team#	Team Name	Lift	Flag Turner	Autonomous	Blocks	Blocking	Notes

FTC Team 6024 Stardate May 2013

Website
Progress Report 1
FTCTeam6024.com
Wordpress site is up !
pp. 5-6

05/28/13 | **05/30/13**

Team Meeting #1
First Team Meeting!
5306 -VC Vendetta merge with 6024-Lords of the Ring
pp. 3-4

Team Meetings	Progress Report

FTC Team 6024 - Stardate June 2013

06/15/13

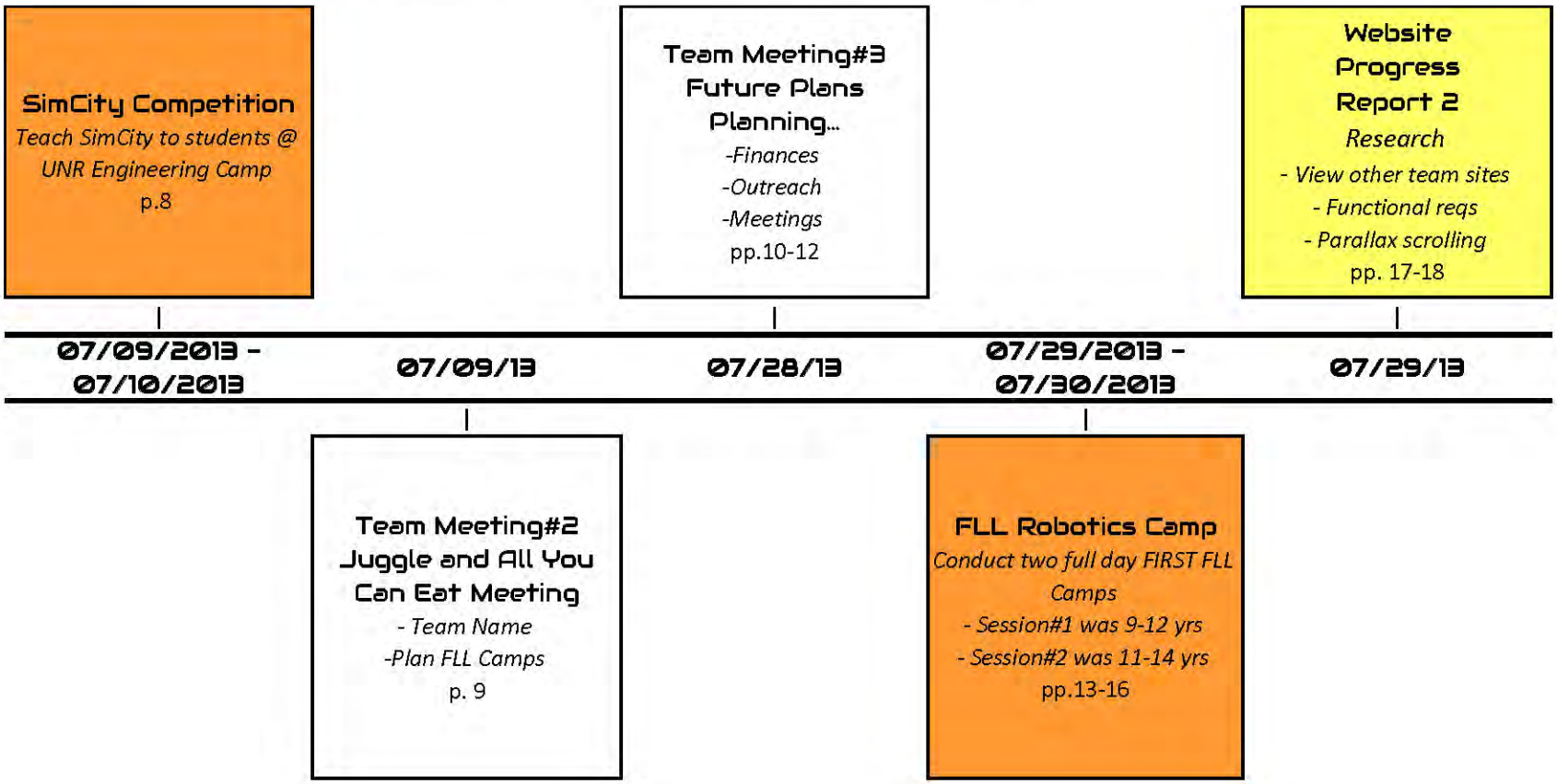
Carson City Airport Open House

Demonstrated last year's Ring It Up! Robot

p.7

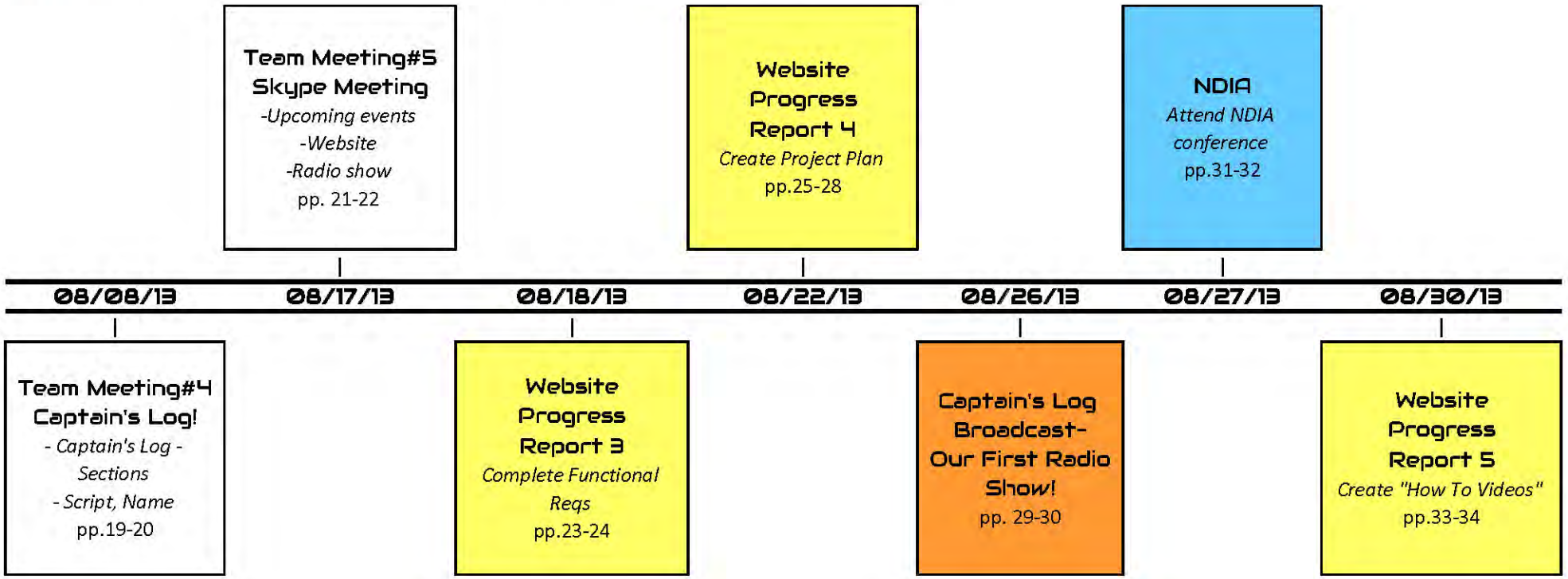
Outreach

FTC Team 6024 Stardate July 2013



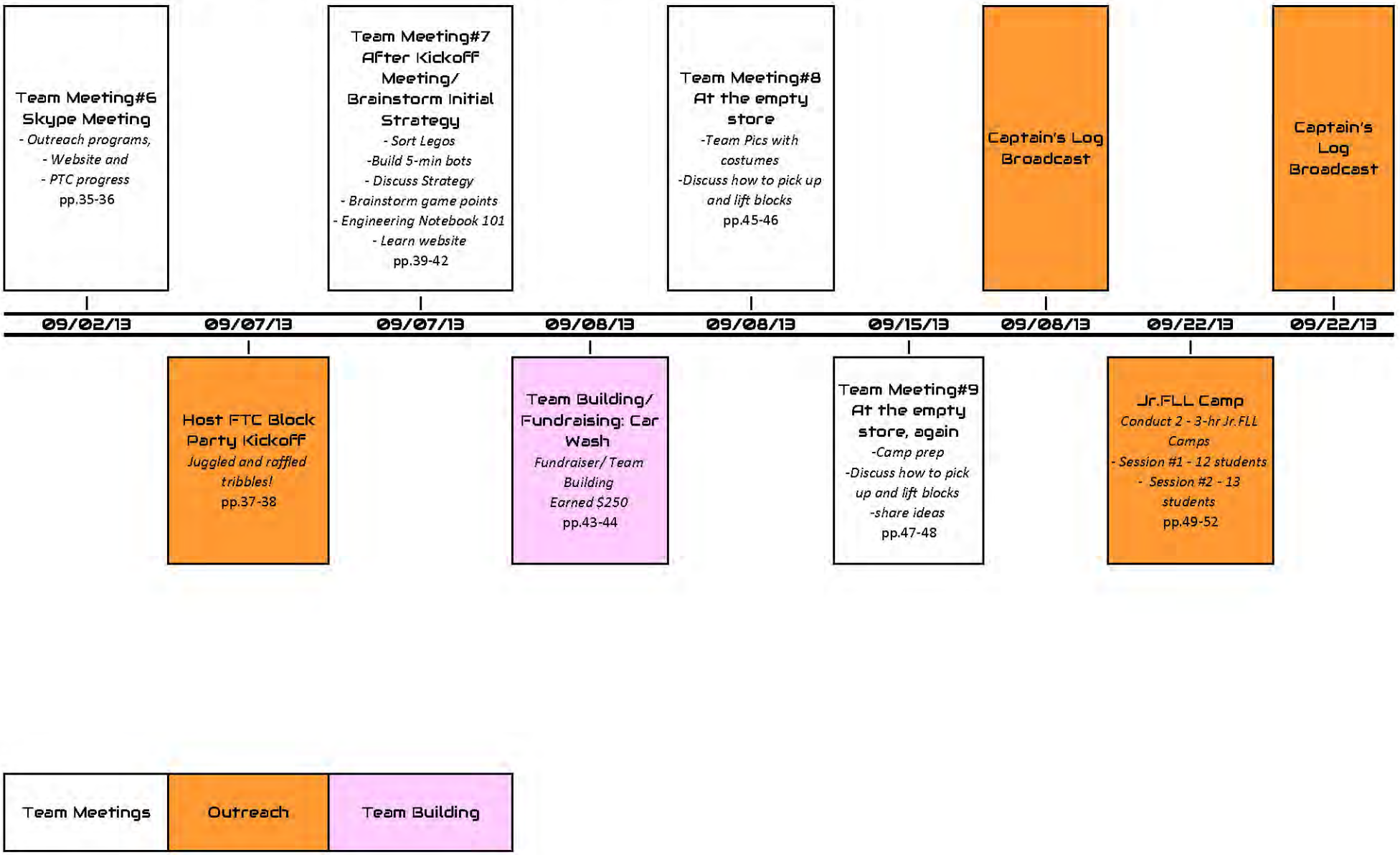
Team Meetings	Outreach	Progress Report

FTC Team 6024 Stardate August 2013



Team Meetings	Outreach	Engineering Community	Progress Report

FTC Team 6024 Stardate September 2013



FTC Team 6024 Stardate October 2013

10/01/13 — Costumes/Promote/Radio Show Progress Report
- *Costumes*
- *Tribbles*
- *Promote script*
- *Presentation Ideas*

pp.53-56

10/06/13 — Team Meeting #10 Base Ten
-Brainstorm robot designs
-Outreach Events
p.57

10/06/13 — Captain's Log Broadcast

10/08/13 — Team Meeting #11 Galena HS Destruction
- Deconstructed Precious
- Recycled parts for new chassis
p.58

10/09/13 — RAWLA
Attend FTC Team 6074's meeting
pp.59-60

10/13/13 — Team Meeting #12 Here comes the chassis
(1) Designed & built chassis
-4-4" wheels with 2 motors on each side
-U shaped to fit block grabber
(2) Block grabber prototype
pp.61-62

10/16/13 — Team Meeting#13 Base & "Tractor Beam"
-Construct wheelbase
-Make parts list
-Improve block grabber
pp.63-64

10/17/13 — FLL Mentoring
Mentored FLL Teams 9930 & 9951
-Learn board
-Build robot
-Programming
pp.65-66

10/17/13 — Team Meeting#14 Spacing Panels
Finish chassis-created 4 spacing panels
pp.67-68

10/18/13 — WNC Camp Event
Help setup WNC network for Carson City Qualifier
pp.69-70

10/18/13 — Team Meeting#15 Back in town!
-Brainstorm Leadership Ideas
-Video Promote
-Team Pictures
pp.71-72

10/19/13 — Team Outing - Corn Maze
Dinner at Chuy's and Corn Maze Fun!
pp.73-74

10/20/13 — Team Meeting#16 Promote Party
-Video Promote
-Team Pic
pp.75-76

10/20/13 — Captain's Log Broadcast

10/26/13 — Nevada Inventors Association
pp.77-78

Team Meetings | Outreach | Engineering Community | Progress Report | Team Building

FTC Team 6024 Stardate November 2013

Costumes/Promote/ Radio Show
Progress Report
- *Costumes*
- *Tribbles*
- *Promote script*
- *Visit Team*

pp.79-80

11/01/13

11/01/13

Website Progress Report 6
Website Screen Shots
pp.81-90

11/03/13

Team Meeting#17
Progress-Chassis and The Tractor Beam
- *Complete Chassis*
- *Start tractor beam*
- *8 wheels*
- *Start linear slide/rack rack & pinion (R&P)*

pp.91-92

11/03/13

Captain's Log Broadcast

11/09/13

Team Meeting #18
Rack & Pinion
- *2nd R&P*
- *Attach to chassis*
- *Redesign tractor beam - 2 wheels*
- *Discuss lifting tractor beam*

pp.93-96

11/09/13

FLL Scrimmage
Ref FLL Scrimmage
Coach FLL Teams
pp.97-98

11/10/13

Team Meeting #19
It's all about the "Tractor Beam"
- *erfect the Tractor Beam*
- *Add Plate to Tractor Beam*
- *Connect the motors to drive the two rack and pinion sets*
- *Build a parallelogram*

pp.99-102

11/11/13

Coaching FLL Progress Report
Coaching
pp.103-104

Team Meeting #20
Putting it all together
- *Create metal supports for R&P and Tractor Beam*
- *Attach drive motors to chassis*
- *Make and attach hook*

pp.105-108

11/16/13

11/17/13

Team Meeting #21
Operation... Drive!!!
- *Flag turner & attach*
- *Put encoders on motors*
- *Wiring*
- *Block knife*
- *BOM*
- *Hang*
- *Buttons for Flagstaff*

pp.109-112

11/17/13

PTC Progress Report 1
- *Learn PTC*
- *Get Program parts*
- *Build Chassis*

pp.113-114

11/17/13

Captain's Log Broadcast

11/19/13

Team Meeting #22
Let's get the robot ready for Flagstaff
- *Assemble wiring system and power components*
- *Get communications up and running*
- *Code joystick control*
- *Test the robot*
- *Finishing touches*

pp.115-116

11/22/13

FTC Qualifier in Flagstaff, AZ
- *First Place Inspire!*
- *Winning Captain Alliance!*

pp.117-118

11/23/13

Team Meeting #23
Beach Party!
- *Fix the Flag Turner*
- *Program a New Tank Drive*
- *Program a Mirror Autonomous*

pp.119-120

Team Meetings	Outreach	Scrimmage/ Qualifier/ Tournament	Progress Report

FTC Team 6024 Stardate December 2013

Captain's Log Broadcast
12/01/13

Team Meeting#24 Folsom Here We Come!
-Incorporate Flagstaff Notes
-New wood block knife - broke
pp.123-124
12/07/13

Captain's Log Broadcast
12/05/13

Captain's Log Broadcast
12/15/13

12/01/13 | 12/01/13 | 12/07/13 | 12/08/13 | 12/05/13 | 12/14/13 | 12/15/13 | 12/15/13

FTC Qualifier in San Diego, CA
Connect Award
pp.121-122
12/01/13

Northern Nevada FLL Tournament
Refereed
pp.125-126
12/08/13

FTC Scrimmage
Practiced with other teams
Identified problems and made code changes
p.127
12/14/13

FTC Qualifier Intel, Folsom CA
2nd Place Alliance Award
Inspire Award!
pp.128-130
12/15/13

Team Meeting #25 Fix it!
- Autonomous program and scoring arm
-Add larger gears to servos
-Swap out motor mounts
-New hook
-Move Flag Turner
-Mount IR sensor
-New Block Knife
pp.131-133
12/22/13-12/24/13

Extension Team Meeting#27 JR FTC #6024- A New Frontier
-Move and add parts
-Samantha Hook-up
-Drive the robot!
p.135
12/26/13

Team Meeting #29 Drive meeting!
-Practice driving
-Add sidewalls to robot
p.138
12/28/13

Captain's Log Broadcast
12/29/13

12/22/13-12/24/13 | 12/23/13 | 12/26/13 | 12/27/13 | 12/28/13 | 12/29/13 | 12/29/13 | 12/31/13

Extension Team Meeting#26 Repo Meeting
-Take off ramp and the second section of the arm.
-Discuss Cube Getter
-Teach Matthew RobotC
-Teach Matthew Engineering Journals
p.134
12/23/13

Team Meeting #28 Drive and Wire
-Practice Autonomous
-Manage Wiring
-Troubleshoot loose connections
-Practice driving
pp.136-137
12/27/13

Team Meeting #30 The Arm-The Next Generation
-Fix arm
-Replace & add arm motor
-Add Walls
-Add a Double Lift Bar
-Test Double Lift Bar
-Figure out a method to deploy Double Lift Bar
pp.139-142
12/29/13

India
Conduct 3 Mindstorm camps
pp.143-144
12/31/13

Team Meetings	Outreach	Scrimmage/ Qualifier/ Tournament

FTC Team 6024 Stardate January 2014

01/09/14

Extension Team Meeting #31
JR FTC #6024 – A New Frontier
-Add new parts
-Thread the rope on the winch
-Drive the robot !
pp.145-146

01/11/14

Team Meeting #32
More Driving! Preparing for Flagstaff Championship
-Drive Practice-R&P stripping
-Practice Presentation
-Driving Practice
pp.147-150

01/12/14

Captain's Log Broadcast

01/18/14

Northern Nevada FTC Qualifier in Carson City, NV
-Extension Team attended
pp.151-153

01/18/14

FTC Championship Tournament in Flagstaff, AZ
-Winning Alliance Finalist
-Control Award
-Promote Award
pp.154-156

01/25/14

Team Meeting #33
Flagstaff, AZ Championship to Las Vegas Championship
-Fix IR sensor
-Check connections
-Create a new battery holder
pp.157-158

01/26/14

Team Meeting #34
Last Minute Change!
It's Vegas Baby!
-New & Improved Flag Turner
-Test the new Flag Turner
-Send email to Intelli-gents
-Email UNR ME Department
-Sell Sheet finalized
pp.159-160

01/26/14

Captain's Log Broadcast

01/28/14

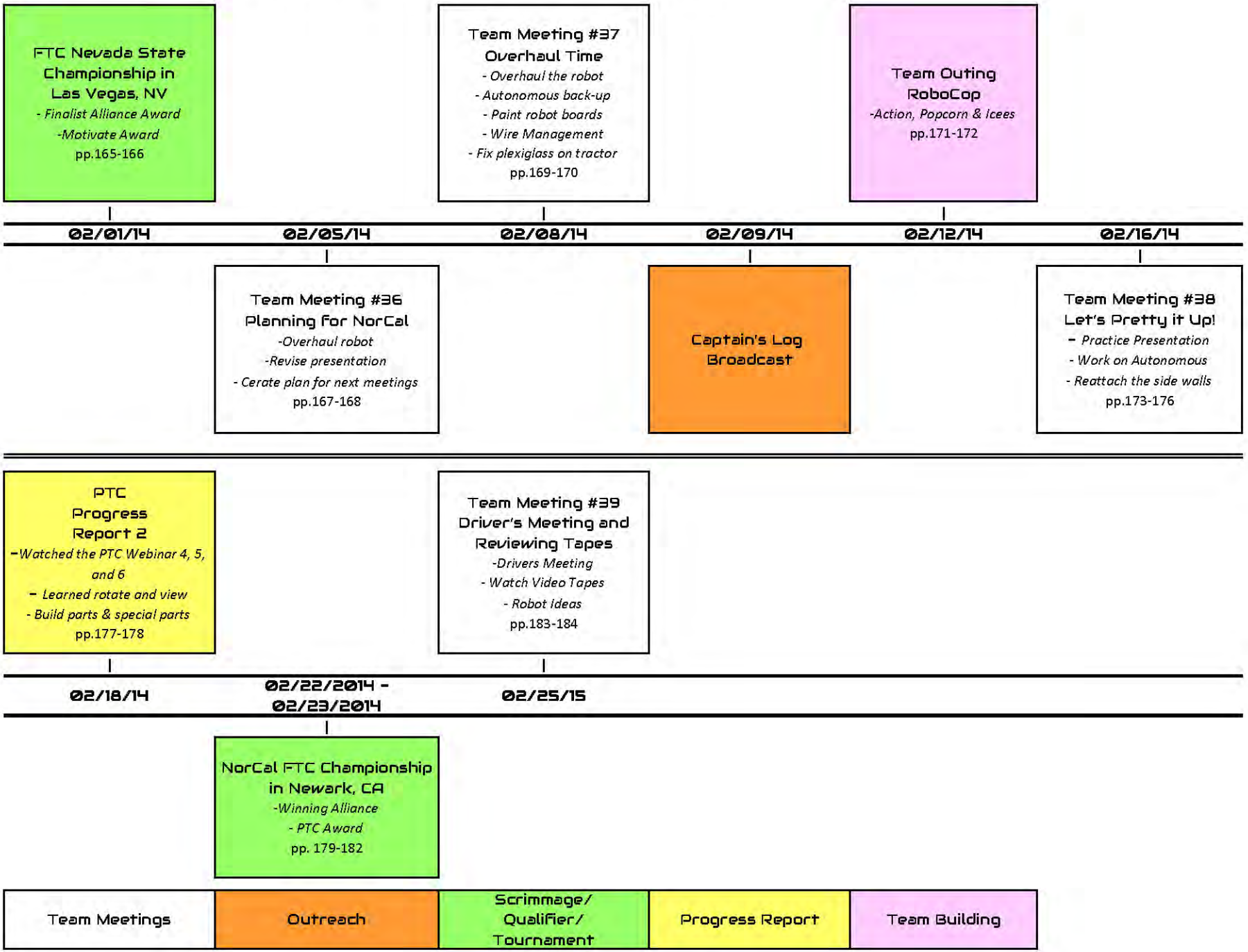
Grace Warner Robot Expo
Present our robots and FIRST to spark kids interest in engineering.
pp.161-162

01/30/14

Team Meeting #35
Practice for Vegas!
- Practice Presentation
- New Board
pp.163-164

Team Meetings	Outreach	Scrimmage/ Qualifier/ Tournament

FTC Team 6024 Stardate February 2014



FTC Team 6024 Stardate March 2014

Team Meeting #40
Let's get Batty
-Add second bat'leth
- Get robot ready for Supers
pp.187-188

03/01/14

03/02/14

Team Meeting #41
Chaos Ensues
- Thank you cards
- Lay out Super-Regionals Booth
- Robot updates
pp.189-190

03/05/14

Team Meeting #42
We Think We Can
- Build new double hang option
- Guard rails
- Refine the second bat'leth
pp.191-192

03/08/14

Team Meeting #43
More Super-Regional Prep!
- Double hang alternative
- Refine the 2nd bat'leth
- Super RegionalsPlans
pp.193-194

03/09/14

Team Meeting #44
Trouble with Tribbles
- Booth set up
- Adopt a Tribble
- Bling up safety glasses
- New double hang practice
- Autonomous
pp.195-196

03/11/14

Team Meeting #45
Tribbles and Driving
- Cutout Tribble cards & forms
- Fix extension robot
- Practice drivings
p.197

Team Meeting #46
It's all about the double hang
- $(DH)^2$ Hook attachment
pp.198-199

3/77/2014

03/15/14

Team Meeting #47
Putting it all together
- Repair Linear Slide
- Create Checklists
- Practice Driving
- Tribbles
- Booth
pp.200-201

03/16/14

Team Meeting #48
Super Wrap up!
- Finalize Booth
- Drive practice
- Finish & finalize our presentation

03/20/2014 - 03/23/2014

West FTC Super Regional Championship
- Event Winning Alliance
- Think Award
pp. 205-208

03/27/14

Boys & Girls Club
- Attend Boys & Girls Club Event
pp. 209-210

03/29/14

Optomist International Awards Dinner
- Attend Optimist International Awards Dinner
pp. 211-212

Team Meetings	Outreach	Scrimmage/ Qualifier/ Tournament

FTC Team 6024 Stardate April 2014

04/04/14

Team Meeting #49: Tackling the "Robot To Do"
- *Move Samantha & NXT closer*
- *Fix tractor beam braces*
- *"Andersonize" Robot*

pp. 213-215

04/05/14

Team Meeting #50: More Tackling the "Robot To Do"
- *Continure "Anderization: Revise wire management*
- *Modify block knife*
- *Static*

pp.216-218

04/06/14

Team Meeting #51: Even More Tackling the "Robot To Do"
- *Un-Daisy Chain*
- *Finish "Andersosizing"*
- *Power Switch Holder*
- *Kling-On*
- *Test Robot*
- *Mini Outreach*

pp. 219-221

04/07/14

Team Meeting #52: Finish the "Robot To Do"
- *Finish To-Do List*
- *Fix Double Double Hang Hook*
- *Finish Kling-On*

pp. 222-223

04/09/14

Team Meeting #53: Drive, Drive, Drive
- *Two Controllers*
- *Driving after all rewiring*
- *Test new code*

pp. 224-225

04/10/14

Team Meeting #54: Build a Better Box
- *Replace Servo*
- *Reduce tractor beam Plexiglas static*
- *Build Shipping Box*

pp. 226

04/12/14

Team Meeting #55: Autonomous Updates
- *Check the robot*
- *Work on the Autonomous Code*

pp. 227-228

04/13/14

Team Meeting #56: Autonomous
- *Work on the Autonomous Code*

pp. 229

04/15/14

Team Meeting #57: Testing 1-2-3
- *Test drive the robot to make sure changes function as designed*
- *Fix any detected problems*

pp. 230

04/19/14

Team Meeting #58: The Last of the Last
- *Streamline autonomous code & test the new IR Beacon*
- *Drive Practice*
- *Take up the field because World here we come!*

pp. 231-232

04/23/2014 - 04/26/2014

FTC World Championship St Louis, MO

Team Meetings

Scrimmage/ Qualifier/ Tournament


MEET THE CREW

These are the voyages of FTC Team 6024

The Enterprisers

The Next Generation of Engineers

Its continuing mission...

To explore the galaxy of Robotics,
spread Gracious Professionalism©,
seek out people within the community to share FIRST with, and to boldly go to the FTC World Championship.

Hey—we're FTC Team 6024, **The Enterprisers!** We're a long distance, Star Trek themed team, with members from both Nevada and California. Our team is comprised of three other teams that competed in previous years. Our previous teams were: **Team 6024 - Lords of the Ring**, Reno, NV + **Team 5306 - VC Vendetta**, Virginia City, NV + **Team 3483 - ASCII**, San Diego, CA.

JAMIE

Hello everybody! I'm Jamie! I'm 17 years old and I live in the Virginia City Highlands which are just outside of Virginia City. I'm homeschooled, but I also play softball and volleyball at Virginia City High school. If I'm not finishing up schoolwork or playing sports, you can usually find me on the internet reading comics and playing games. This will be my fourth and final year of competing in FIRST robotics, but I hope to continue coaching after I graduate! My favorite color is green, and I also enjoy long walks on the beach.

COLE

Hi, my name is Cole and I am 16 years old and this will be my first year with FTC Team 6024. I hope to improve my robotics and team working skills and learn new ones while being part of this awesome team. My hobbies include soccer and gaming. I joined the team because I am interested in robotics and engineering and knew I could learn new skills that could one day help me get into college. I am going to work towards a career in the engineering field and FTC robotics can help me get there.

SCOTT

Hi, I am Scott! I am 15 years old and a Sophomore at Galena High School. My interests are in engineering, robotics, metal working, sports and JROTC. I was a member of the Pine Middle School FLL Club for two years and enjoyed it! I was on the Lords of the Ring FTC team last year. I hope to continue learning more about robotics and other skills that will help me in my future.

LOGAN

Hi, my name is Logan! I'm 16 years old, a sophomore in high school, and live in Reno, NV. I got my first Lego Mindstorms kit in the first grade, and have been programming and building ever since. In the 7th and 8th grade I was on an FLL team, so when I moved on to high school, I created a FTC team that became known as The Lords of the Ring. After our first competition, we decided to merge with teams VC Vendetta and ASCII and become The Enterprisers.

NADYA

Hi, I'm Nadya! I'm 16 years old, a senior in high school, and live part time in San Diego, CA and part-time in Winslow, AZ. I grew up homeschooled, and aside from robotics my hobbies include violin, karate, art, and gaming, among more. I've been doing FIRST since I was six, but this is my first year on this team. I met Price and Jamie a couple of years ago at a tournament, and since my old FTC team graduated, I was happy to accept their invitation to join The Enterprisers.

BRANDON

Hi, my name is Brandon and I am 16 years old and this will be my second year with FTC Team 6024 (last year we were known as the Lords of the Ring). I hope to improve my skills and learn new ones while being part of this great team. My hobbies include snowboarding and baseball. I joined the team because I am interested in technology and knew I could learn new skills that could one day come in handy. I am going to work towards a career in the technology field and robotics can help me get there.

CARTER

Hello, my name is Carter. I am 13 years old and I attend Pine Middle School. I like science, music, Boy Scouts and robotics. I play the tenor and baritone saxophone in my school band. Last year I *was* on the FLL team at Pine. This is my first year of FTC. I decided to join The Enterprisers because I *wanted* to put myself up to the challenge of building and innovating a robot!

PRICE

Hi, I am Price. I am a sophomore student in the 10th grade and have been homeschooled all my life. Aside from robotics, I love to play soccer, football, volleyball, video games and participate in forums. I *was* on a FLL team and *was* 2 years on an FTC Team 5326, VC Vendetta. Our team decided to merge this year with two other teams to become The Enterprisers and *we* are helping mentor two FLL teams this year.

COACH PATTI

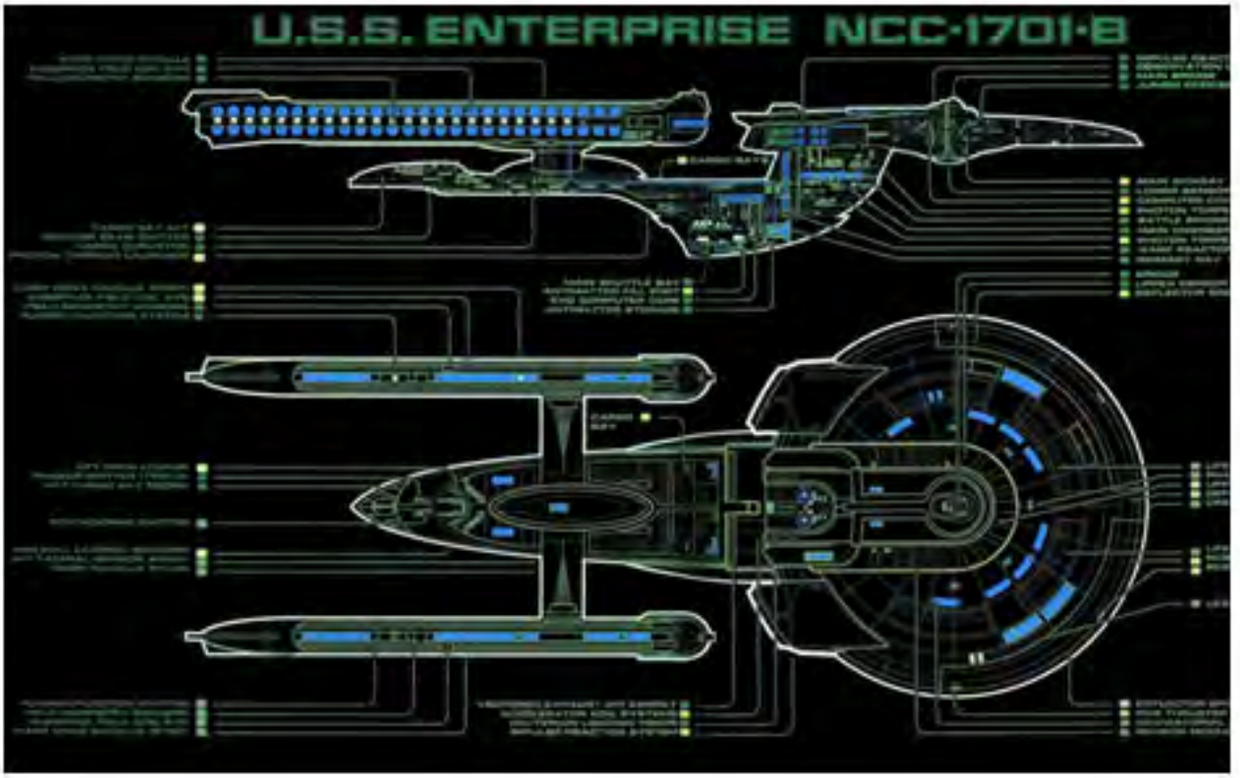
I have been involved with FIRST for over five years now. My first experience was conducting a Girl Scout camp with FIRSTNV. Since then I have coached 3 FLL and 3 FTC teams. 2 FLL teams took runner-up for Grand Champion and our FTC teams have won several awards. I have volunteered as head judge at the Reno FLL Scrimmages and Tournaments.

I love teaching kids about science and technology. Watching their excited faces when they see a cool demonstration and understand what is happening is the best. My favorite hobbies are Astronomy and Geology. I like coaching, but building or programming not so much, I let the kids do that.

COACH WADE

I purchased my son, Logan, his first Lego Mindstorms RCX kit ten years ago. We have been involved with robotics clubs over the years. Last year, I was head coach for FTC Team #6024, Lords of the Rings, for its rookie season. I'm an electrical engineer and my wife and I own two Learning Express toy stores in Reno, Nevada. My wife, Suzanne and I recently published The Loomatic's Interactive Guide to the Rainbow Loom. Our home provides the space for the team meetings, and the fully-equipped workshop for manufacturing parts for the robot. I love guiding the kids in the design and build process of the competition.

BUSINESS PLAN



Executive Summary

Our Continuing Mission:
To explore robotics, to seek out young engineers, and to boldly go where no team has gone before!

History:
Our team is comprised of three other teams that competed in previous years. Our previous teams were: Team 6024 – Lords of the Ring, Reno, NV + Team 5306 -VC Vendetta, Virginia City, NV + Team 3483 – ASCII, San Diego, CA.

Personnel:
The Enterprisers consists of 7 students, 2 mentors, and a lot of parent support.

Location:
We're a long distance team, with members from both Nevada and California. We generally meet at a coach's house in Reno where we have access to a range of useful tools.

Sponsors:

Services and Products:
Our team hosted and volunteered at many FIRST events, including scrimmages, FLL tournaments, and this year's FTC Kickoff in Reno, Nevada. With the support of the team, one member flew to India to hold robotics camps and promote STEM. We reach out around the world through our website and Facebook page, and other media including our Promote Video, and online radio shows. We are proud to participate in FTC and demonstrate the value of STEM and FIRST. Our products include Hexbugs and of course, tribbles!

Program Summary

Plans:

Each year, our team requires a considerable amount of funding. To pay for everything, we hold outreach events, both free and for profit, sell tribbles, and attract new sponsors. Our goal is to require as little money from our members as possible, and all funds raised throughout the season go towards buying new parts, paying tournament fees, and spreading FIRST throughout the community.

Operational Plan:

As a student-led team, we have all have defined roles. While everyone specializes in a specific job, everyone help out on every aspect of the robot. During competition, our drivers and coach will be interviewing future alliance partners while the builders and maintenance crew fix any problems that arise after a match. These jobs can switch multiple times during a competition, as a driver for one round could be a builder the next.

Production Plan:

The team works from September through March to build the game-specific robot and continue outreach projects that started in the late spring. Build sessions are held weekly, and competitions usually begin in November. The season will be extended to the end of April if the team makes it to the World Championship.

Financial Plan:

Some funds are acquired by team driven activities, such as Jr. FLL and FLL camps and fundraising sales of tribbles and Hexbugs. For Worlds, we received some TV coverage from our local NBC affiliate (http://is.gd/migeyu). We sent about 60 fundraising letters throughout the community. We raised about $5,000 and now have many sponsors, which are listed in the Sponsors section above.


JOURNALS

Tuesday, 05/28/13, 5:30 pm - 8:30 pm

Meeting #1: First Team Meeting

Discussion Team

Attending:	Cole Kenny, Jamie Poston, Price Poston, Logan Peterson, Brandon Villar, Carter Peterson	**Coaches/ Mentors:**	Wade Peterson, Patti Poston, Carol Villar

Goals: Lay the foundations of the 2013-2014 FIRST FTC Season plans for Team 6024 [now known as *The Enterprisers*]

Tasks	Reflections
Registration	Not much to reflect about, however it was nice to learn about the deadlines for registration.
Team Names	I would have been happy with any of the other names. Talking about them in the meeting, however, was a fun and humorous break from all the talk about dates, money, etc. (which are also very important).
Outreach	Back to business. It was good to hear the dates, but because they were so far into the future, everyone was grateful that reminder emails would be sent out.
Team member jobs	Everyone was able to make their requests, and all except the drivers received their request. Tryouts were to be held later, which is a good thing, considering we had three volunteers for driver.
Fundraising	Though nothing was made final, possible options were discussed as well as when we could do them. Reminder emails would be sent later in the year.

Registration and Team Name

- Listed the steps needed to register and the deadline
- As this was a merging of two teams, a name would have to be agreed upon
- Possible options were brainstormed, including last year's name
- We decided to keep the 6024 number.
- We discussed creating a website (ftcteam6024.com) and team emails (*firstname*@ftcteam6024.com)

Outreach

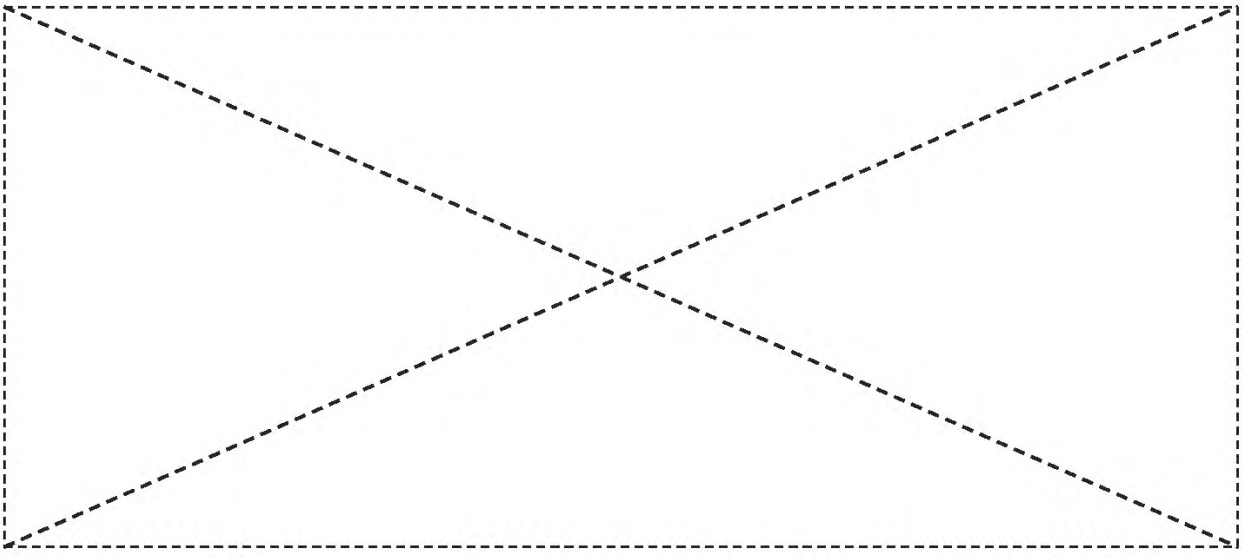
- Went over known event dates
- E-mails would be sent out when dates drew closer

Jobs

- Job requests were taken
- Multiple people wanted to be driver, so it was decided that tryouts would be held sometime in the future

Fundraising

- The need for money was made clear
- Multiple fundraising options were talked about, including car washes, Kickstarter, FLL camps, and more



Written by: Cole Kenny	**Checked by:** Nadya Dooley

Thursday, 05/30/13

Website Progress Report 1
Personal Progress Report

Attending: Brandon Villar **Mentors:** Carol Villar

Goals: Lay the foundations of the 2013-2014 FIRST FTC Season plans for Team 6024 [now known as *The Enterprisers*]

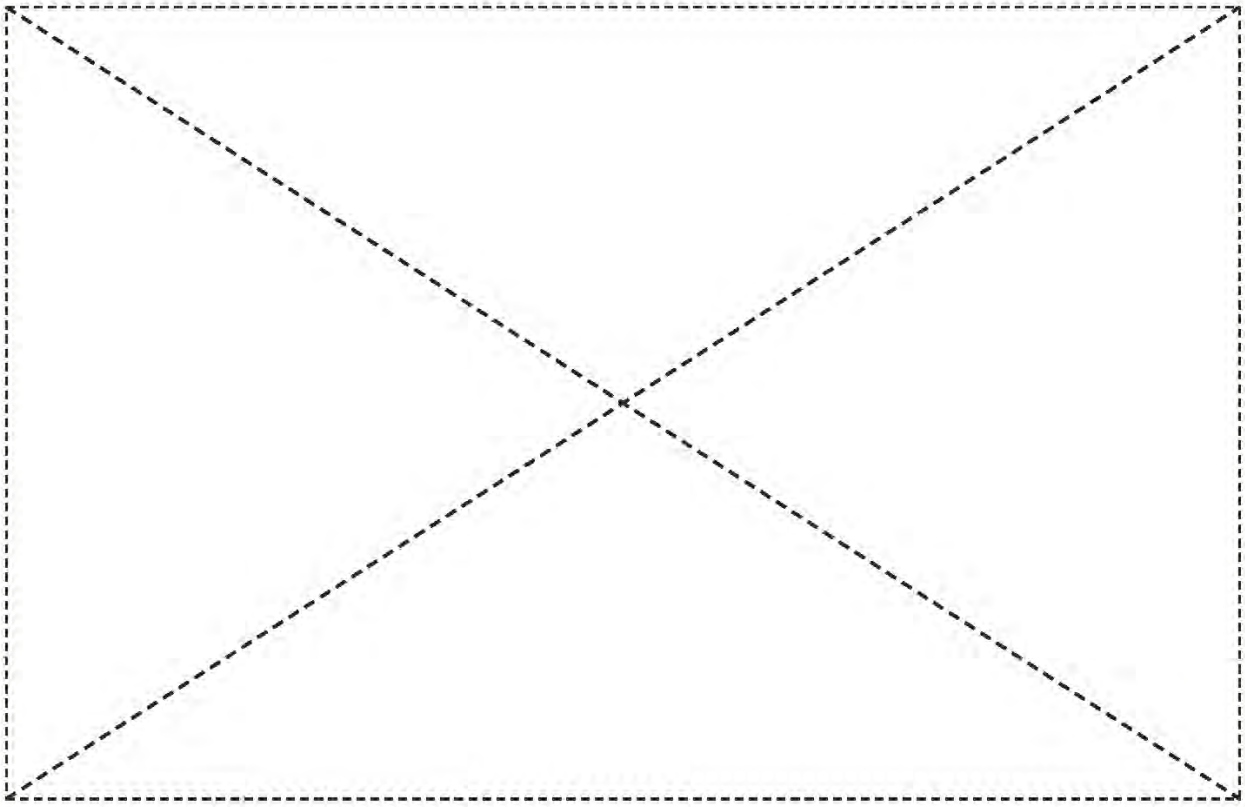
Tasks	Reflections
WordPress Website created	Now we can start
Determine next steps	Research what should be done next

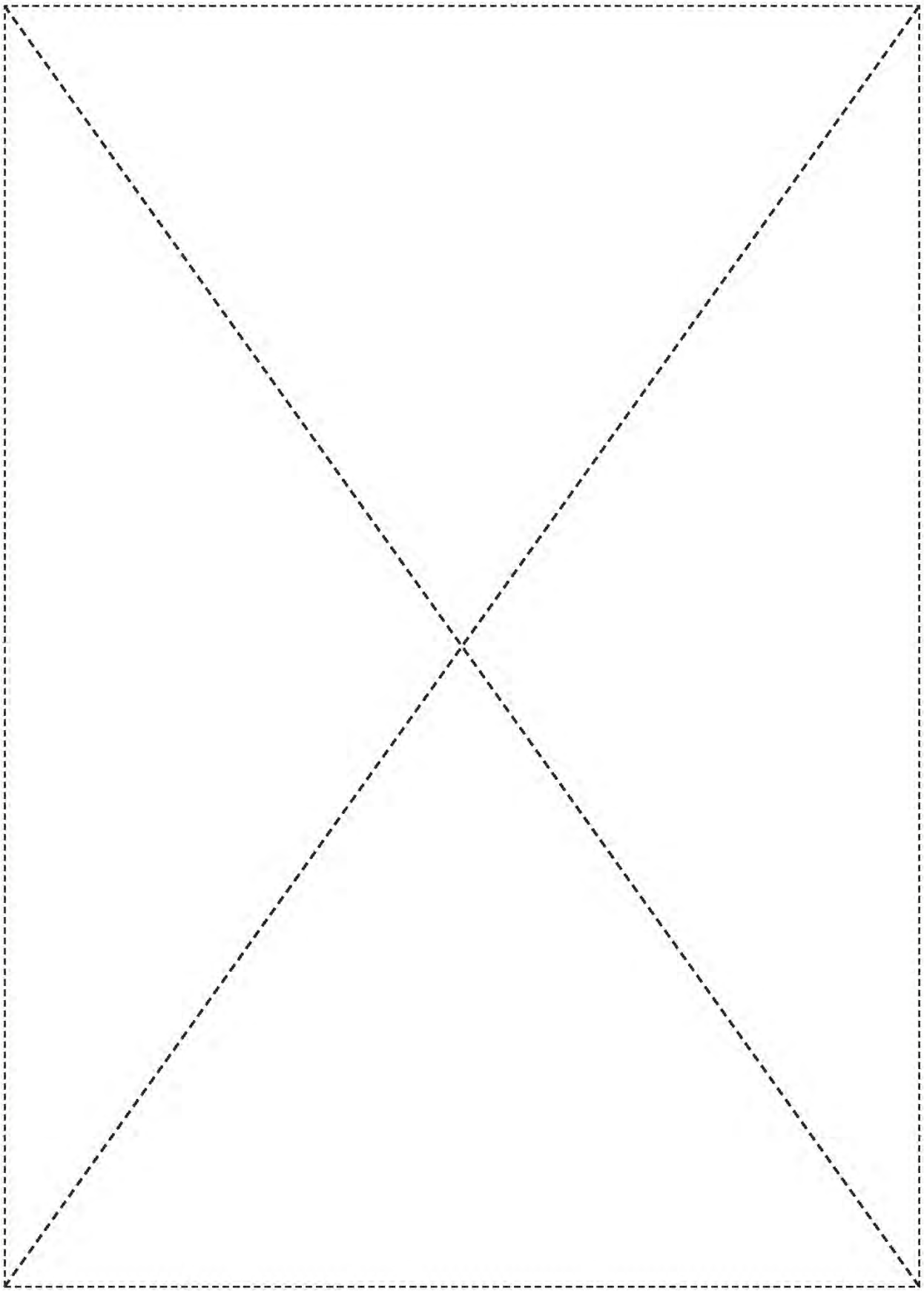
FTCTeam6024.com WordPress Created

- Received email from Jim Poston that FTCTeam6024.com was ready to go
- Don't know much of WordPress but Carol Villar will mentor through the learning process

Next Steps

- Functional Requirements Needed
- Review other team websites
- Create Functional Requirements Document





Saturday, 06/15/13, 8:00 am - 2:00 pm

Event Report: Carson City Airport Open House

Outreach Team

Attending: Logan Peterson, Carter Peterson, Brandon Villar **Mentors:** Wade Peterson

Tasks	Reflections
Attend the Carson City Airport Open House	There were a lot kids there, and it was a great opportunity to show off last year's robot.

Outreach at Carson City Airport Open House

On the 15th, Logan, Carter and Brandon attended a Carson City Airport Open House, an event open to the public with many aeronautical activities. In an effort to promote FIRST, we set up our robot and let the kids drive! They were all very excited to drive. We only let them drive the base as the arm is a little more complicated!

Written by: Brandon Villar	Checked by: Logan Peterson

Tuesday and Thursday, 07/09-10/13, 12:00 pm - 4:30 pm

Event Report: SimCity Competition

Attending: Logan Peterson, Jamie Poston, Price Poston, Nadya Dooley **Mentors:** Patti Poston

Tasks	Reflections
Teach SimCity to Students at University of Nevada, Reno - Engineering Camp	We were successful in teaching the kids SimCity and we had a mini competition at the end

SimCity

- We installed SimCity on all 12 computers at the camp.
- We had 23 students in the camp with 1 - 2 students on each computer.
- We taught the students how to use the SimCity program to build a city.
- Once the students understood what they were doing we gave them a mini competition to do with building a city and including the following services: community service buildings, airport, streets, public transportation, utilities and places for the Sims to live. The team that had the most items in their city won the competition.
- We awarded the prizes and cleaned up the room.
- Below is a picture of the winning solo team and the winning duo team.

Written by: Jamie Poston	**Checked by:** Nadya Dooley

Tuesday, 07/09/13, 5:00 pm - 7:00 pm

Meeting #2: Juggle and All You Can Eat Meeting

Discussion Team

Attending: Jamie Poston, Price Poston, Logan Peterson, Nadya Dooley **Mentors:** Patti Poston, Wade Peterson

Goals:

- Team Name
- FLL Camp Dates

Tasks	Reflections
Team Name	We brainstormed team names and came up with a few that we thought everyone would like. The Enterprisers was the number one pick
Finalize Dates for the 2 FLL Camps	We picked August 26th and 27th
Ate Pizza	Yum

Team Name

- The Enterprisers
- Enterprisers
- Lords and Ladies of the Ring

Camp:

- Dates - Monday and Tuesday - August 26th and 27th
- Tables - Mentor Wade will provide
- Chairs - Renting Chairs
- Snacks - Coach Patti will buy

Ate/Juggled

- Ate Pizza
- Practiced Juggling

Written by: Price Poston	Checked by: Jamie Poston

Sunday, 07/28/2013, 5:00 pm - 6:00 pm

Meeting #3: Future plans

Discussion Team

Attending: Nadya Dooley, Jamie Poston, Price Poston, Cole Kenny, Logan Peterson

Mentors: Wade Peterson, Patti Poston, Ming Dooley

Tasks	Reflections
Discuss financing	We came up with a broad variety of ideas, from more camps to making and selling merchandise
Talk about outreach	We discussed the radio show, website, kickoff event, camps, and going to India
Plan upcoming meetings	We planned several Skype meetings, as well as a couple dates that Nadya and Ming will fly up on

Making Money

- We started the discussion by creating a general budget plan and immediately agreed that the main way we can finance the team is by having more FLL camps-- these camps are also a great outreach opportunity and good teaching experience for all the team members
- It was decided that there will be several camps in January, and possibly one in October
- Next, team members started coming up with smaller scale ideas. It was proposed that we could create and sell Star Trek merchandise, such as Lego mini figures, artwork, or possibly action figures created using the 3D printer we have access to
- Jamie proposed the idea of selling Hex bugs, as Logan's family owns a toy store and can look into getting them for inexpensive
- We also decided we could start a kickstarter, and Cole volunteered to make a video for it

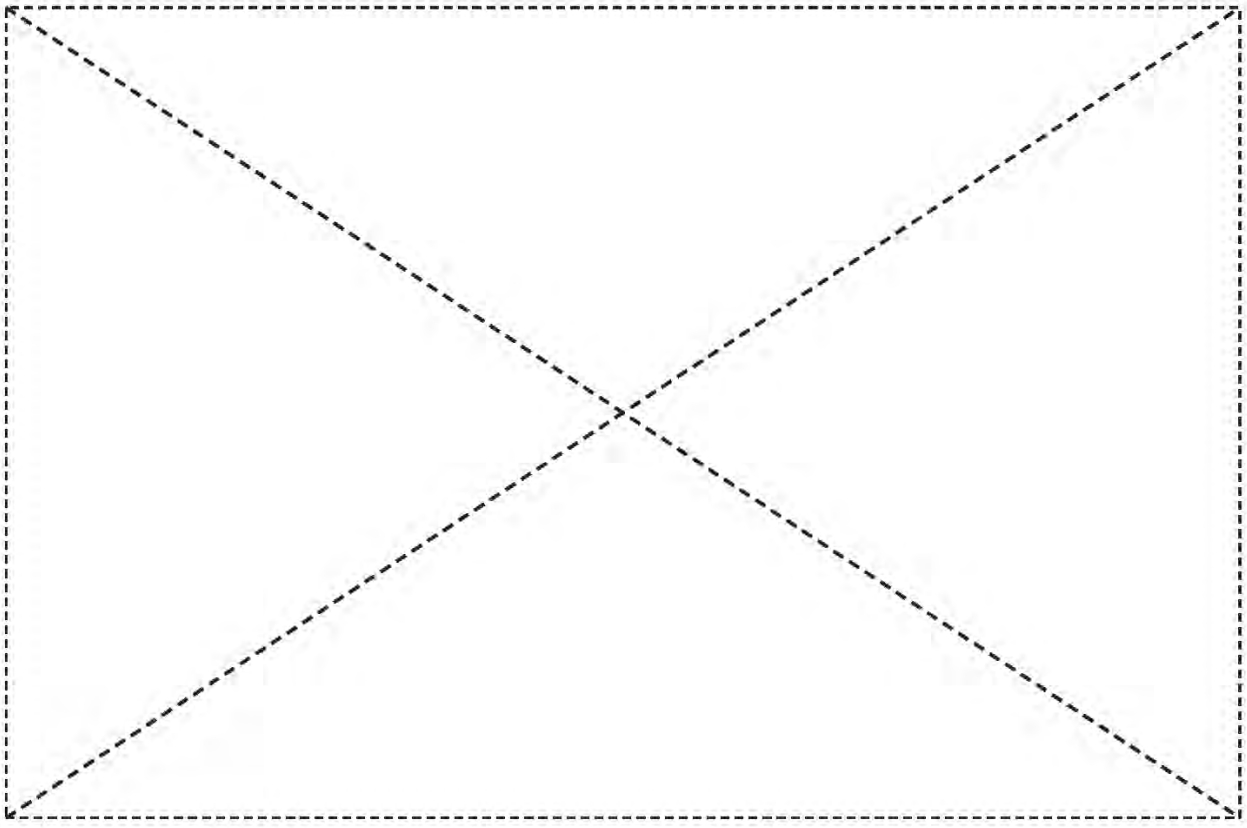
Reaching Out to the Community

- To begin with, Nadya and Jamie are going to start work on the radio show soon. We decided that the first show is going to be September 2nd, so we can get everyone hyped about kickoff, and broadcasts will follow every two weeks
- Next we discussed the website, and it was agreed that Cole will redo it to make it accurately reflect the new changes in the team. The goal is that he creates a website that can be given to anyone to teach them about FIRST, tell them about our team, or allow them to view our progress and history
- Possibly the largest opportunity for outreach available to us is one presented by Nadya's trip to India in December. As she's been there multiple times before, she knows a lot of girls that live in childrens homes, and would love to visit them with some NXT's and talk to them about robotics-- a free camp!
- Nadya and Ming will bring their NXT kits to the meeting after kickoff, and the team will build robots that can be easily broken into several parts and then reassembled. The girls at the childrens home will be able to pick different parts and create their own robots, then be taught basic programming and compete against each other

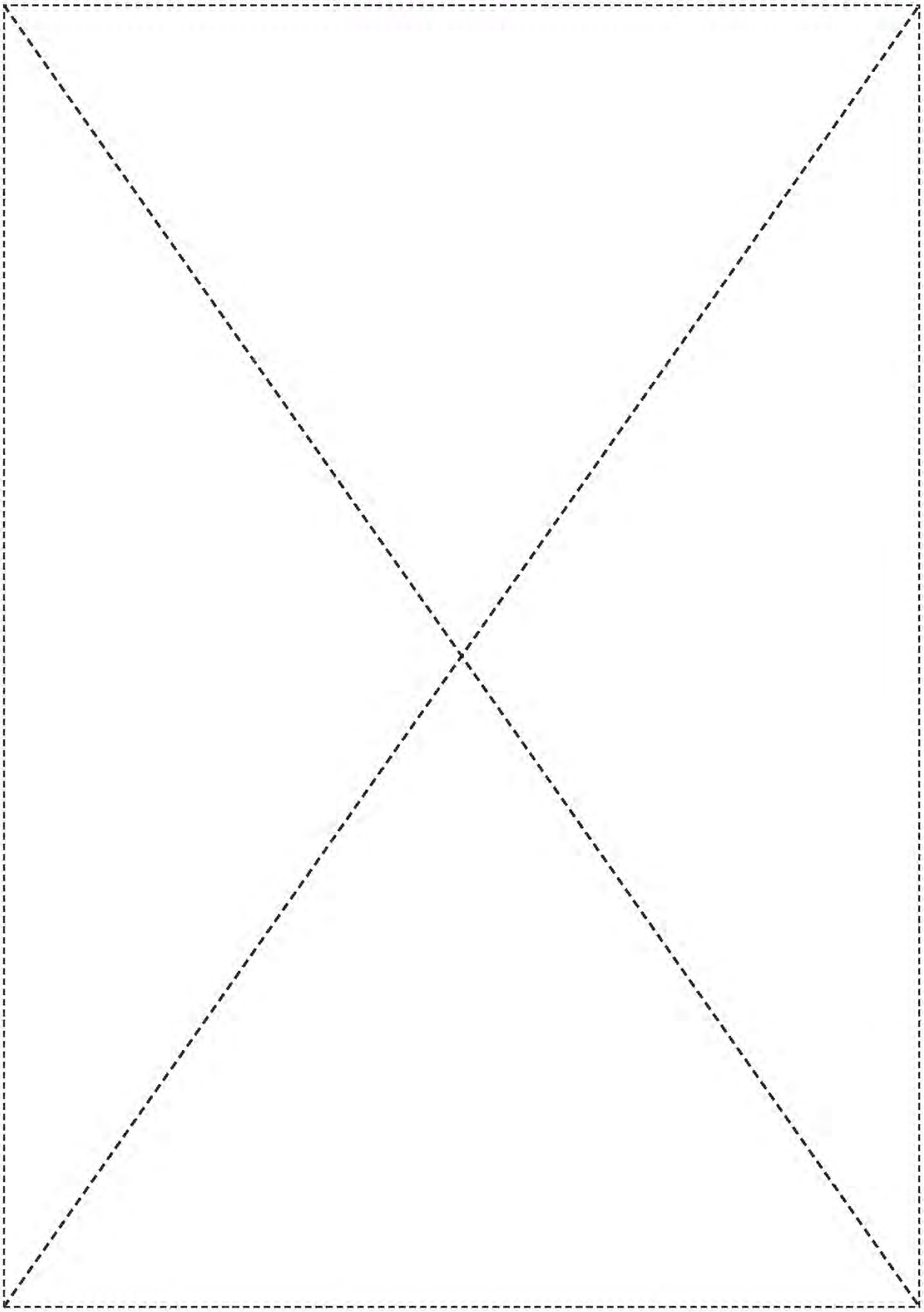
- Next the team discussed kickoff. We're going to have a live unveiling of the challenge, and talked about ways we could make it a fun event
- We decided to play several games: Ring It Up with blindfolded humans as the robots, Mafia, and Reverse Charades
- As the team wanted to be able to hand out buttons at tournaments, we decided that using Nadya's button machine, we can create Star Trek communicator buttons
- It was also decided that everyone's costumes should be ordered or made by kickoff, at which point we'll take our team picture
- It was suggested that we could create a unique robot charger, either solar powered or involving somebody bicycling to create energy

Meetings and Journals

- We planned the dates for our next few meetings, with Skype meetings on August 11th and 25th, and the first next meeting with everyone together on September 7th
- We then assigned engineering journals to different team members:
    - Nadya - this meeting
    - Cole 1st meeting
    - Logan - Camp (this one)
    - Jamie - UNR outreach
    - Price - Juggling meeting
- Everyone left the meeting feeling accomplished and ready to take on the tasks assigned to them



Written by: Nadya Dooley	**Checked by:** Jamie Poston



Monday and Tuesday, 07/29-30/13, 9:00 am - 4:00 pm

Event Report: Our First FLL Camp Event Report!

Outreach Team

Attending: Nadya Dooley, Jamie Poston, Price Poston, Logan Peterson, Ciara Dooley, Sam Santillan

Mentors: Patti Poston, Ming Dooley (Monday), Wade Peterson (Tuesday)

Tasks	Reflections
Arranged for Learning Express to process registration and fee collection	All went smoothly.
Conduct two full day FIRST FLL Camps – Session #1 was 9-12 year olds, Session #2 was 11-14 year olds	We enjoyed working with kids, it was fun. The class was so popular the parents were asking for more! We had to change the age range for both sessions to 9+ in order to fill them.
Rentals - 18 folding chairs	We really liked using All Occasion Rentals!
Collected donation prizes from Learning Express and Patti Poston	The prizes were a hit with the kids, especially the woopie cushions!

First FLL Camp

We hosted an FLL camp where we taught the attendees how to build and program a NXT robot. They completed simple challenges such as moving forwards, bumping into an object, and driving in a square. In the latter half of the day, we had them make robots to compete in a stripped down version of the Body Forward challenge with the challenges made easier and worth more points.

Summer 2013
LEGO™ MINDSTORMS ROBOTICS CAMP

Hosted by FTC Team #6024 the Enterprisers
Sponsored by Learning Express Toys

FIRST LEGO League (FLL) Robotics Camp
4th to 8th Grades

Ages 9-14 Kids will have an opportunity to work in small robotics teams and design, build, program and compete in a challenge using the FIRST™ LEGO™ challenge mission, Body Forward. These highly involved camps use the LEGO™ NXT Mindstorms™ robots to introduce robotics to aspiring engineers and scientists. There are two sessions to choose from:

Session #1: Monday, July 29th — 9 am - 4 pm for ages 9 - 12
Session #2: Tuesday, July 30th — 9 am - 4 pm for ages 11- 14

Location: Learning Express, 197 Damonte Ranch Pkwy
Reno, NV

- Camp introduces the FLL program and is taught by Patti Poston, FLL Head Judge and with helpers from FIRST Team #6024.
- All proceeds from the camp will go to FIRST Team #6024 to help with costs for their 2014 tournament season.
- **Cost**: $40/child per session for early registration. $10 discount for additional siblings. $50/child after July 26.
- Snacks provided. Please bring your own lunch and a water bottle.
- For more information on FIRST, visit www.usfirst.org

Payment: Register and pay at either Learning Express location, with check, cash, or credit card, by July 23rd. Payment is non-refundable after July 26th.
For more Information contact: Patti at PPoston@mm.st or Suzanne at Suzpete12@gmail.com

Register early!
Class sizes are limited.

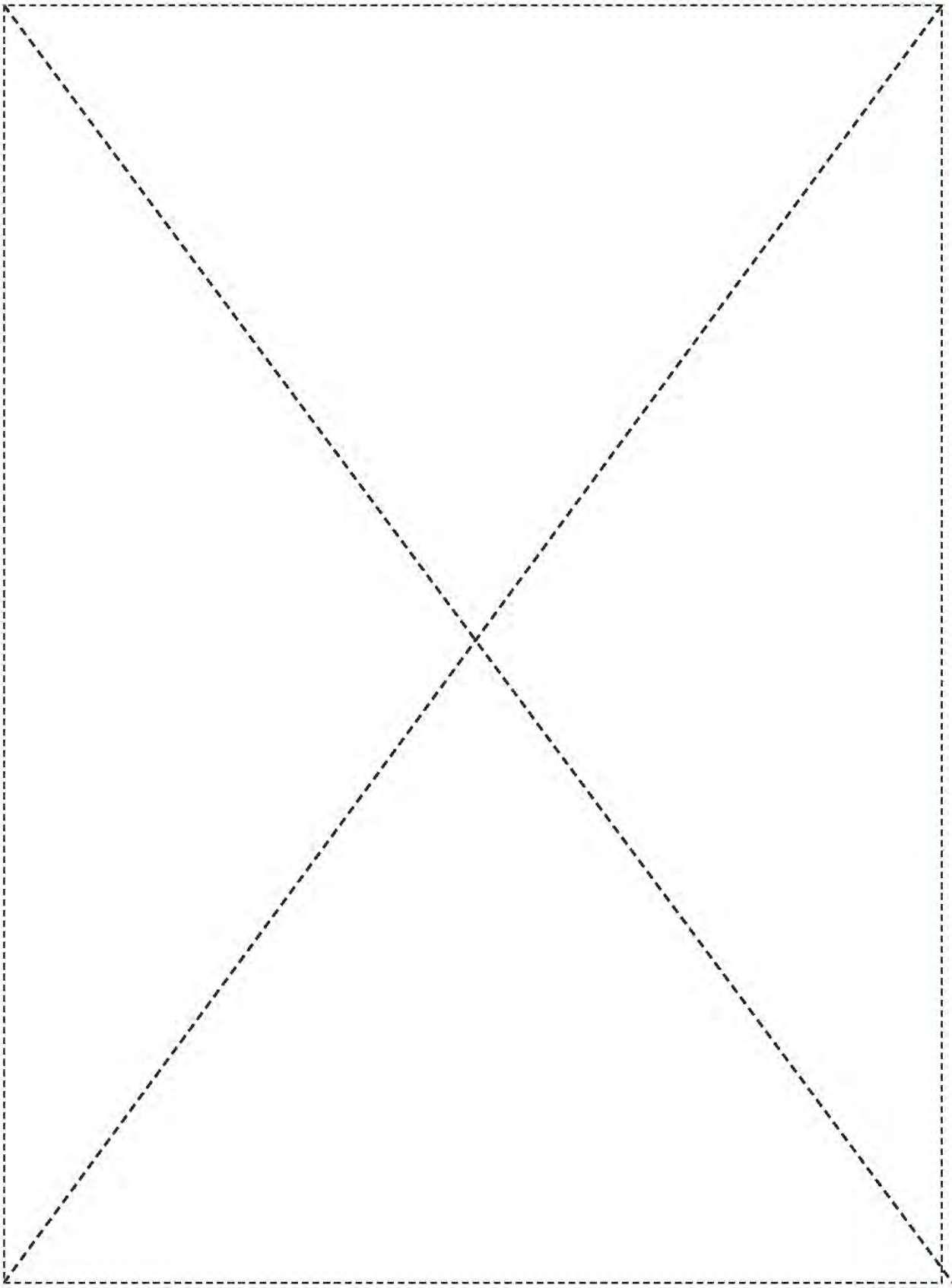
FIRST NV

Team 6024, Enterprisers is an educational FTC team & FIRSTNV is an official FIRST partner. LEGO™, NXT Mindstorm™ are registered trademarks of the LEGO Corporation. FIRST™, and FLL™ are registered trademarks of FIRST.

www.firstnv.org

Agenda

Time	Activity	Equipment
9:00 am	Campers arriving - assign to teams and have them sort kits and make a Lego item using a part from each box, use parts	Robots, Kits, Team names
9:15 am	Introductions, introduce FLL, Make team names, Scavenger Hunt	Scavenger Hunt Sheets, Cardstock
9:30 am	Build Mini Bots and Start Challenges	Robots, Computers, List of Challenges on Board, Tape, Cardstock, Markers
10:30 am	Break	Snacks
10:45 am	Complete 4 Challenges	
12:00 pm	Lunch	
12:30 pm	Introduce FLL - Body Forward, explain point system	Body Forward Tables, Score Sheets
12:45 pm	Teams work on Body Forward Challenge	
2pm	Break	Snacks
2:15pm	Finish Working on Challenge	
3pm	Competition	
3:45pm	Awards and clean-up	Certificates and prizes



Monday, 07/29/13

Website Progress Report 2
Personal Progress Report

Attending: Brandon Villar **Mentors:** Carol Villar

Tasks	Reflections
Research formats for the Functional Requirements Specification	There are lots of samples out there
Look at other team's websites	I wonder what the other teams have done
Create Functional Requirements Doc	This is the hardest part, taking the best from the samples
Fill out Functional Requirements	This will be the hardest part
Insert parallax scrolling Star Trek scene on front page	This will look way cool, fun stuff!

Functional Requirements Needed

- In order to figure out what we want to put on our website, we need create a Functional Specification
- Why do we need this document? Researched
  - http://philosophe.com/design/requirements/
  - http://wordpressdesignshop.com/functional-requirements-before-web-design-when-building-a-new-website/
  - http://www.usabilityfirst.com/about-usability/website-design/
  - http://stackoverflow.com/questions/171653/examples-of-requirement-documents
- Googled functional design template examples
- Selected 4 documents
  - Princeton Guide to Creating Website Information Architecture and Content
  - SAMPLE FUNCTIONAL REQUIREMENTS DOCUMENT FOR WEB SITES THAT INCLUDE INFORMATION ABOUT BROWNFIELDS PROPERTIES Prepared for: Office of Solid Waste and Emergency Response U.S. Environmental Protection Agency Technology Innovation Office
  - Website Requirements by Kerr Solutions
  - Functional Requirements Specification v.1.0 by PointBWeb

Review other Team websites

- http://www.team1538.com/ Holy Cows in San Diego - notice they are also selling some items to help with their fundraising. We could sell light bulbs and Hexbugs.
- http://www.fusd1robotics.org/ The events and calendar on the first page is pretty interesting. Plus they list their FLL Camps they are doing (They charge $100 per half day! wow)

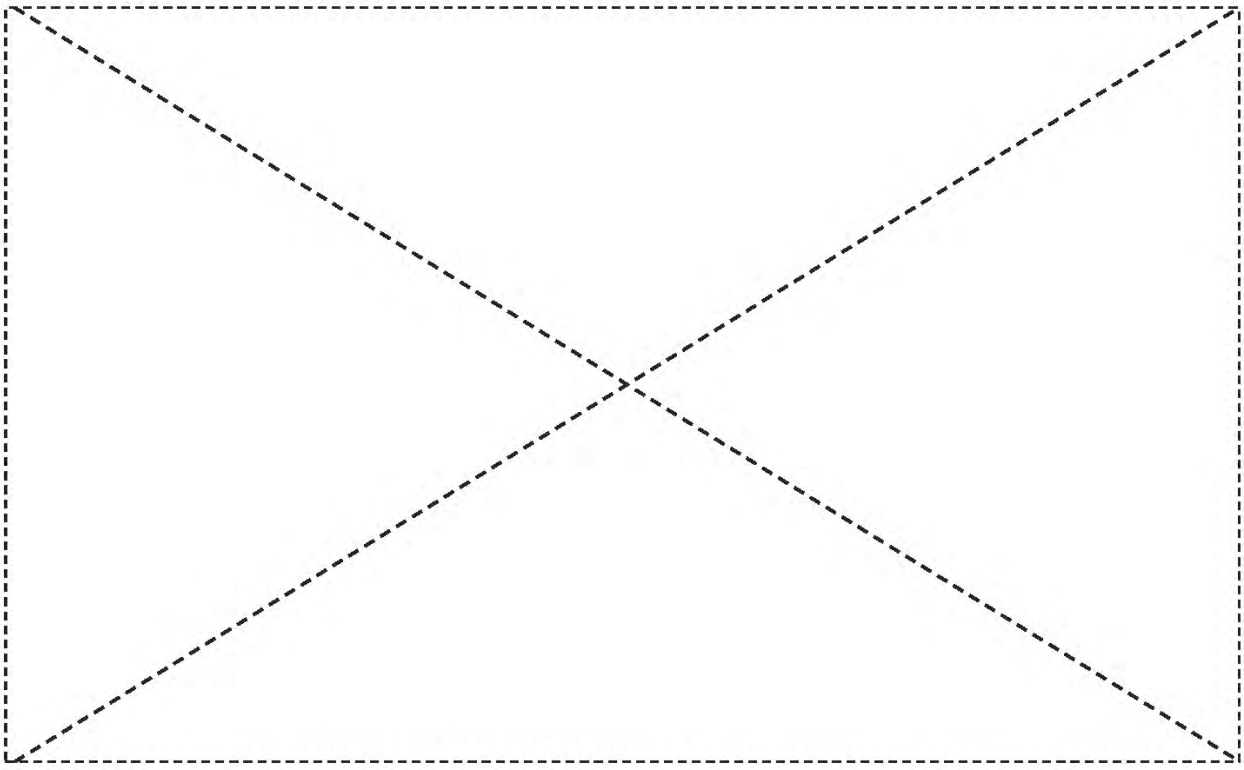
- http://coastalquarks.org/home.html This site was Nadya's team a few years ago.

Create Functional Requirements Doc

- Review all links above
- Create a simple template
- Fill in the template
- Present to team

Parallax Scrolling Star Trek Scene

- Incorporate code and design into website



Written by: Brandon Villar	**Checked by:** Cole Kenny

Thursday, 08/09/2013, 11:00 am - 2:00 pm

Meeting #4: Captain's Log!

Outreach Team

Attending: Jamie Poston, Nadya Dooley **Mentors:** None

Goals:

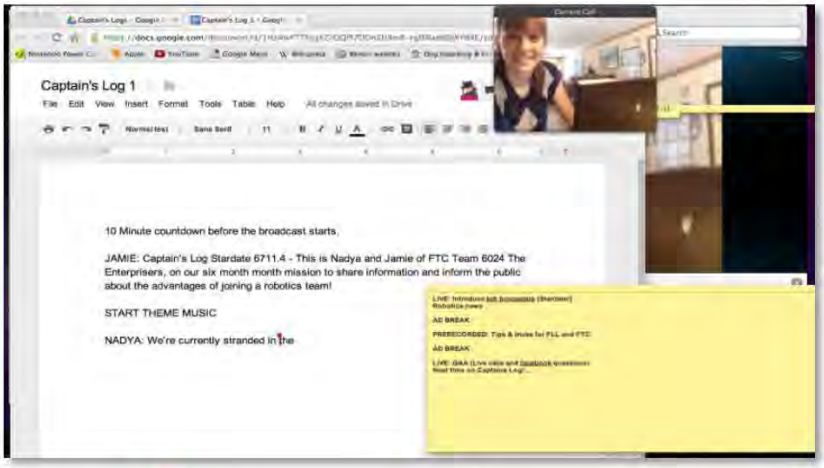
- Come up with a general plan for the radio show
- Write a script for the first show
- Create a name for the show

Tasks	Reflections
Decide on what different sections will comprise the radio show	We created a general template
Create a script for the first broadcast	We successfully drafted a script
Think of a name	We decided on Captain's Log!

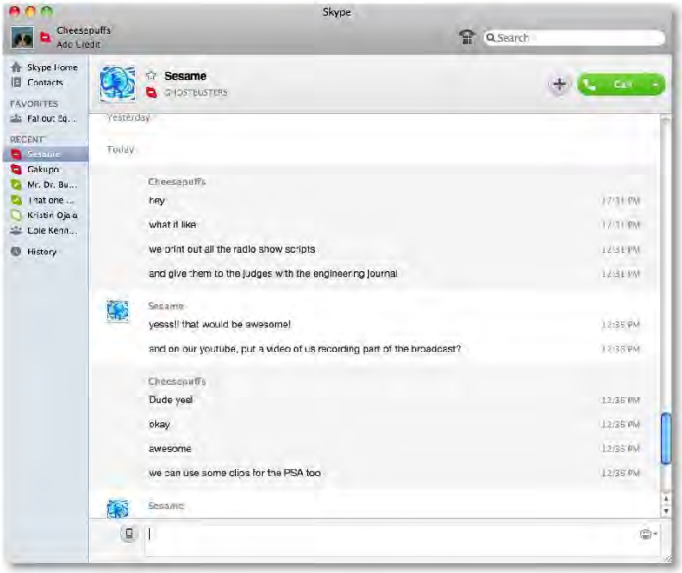
Create a general layout for the radio shows

- Jamie and Nadya, the team members in charge of the radio show, met over Skype to discuss it--their first task was to plan the content for the shows
- Firstly, they decided to have a mix of live and prerecorded sections to make the show flow easier and have it be less stressful for the presenters
- Going off previous ideas, they agreed that since there are several experienced members on the team with knowledge they would love to share, it would be good to have a section with tips for other FIRST teams.
- They discussed having live callers on the show to ask them questions, and then decided that this would also be a great way to connect with the engineering community; they decided that it would be a good idea to bring engineers onto the show and interview them. If possible, other FTC -- or even FRC or FLL -- teams could be brought onto the show and talked to.
- They decided that to keep the show interesting, there could be prerecorded comedy advertisements, as well as puns and references to star trek and other shows constantly thrown in
- The diagram shows the final results of what they came up with:

Write the script for the first show



- After deciding on what kind of content the show should contain, the team members set to work writing the script for the first show
- They took use of Google Docs and Skype, creating a shared document so that even though they were hundreds of miles away, they could discuss and edit the script at the same time
- They decided that for this broadcast, the tips & tricks section would be on Team Roles-- the importance of each team member having at least one distinguished job on the team, and splitting the work evenly



- The first Engineer on the show will be Jim Poston, a traffic engineer, team mentor, and FTC referee
- They decided that in the "newsflash" section, not only will there be robotics related technological advances in the real world, but they can include FTC updates on game rules, and talk about what's going on in the FIRST world
- After writing the script, they decided it would be a good idea to print out copies of all the scripts to hand in to the judges with the engineering journal-- so look for the first script in the "Captain's Log Collection"!
- They talked to Sam Santillan, a friend from RAWALA (FTC team 6074) who said he would like to help put together the prerecorded parts of the broadcast →

Naming the Radio Show

- Not a lot of discussion was needed for this before a name was picked
- Captain's Log!

Written by: Nadya Dooley	**Checked by:** Jamie Poston

Sunday, 08/18/13, 7:00 pm - 8:30 pm

Meeting #5: Skype Meeting

Discussion Team

Attending: Jamie Poston, Nadya Dooley, Cole Kenny, Price Poston, Brandon Villar **Mentors:** Wade Peterson, Patti Poston

Goals:

- Discuss upcoming events
- Talk about the team website
- Discuss the radio show
- Pick new treasurer

Tasks	Reflections
Pick treasurer for the new season	Cole volunteered to be treasurer
Talk about upcoming events	We discussed future fundraisers and camps.
Discuss the team website	Members have to send Brandon/Cole personal bios for the website, and Nadya and Jamie are writing introductions to our team and FTC in general.
Talk about the Radio Show	Members will record parts of the ads by Thursday and send them to Nadya. Jamie is going to write up a paragraph describing the Radio show by Tuesday.

New Treasurer

- Mostly what the treasurer will be doing is keeping a record of funds raised and spent, and report to the team what the current financial situation is. Basically they're in charge of making sure we have enough money for whatever we might do.
- Cole volunteered to be treasurer!
- He will make up an excel spreadsheet for the budget, and share with the team via google drive.

Upcoming Events

- The most important event that was coming up is the FTC kickoff on September 7th, which our team will be hosting at the Western Nevada College.
- We will get there a little early to setup the new field and projectors to broadcast the live kickoff. Each team member will also bring a food item to share for the event, like a potluck.
- We also decided that after the kickoff, and after we break down the field and clean-up, that we can go to the park afterwards to 'team bond' a little before the huge whirlwind of the season starts.
- The day after on September 8th, we will be joint fundraising with two FLL teams from Eagle Homeschool Co-op at a carwash. The funds will be split evenly between the teams, and it will be a great opportunity to connect with some FLL players!

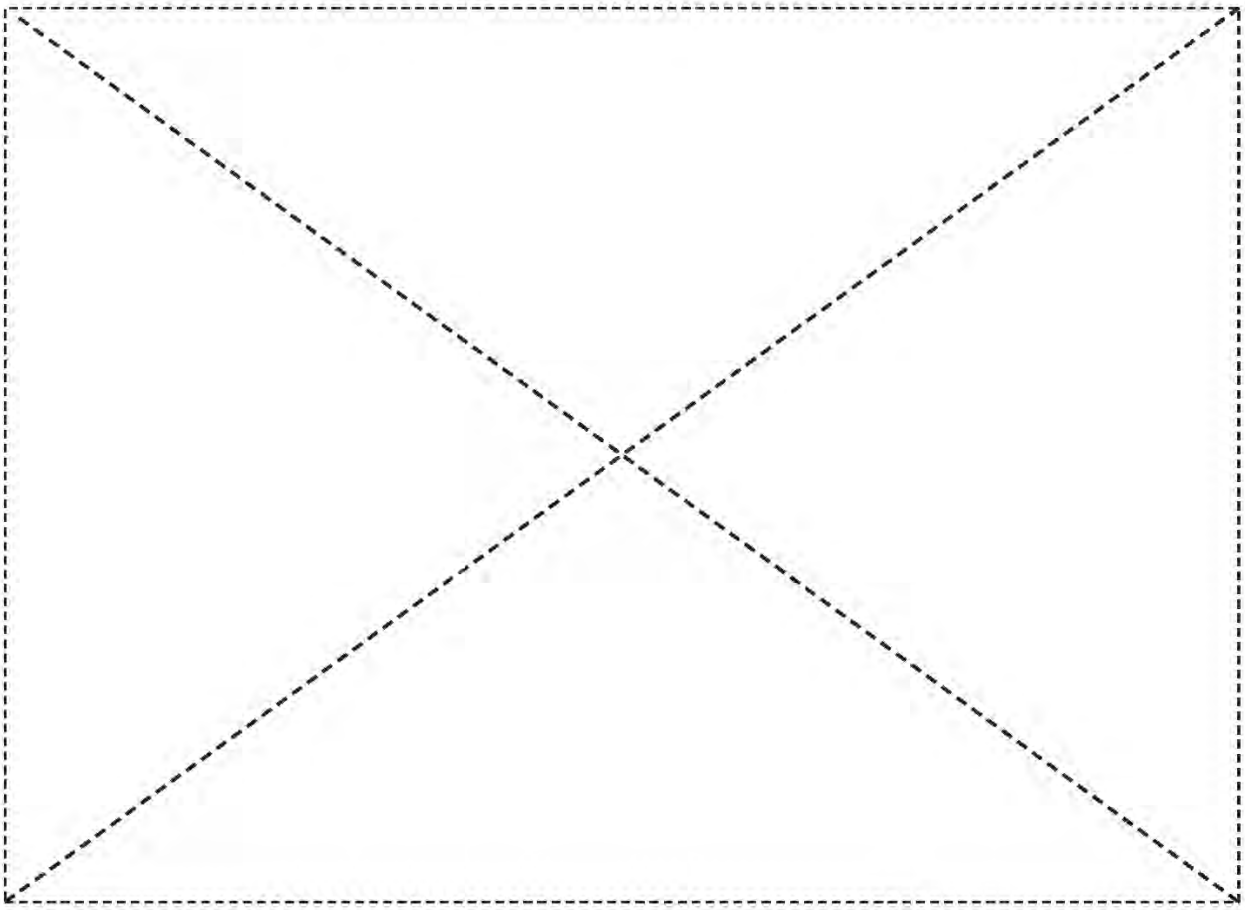
- We also discussed the possibility of a monthly FLL or Jr.FLL. camp to introduce some elementary and middle school students to FIRST robotics. It is still unknown as to where we would host the camp.

Team Website (FTCTeam6024.com)

- Brandon and Cole, who are in charge of the website development, showed the rest of the team some new additions to the website.
- In one section of the website, there is a page for introducing the members on the team, and their different roles. To complete this, each member will have to send in a paragraph about themselves to Brandon or Cole, so they can add it in.
- It was also suggested that the front page of the website will introduce visitors to FTC and the team; Nadya and Jamie will compile some brief information and send it into Brandon and Cole.

Radio Show

- Jamie and Nadya, who are in charge of the radio show, introduced the rest of the team to the general ideas in the radio show. We brainstormed a bit, and a lot of ideas were thrown around.
- To have a bit of variety in the voices in the show, so it's not just Nadya and Jamie talking the whole time, other member will record lines from the show script to be incorporated into 'commercial breaks'.
- The first broadcast is set for Monday the 26th of August.



Written by: Jamie Poston	**Checked by:** Cole Kenny

Monday, 08/19/13

Website Progress Report 3

Personal Progress Report

Attending: Brandon Villar **Mentors:** Carol Villar

Goals:

- Team Name
- FLL Camp Dates

Tasks	Reflections
Fill out Functional Requirements	This will be the hardest part

Website Requirements

Basic Website Areas

All pages
Menu area – logo, menu items, login
Footer –Sponsors (and links), email us, other websites, Facebook, YouTube,
Body-format depends on page
Items

- Home page – graphic, briefly describes the team
- Calendar (clicking on event opens event details) and events list (links to calendar, allows you to subscribe to google calendar or webcal) – includes date/time, info about the event
  Event Types
  - Team Meetings – with minutes
  - Outreach – flyer or relevant links for event
  - Fundraising – flyer or description
  - FTC – what is FTC description, links to FTC website, FTC forums, useful info about FTC
  - Scrimmages
  - Tournaments
- About Us/Our Team - Members & Mentors – brief bio, responsibilities/positions
- Galleries & Video- pictures/video/media
- Sponsors – Logos with links
- Fundraising – Fundraising activities (non-event) – letters sent, responses, amount raised (including events)
- About FTC
  - What is FTC?
  - 2013-2014 Challenge
  - Links to forums
- Contact Us form
- Tips and Hints?
- Design related articles and topics
- Captain's Log Radio show
- Blog -
- E-store?
- Login at different levels

  - Team members (members and mentors) could add pictures?, events, posts, comments
  - Users can only comment on pages where comments are allowed, must be registered to comment
- Search capability

Other areas for discussion:

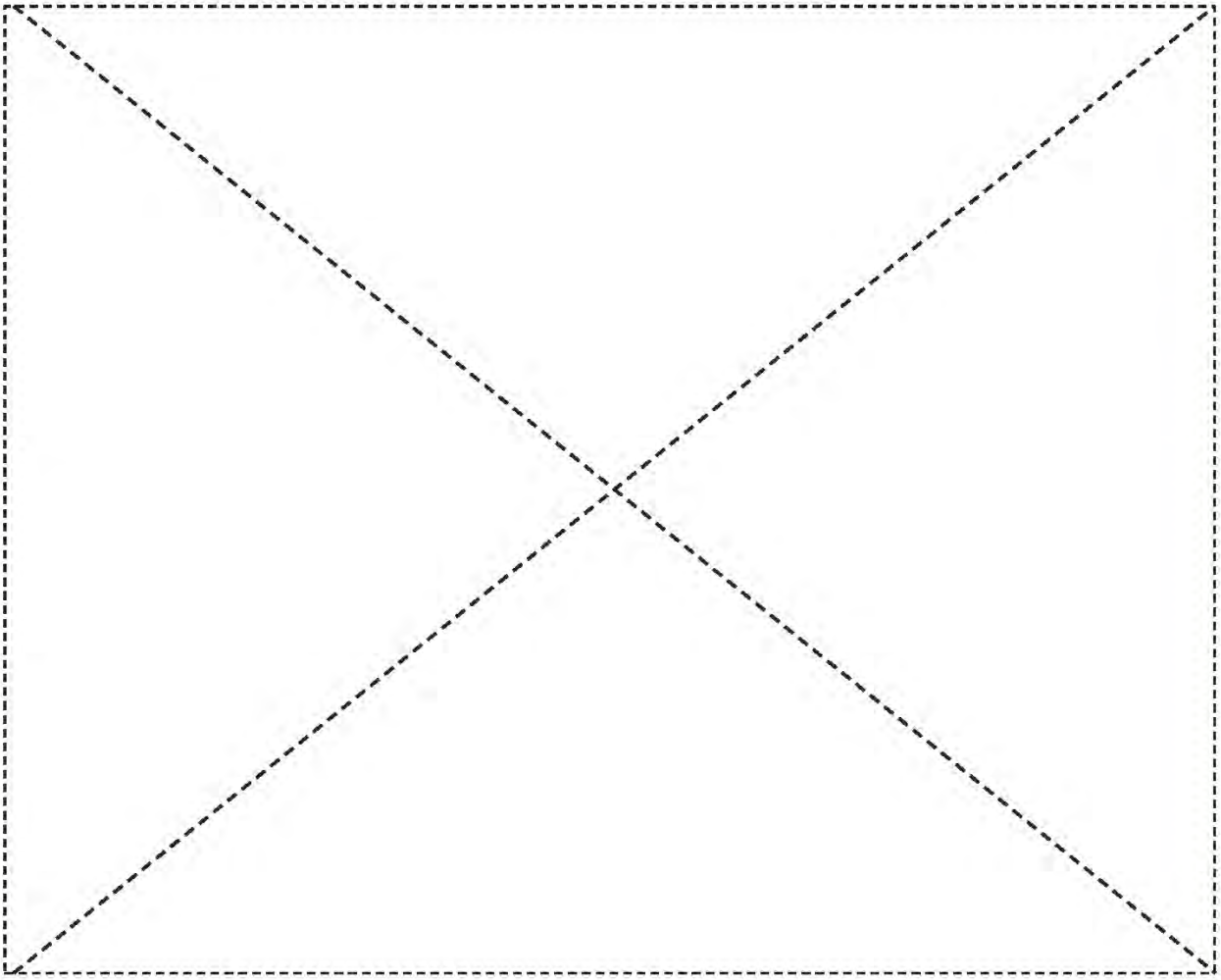
Video: Current web channel FTCTeam6024 http://www.youtube.com/user/FTCTeam6024 - Continue with using it.

Pictures/Galleries – Where will they be stored? Currently in Picasa web album under ftc.team6024 google email. Should they be on the website and not Picasa? Picasa slideshows can be inserted in pages but Flash.

FTC Team Websites

Review these sites for more ideas

- Team 1538 – The Holy Cows - http://www.team1538.com/
- Team 2486 – Coconut Robotics - http://www.fusd1robotics.org/
- Coastal Quarks - http://coastalquarks.org/home.html
- Team Duck Tape - http://www.teamducttape.com/
- The Techno Guards - http://www.technoguards.org/



Friday, 08/22/13

Website Progress Report 4

Personal Progress Report

Attending: Brandon Villar **Mentors:** Carol Villar

Tasks	Reflections
Create project plan for development	The team likes the requirements and signed off so here we go

Project Plan

- A project plan will break out the things that need to be done into steps and estimate how much time each step will take and who is responsible for each step
- See next page

FTCTeam6024.com Project Plan				
FEATURES	**Done**	**Comments**	**Assigned To**	**Due Date**
Menu items				
Home -> Starbase	x		Nadya	23-Aug
Calendar -> Captain's Log	x			
Events List -> Stardates	x			
About Us - Team Bios & Pics -> The Crew	x	Need Pics & Bios	Members & Mentors	23-Aug
Picture Gallery -> Imaging	x	Ongoing		
Videos -> The Holodek	x	Ongoing		
About FTC			Jamie	
Sponsors -> Starfleet Sponsors	x	Ongoing		
Donations	x	Ongoing		
Funds Raised	x	Ongoing		
Ideas with Star Trek Terminology for pages, menus, website			All	
DETAILS				
Body-format are Full Width Page (Home & Calendar) or Page with Sidebar				
Footer –Sponsors (and links), email us, other websites, Facebook, YouTube, etc.				
Sidebar for Pages - Latest posts and Calendar & Events List				

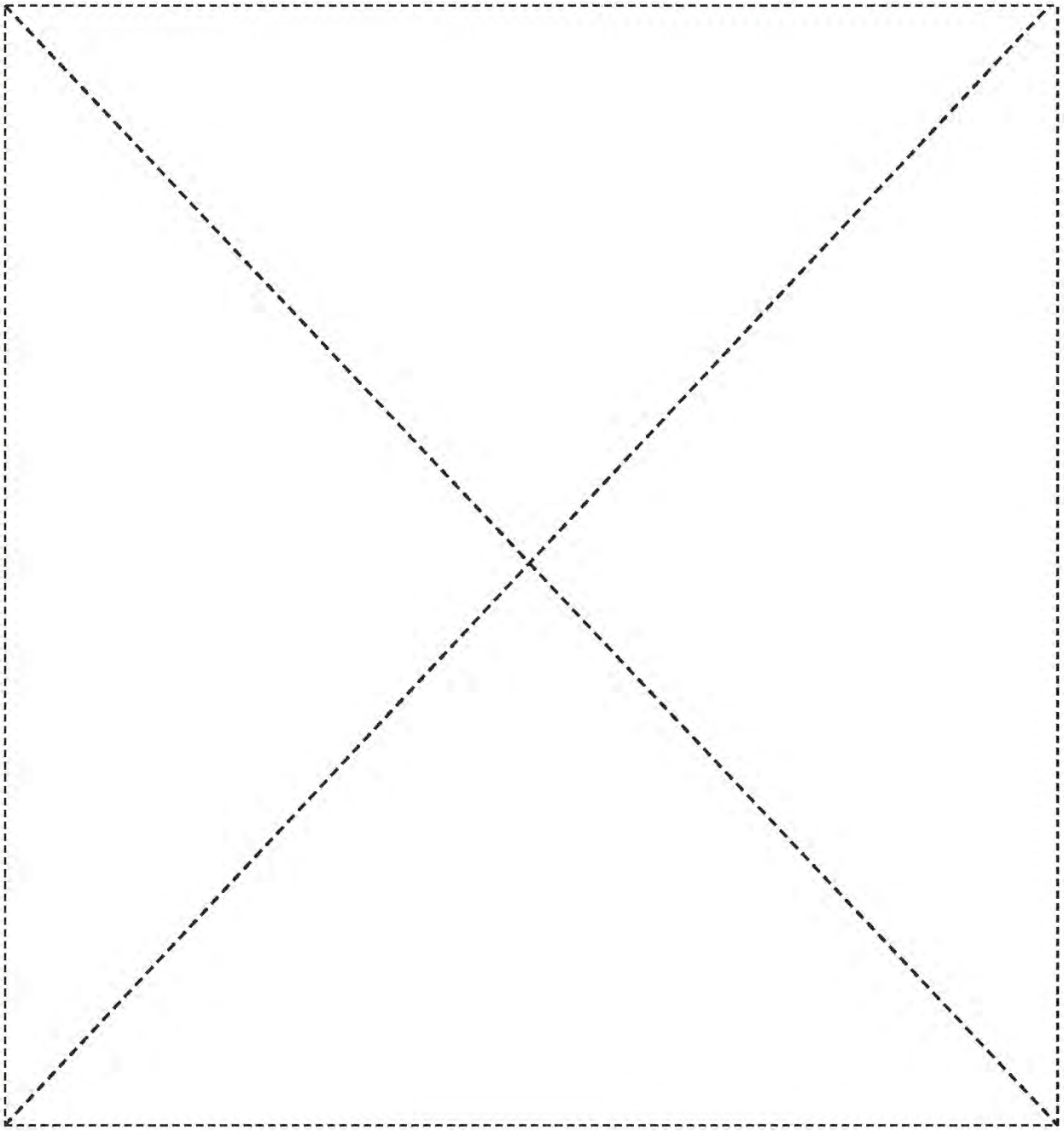
Progress Report

FEATURES	Done	Comments	Assigned	Due Date
Sidebar for Posts & Events: Latest posts and Calendar & Events List				
Website Pages				
Home – graphic, briefly describes the team				
Calendar (clicking on event opens event details) and events list (links to calendar, allows you to subscribe to google calendar or webcal) – includes date/time, info about the event				
Event Types	x			
o Team Meetings – Agenda & Minutes?	x	We are posting Agendas but are we posting minutes? Need to review what's there.	?	
o Outreach – flyer or relevant links for event	x			
o Fundraising – flyer or description	x			
o Camps – flyer or description	x			
- Ability to register for an event from the website				
o FTC				
- Scrimmages	x			
- Tournaments	x			
About Camps - describe camp - from flyer?		Need Word version of flyer for info		
Event List				
- Members and Mentors can create events				
FTC – what is FTC description, links to FTC website, FTC forums, useful info about FTC, 2013-2014 Challenge			Jamie	23-Aug
About Us - Members & Mentors – brief bio, responsibilities/positions	x			
Galleries & Video- pictures/video- YouTube channel/media	x			
- Members and Mentors can directly upload pictures to website				
Sponsors – Logos with links	x	Ongoing		
Fundraising Events List- Camps, car washes, etc. also in calendar	x	Ongoing		
Funds Raised – Fundraising activities amount raised (including events)	x	Ongoing		
Non-event – letters sent, responses,	x	Ongoing		
Contact Us -> Hail Us form	x			

FEATURES	Done	Comments	Assigned To	Due Date
POSTS				
- Members and Mentors can directly upload pictures to website				
Tips and Hints? Posts from Team Members or Mentors				
Design related articles and topics - Posts from Team Members or Mentors				
Post Categories	x	Do we need any more? Delete any?	All	
· Newsworthy				
· CAD				
· Design				
· Engineering Notebook				
· FTC				
· Gracious Professionalism				
· Programming				
· Robots				
· Sponsors				
· Strategy				
· Uncategorized				
· Videos				
· Web Design				
Captain's Log Radio show - Post on website?		how to put audio on the site		
Blog?				
E-store?		?		
Search capability	x			
Notes				
Login at different levels - Admin, Editor, Author, Contributor				
Admin - webmasters				
Editor - team members and mentors				
o Team members (members and mentors) could add pictures?, events, posts, comments				
Contributors - Registered users				
o Users can only comment on pages where comments are allowed, must be registered to comment, comments are approved				

Progress Report

FEATURES	Done	Comments	Assigned To	Due Date
How To Videos				
- Log In/Log Out			Webmasters	
- Upload pictures			Webmasters	
- Create a gallery			Webmasters	
- Create a post			Webmasters	
- Create an event			Webmasters	



Written by: Brandon Villar | **Checked by:** Cole Kenny

Monday, 08/26/13, 7:00 am - 7:20 pm

Event Report: Our First Radio Show!

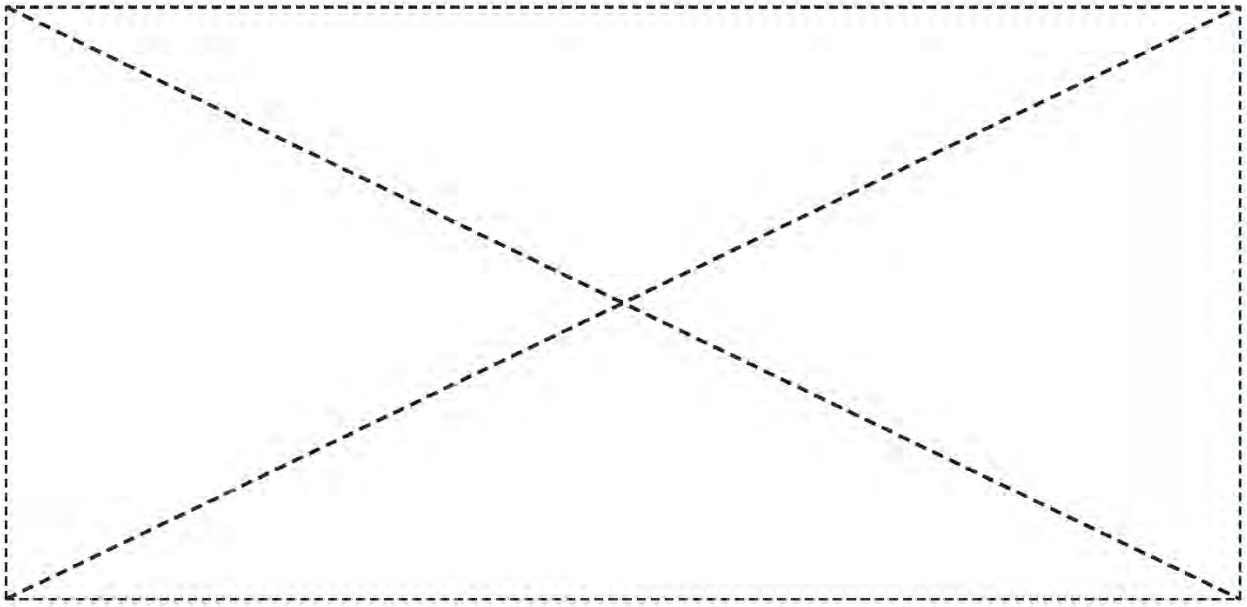
Outreach Team

Attending: Nadya Dooley, Jamie Poston **Mentors:** Patti Poston

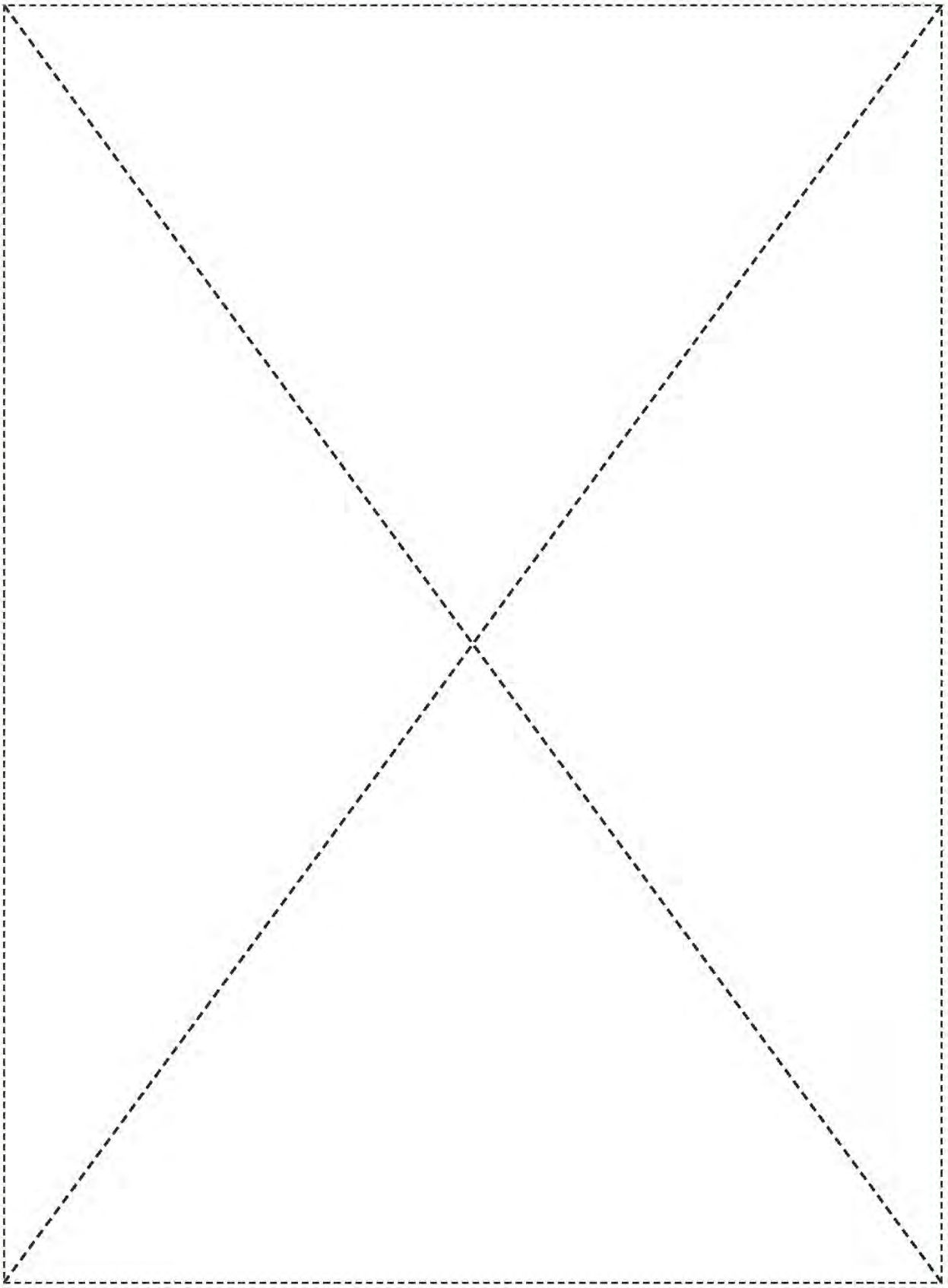
Tasks	Reflections
Host the first Radio Show Broadcast!	We were broadcasting pretty well, until near the end, when we had a bunch of feedback issues, and internet issues, as well as Skype issues. The response from the listeners was great!

First Radio Show

After weeks of planning, Nadya and Jamie went on air with the first broadcast of Captain's Log, a every-other-weekly radio show about robotics and FIRST competitions. The show started out with a live section of new science news, and then cut to a commercial break. After that, we went back on-air with a section on FLL tips for rookie and veteran teams. With one last commercial break, we segwayed our way into a prerecorded interview with Jim Poston, traffic engineer. Around the middle of that interview, we started to get some feedback in the stream. It was kind of like a quiet repetition of what was just broadcasted, but it still was definitely there and annoying. It wasn't until the next section, where we answered questions from live callers, that Jamie figured out the problem. Apparently she had opened the radio page on the same computer that she was using to broadcast, so the broadcast was broadcasting itself! Anyways, the last section was questions and answers, and then we terminated frequencies. The show only lasted 20 minutes, but it felt like forever! Especially when there's technical difficulties. The feedback we got in the comments section was great, and everyone seemed to want another, longer show!



Written by: Jamie Poston **Checked by:** Nadya Dooley



Tuesday, 08/27/2013, 5:15 pm to 7:00 pm

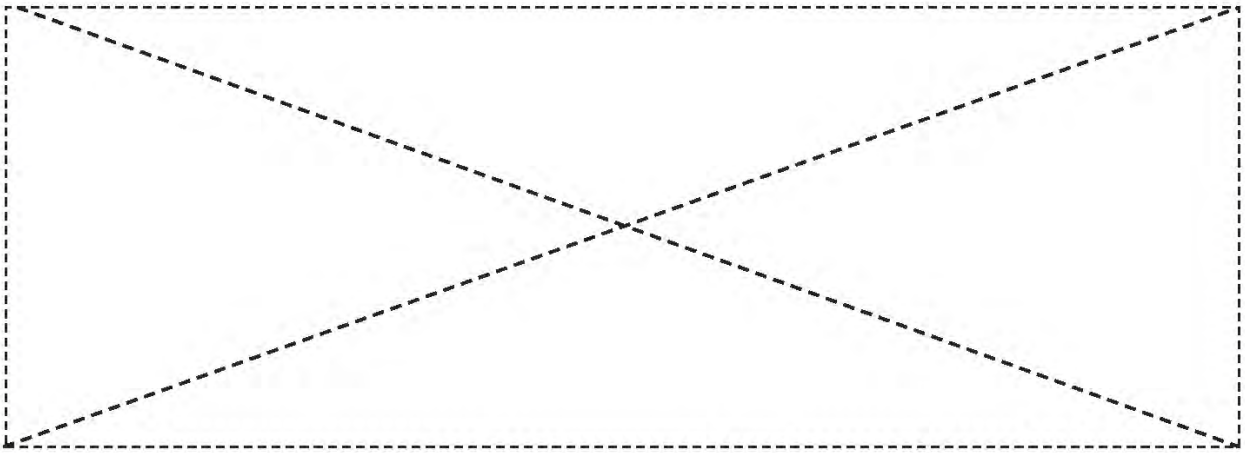
Event Report: Outreach at the NDIA Gold Coast Conference

Attending: Nadya Dooley **Mentors:** Ming Dooley

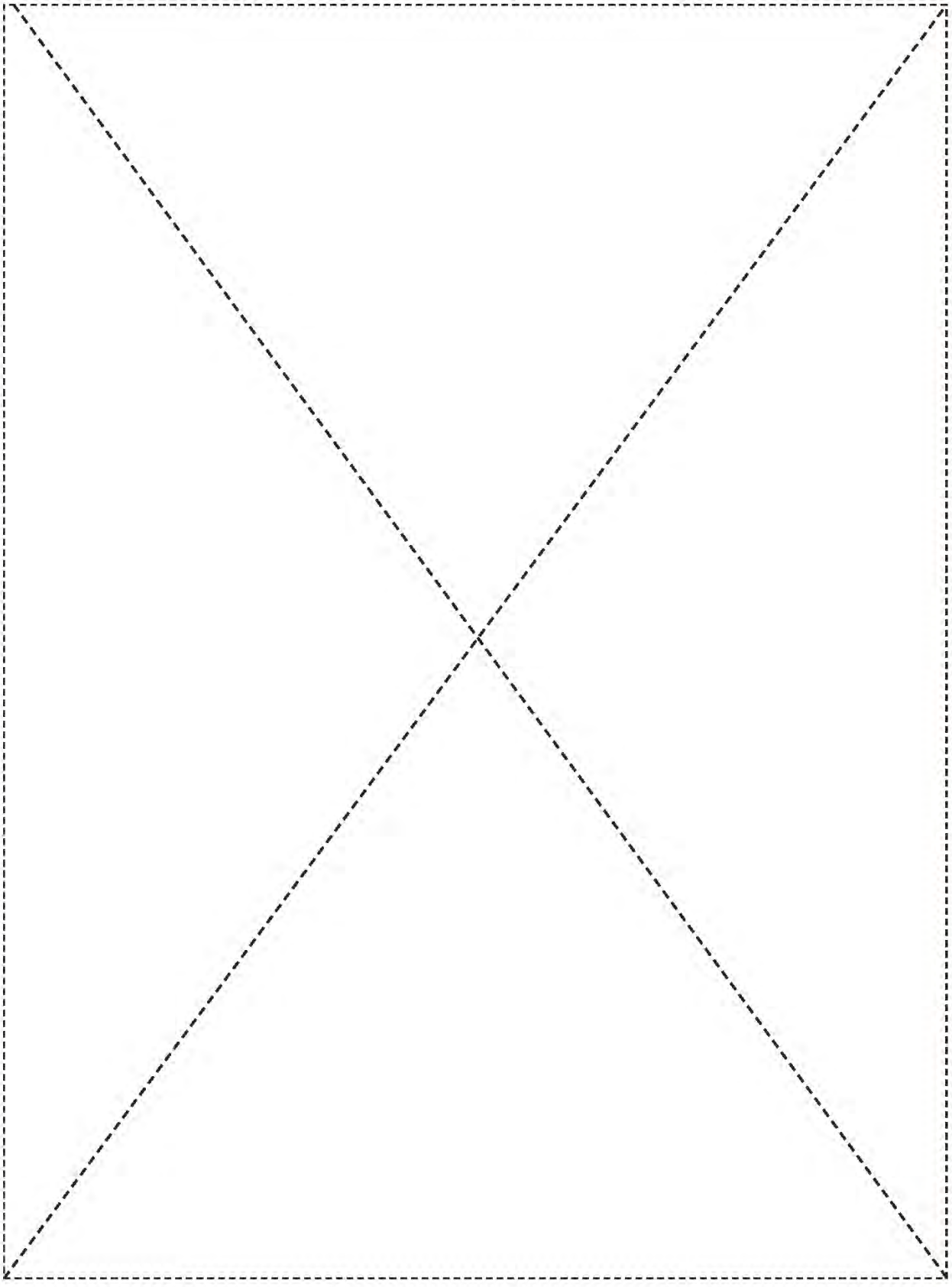
Tasks	Reflections
Attend the National Defense Industry Association's conference	There were a lot of other teams there, and it was a great opportunity to network

Outreach at NDIA

On the 27th, Nadya attended a National Defense Industry Association Gold Coast Conference, a networking event for engineering companies. There were more other teams there than expected, including Shockwave, The Holy Cows, W.A.R Lords, RAWALA, and an FLL team, which meant we could show passerby's multiple robots working together at once. Throughout the day we socialized with the other teams, spoke to engineers, passed out FIRST flyers, and had the opportunity to see some new cutting edge technology being showed off! It was the perfect chance to see what engineers in the workplace are currently doing and talk to them.



Written by: Nadya Dooley	**Checked by:** Jamie Poston



Monday, 08/19/13

Website Progress Report 5

Personal Progress Report

Attending: Brandon Villar **Mentors:** Carol Villar

Tasks	Reflections
Create "How To" videos	So everyone can contribute

Create "How To" Videos

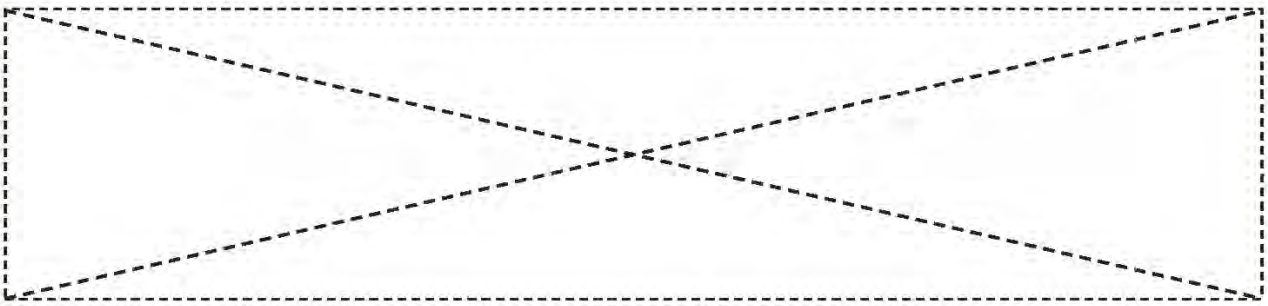
Use Camstudio to record actions for

Team Videos

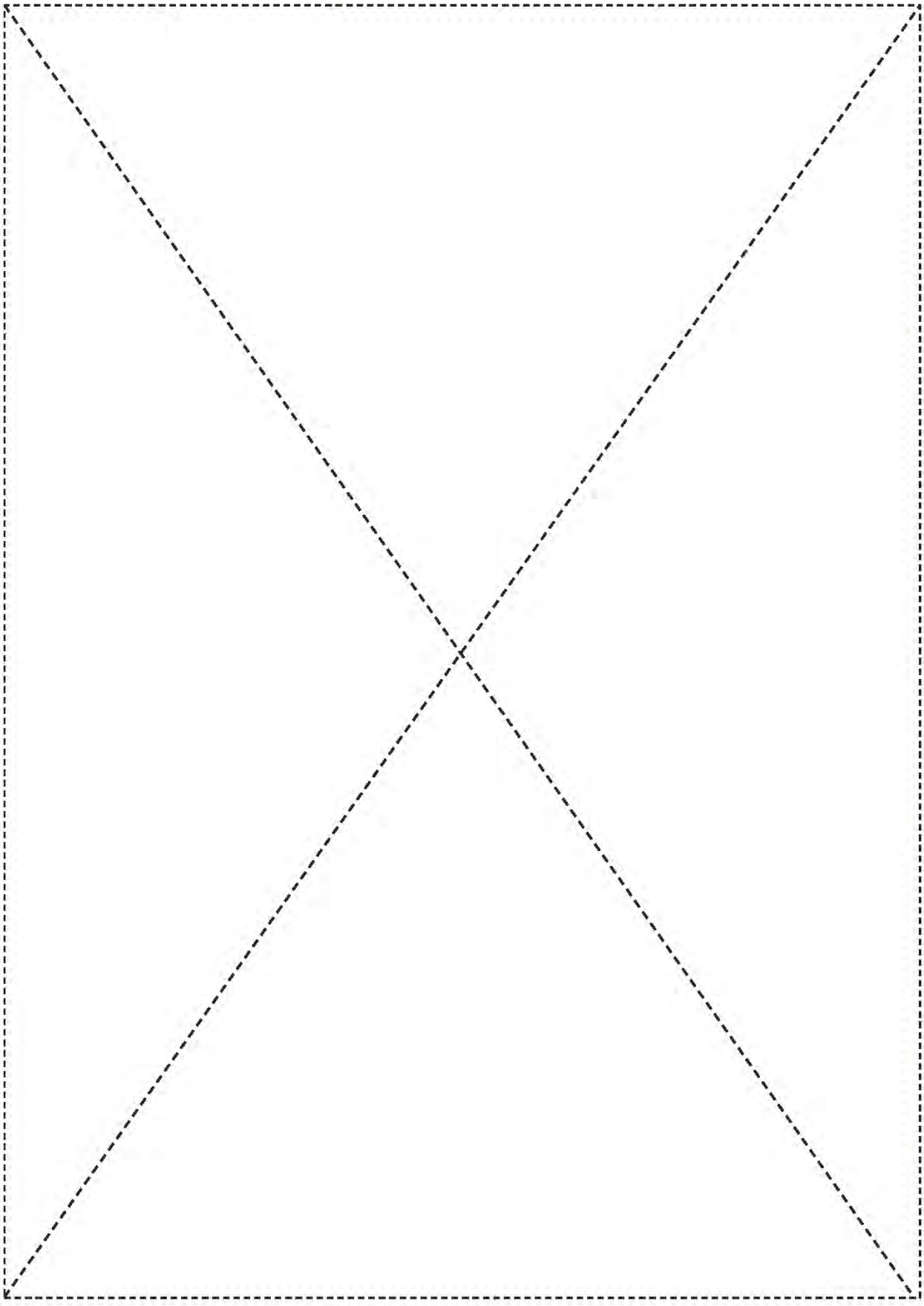
- Login
- Lost Password
- My Data
- Add Post
- Edit Post
- Delete Post
- Add Event
- Edit Event
- Delete Event
- Add Camp
- Edit Camp
- Delete Camp

Admin Videos

- Login
- Add Page
- Add Menu
- Edit Page
- Add Event
- Add Sponsor
- Update Funds Raised



Written by: Brandon Villar	**Checked by:** Cole Kenny



Monday, 09/02/2013, 7:00 pm - 8:00 pm

Meeting #6: Skype Meeting

Discussion Team

Attending: Jamie Poston, Price Poston, Brandon Villar, Logan Peterson, Cole Kenny, Nadya Dooley **Mentors:** Patti Poston

Goals:

- Talk about fundraising (FLL camps and car wash)
- Discuss kickoff
- Discuss people's personal progress

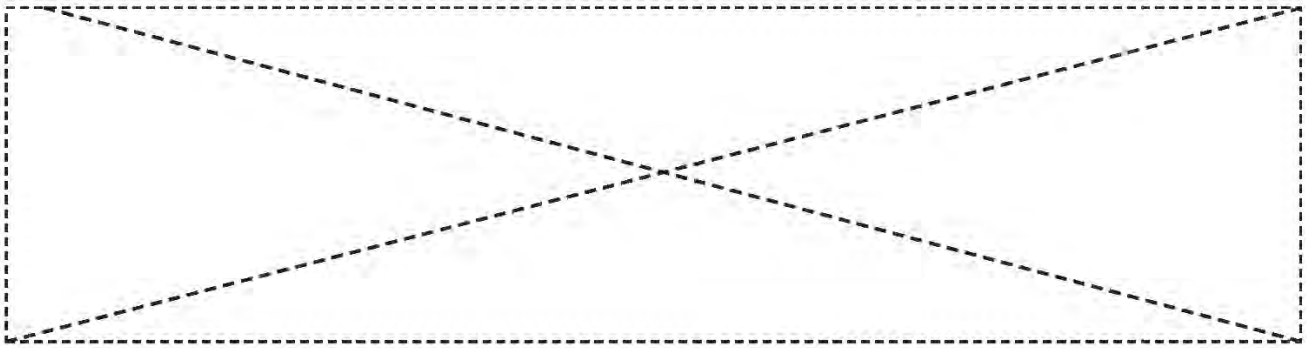
Tasks	Reflections
Talk about outreach progress	We planned dates for FLL camps and finalized details for car wash and kickoff
Discuss website & PTC progress	Send in bios/pictures, put radio show on website, Cole and Price do PTC

Outreach

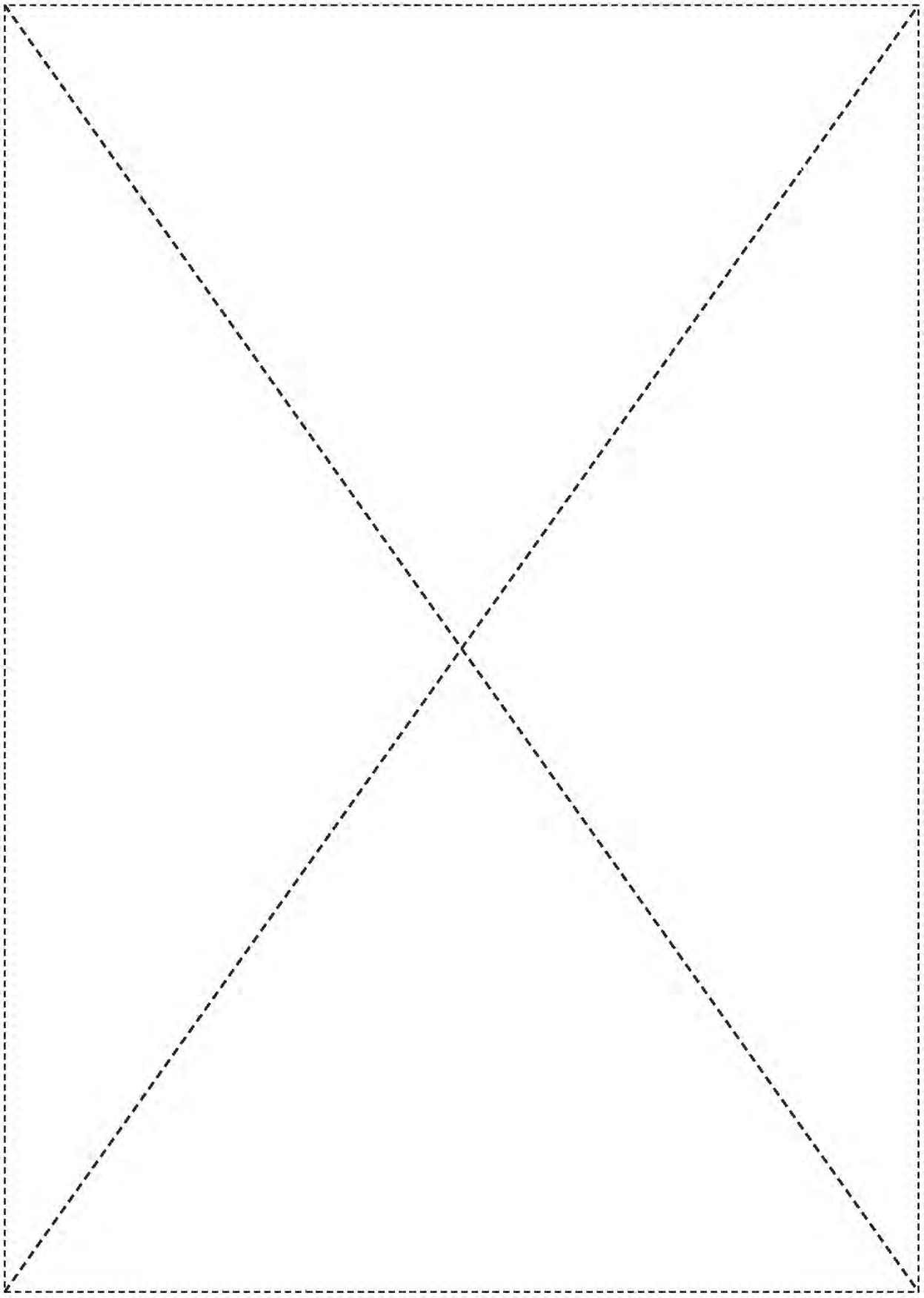
- Planned FLL camps in September and October
- FLL camps are FLL Jr (ages 6-9)
- Decided who is bringing what to car wash and kickoff
- Everyone has to sell tickets for the car wash
- Talked about how radio show went and people need to record ads
- FLL mentoring on 1700 West Zolezzi Lane at 11:45

Website and PTC

- Website needs touch ups
- Need bios and picture for the crew page
- Radio show is being added to site
- PTC is being done by Price and Cole



Written by: Brandon Villar	**Checked by:** Nadya Dooley



Saturday, 09/07/13, 10:00 am - 2:00 pm

Event Report: FTC Kickoff!

Attending: Nadya Dooley, Logan Peterson, Jamie Poston, Price Poston, Alex Selip, Brandon Villar

Mentors: Ming Dooley, Patti Poston, Wade Peterson, Carol Villar, Susan Peterson

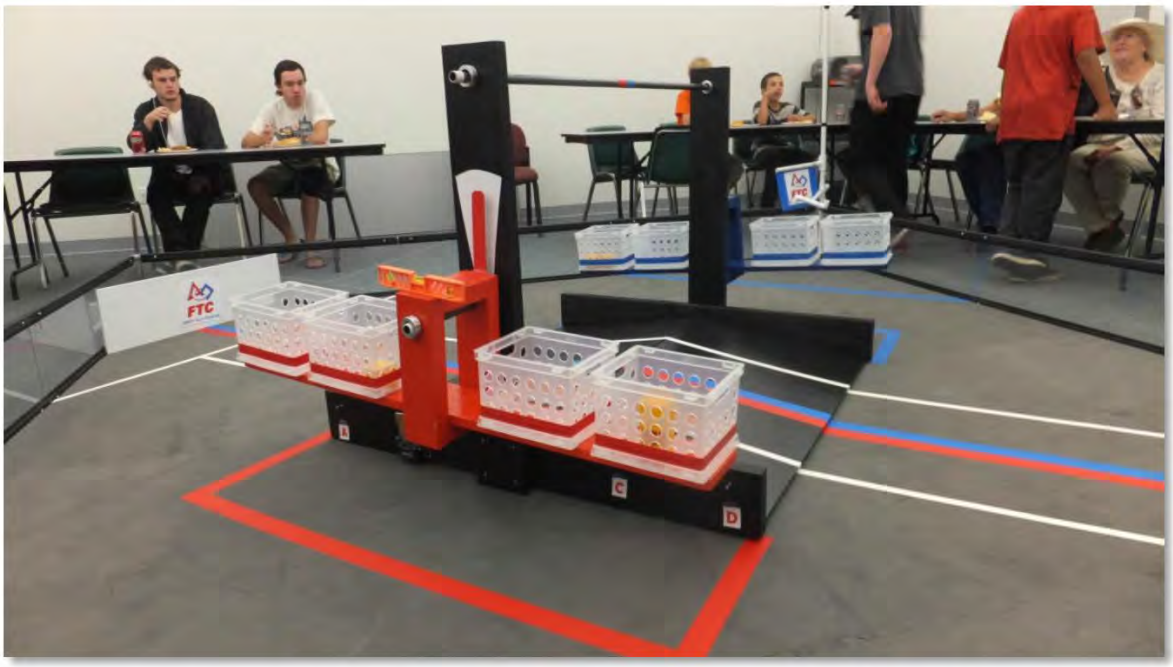
Tasks	Reflections
Host the Nevada 2013 - 2014 kickoff	We unveiled the challenge, met Brandon, discussed FIRST with everyone there, had a tribble raffle, and talked to engineers and other teams for the radio show. It was a success!

FTC Kickoff

Today our team hosted an unveiling of the 2013 - 2014 FTC challenge! We coordinated with Dee Frewert, the Northern Nevada FIRST representative. The day began with sewing tribbles for a fundraising raffle; Jamie and Nadya achieved this by cutting circles of fabric, using dental floss to stitch around the edges, and then pulling them shut. We arrived at Western Nevada College at 10:00 to set up, and after the adults set up the field and the team members put out food and arranged chairs and flags, everyone else started to arrive.

The team was introduced to Alex Selip, a potential team member who participated in FRC the year before but recently moved to Reno. Dee started to present at 11:30, talking about the benefits of FIRST, we announced our radio show and the raffle and juggled for the crowd, and then the challenge was unveiled! The entire team was excited by the unique challenges presented this year and immediately began discussing what we should do to to accomplish them. It was a favorite that your robot should try to hang from the bar in endgame, and the entire field was met with enthusiasm. After the unveiling of the challenge, we interviewed several engineers, FIRST volunteers, and other teams who were there for the radio show. We were photographed for the local paper! Everyone wanted to win a FIRST water bottle or a tribble, and the raffle was a huge success, with us raising $34. The cost of making the three tribbles was $9, bringing our end gains to $23.

We were then thrilled and honored to receive a $275 grant from Alcoa Steel! Afterwards, thanks to Dee, the team went to the Carson City Airport Terminal Building, where we met to discuss robot designs, engineering journals, and build minibots for our India outreach program happening in India. We then discussed whether we thought Alex would be a good fit for the team, and decided we'd like to spend more time with him tomorrow at the carwash.



We appeared in the Nevada Appeal (http://www.nevadaappeal.com/news/local/8036004-113/challenge-nevada-tech-teams) and the Reno Gazette Journal.

Written by: Nadya Dooley	**Checked by:** Jamie Poston

Saturday, 09/07/13, 3:00 pm - 7:00 pm

Meeting #7: After Kickoff Meeting

Outreach Team

Attending:	Nadya Dooley, Jamie Poston, Price Poston, Brandon Villar, Logan Peterson, Carter Peterson	**Coaches/ Mentors:**	Wade Peterson, Patti Poston, Ming Dooley, Carol Villar

Goals:

- Sort a lot of Legos
- Build three 5-minute robots

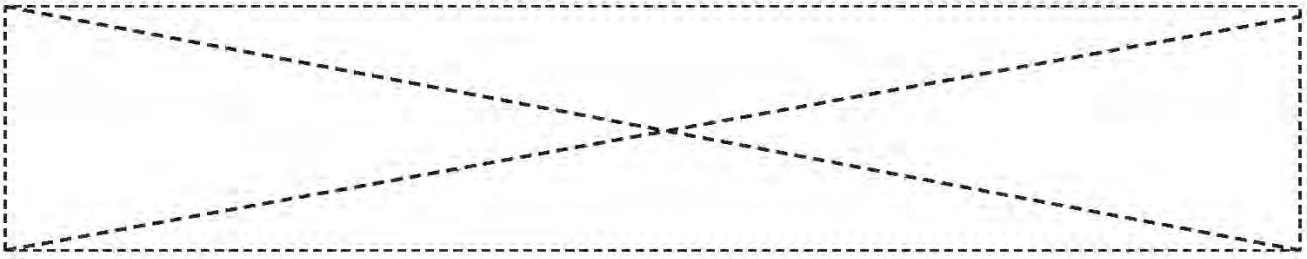
Tasks	Reflections
Sort Legos	In preparation for our outreach FLL camps in India this December, we sorted a whole bunch of Legos into different boxes. By the time we were finished, the boxes were barely recognizable as the same ones we started with!
Build three 5-minute robots	To make the teaching part a bit easier, and with less lost pieces, we created three 5-minute robots. We also added two sensors, the light and touch.

Sort Legos

- We started out with around 5 full boxes of unsorted, totally chaotic legos
- By the time we finished, all but one box were sorted perfectly into the different compartments. That's including the little axles also

Build 5-minute Bots

- To help the kids focus on programming instead of building, we decided to pre-build 3 robots for them. They'll still be able to add on attachments and stuff, but they won't have to think about getting a working chassis and adding on motors and everything
- When we started out building, the boxes that we were getting pieces from were still being sorted, so it was really hard to find the right pieces. And not only that, but find triple the amount of little pieces, since we made three of them
- It was really fun building the robots. Price and Logan were originally building, and Jamie and Brandon were finding pieces for them. Then Logan had to leave early, so Brandon 'graduated' to building, even though we were pretty much finished at that point



Written by: Jamie Poston	**Checked by:** Brandon Villar

Saturday, 09/07/13, 3:00 pm - 7:00 pm

Meeting #7: Brainstorm Initial Strategy

Strategy Team

Attending:	Brandon Villar, Price Poston, Alex Selip, Jamie Poston, Logan Peterson, Nadya Dooley	**Coaches/ Mentors:**	Wade Peterson, Patti Poston, Ming Dooley, Carol Villar

Goals:

- Learn engineering notebook format
- Discuss strategy
- Brainstorm on game points
- Learn how to use the engineering notebook

Tasks	Reflections
Learn notebook format	We need to take notes during the meetings.
Strategy	We listed the options for points in the competition and the practicality of these options.
Brainstorm game points	Created strategy table containing game components vs. attributes/properties
Learn how to use the engineering notebook	Nadya showed us how to access the engineering notebook on Google Drive.
Learn how to post to web site	All team members can contribute to the website!

Learn engineering notebook format

- We need to have people from each subdivision to write journals for the meeting.
- The person writing these journals needs to take notes throughout the meeting.
- We devised a way to name our entries in the engineering notebook so they will show up chronologically. (YYMMDD_[SubdivisionName])

Learn how to use the engineering notebook

- We learned how to access the engineering notebook on Google Drive
- Nadya, who is in charge of organizing our notebook, taught us how to use the template and how to get onto the notebook.

Learn to post to website

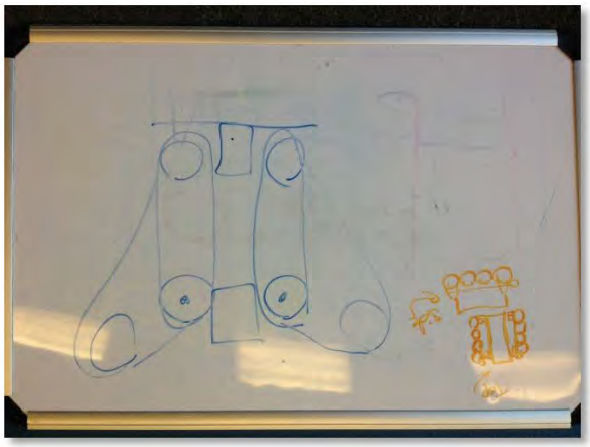
- Since our website is self-serve, everyone has a login and can post information
- There are several categories for posting, some examples are- Captain's Log Radio, Design, Engineering Notebook, FTC Forum, Game Rules and Game Play, Tips and Tricks
- Team was shown how to log in and post and reminded of the "How To" Videos

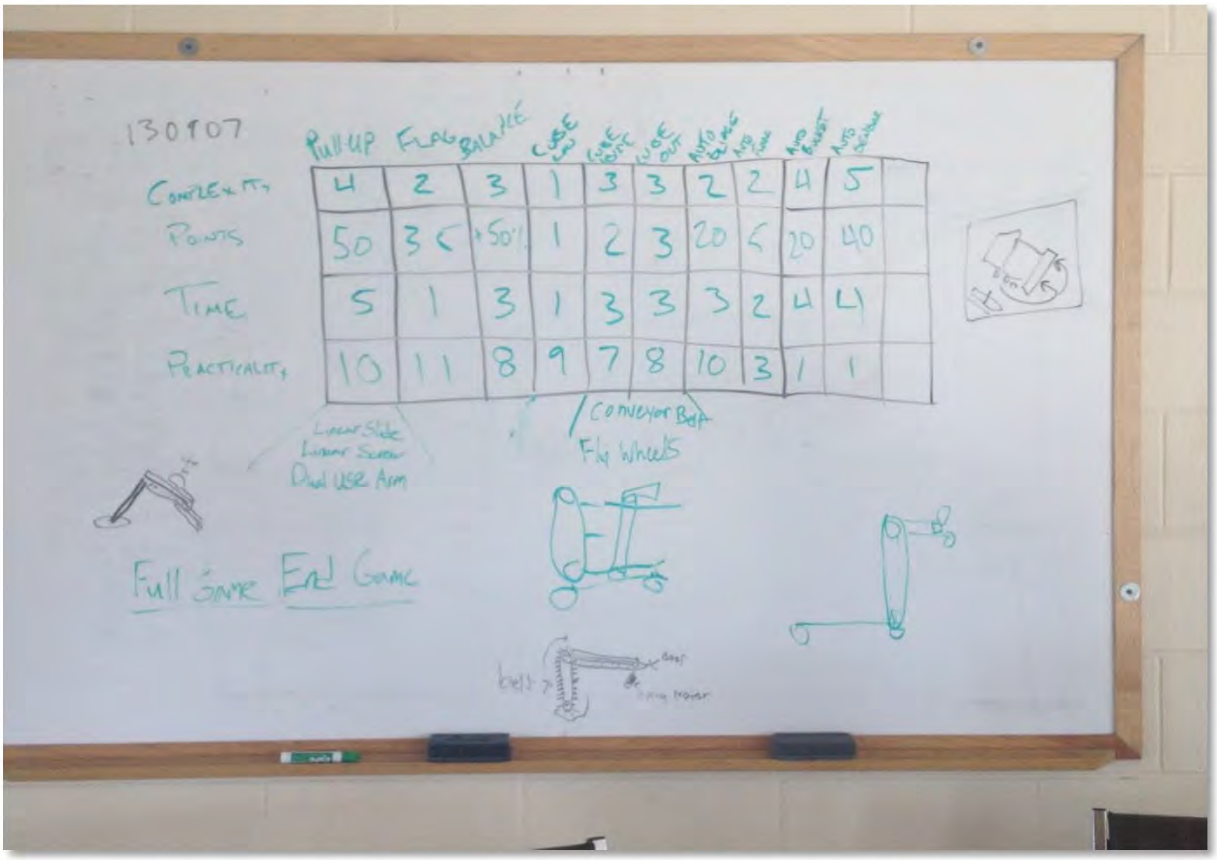
Discuss strategy

- Since the kickoff was today we got together after the kickoff to discuss ideas.
- We listed out all of the options to get points, and started thinking about their practicality and how we should prioritize them (see picture).

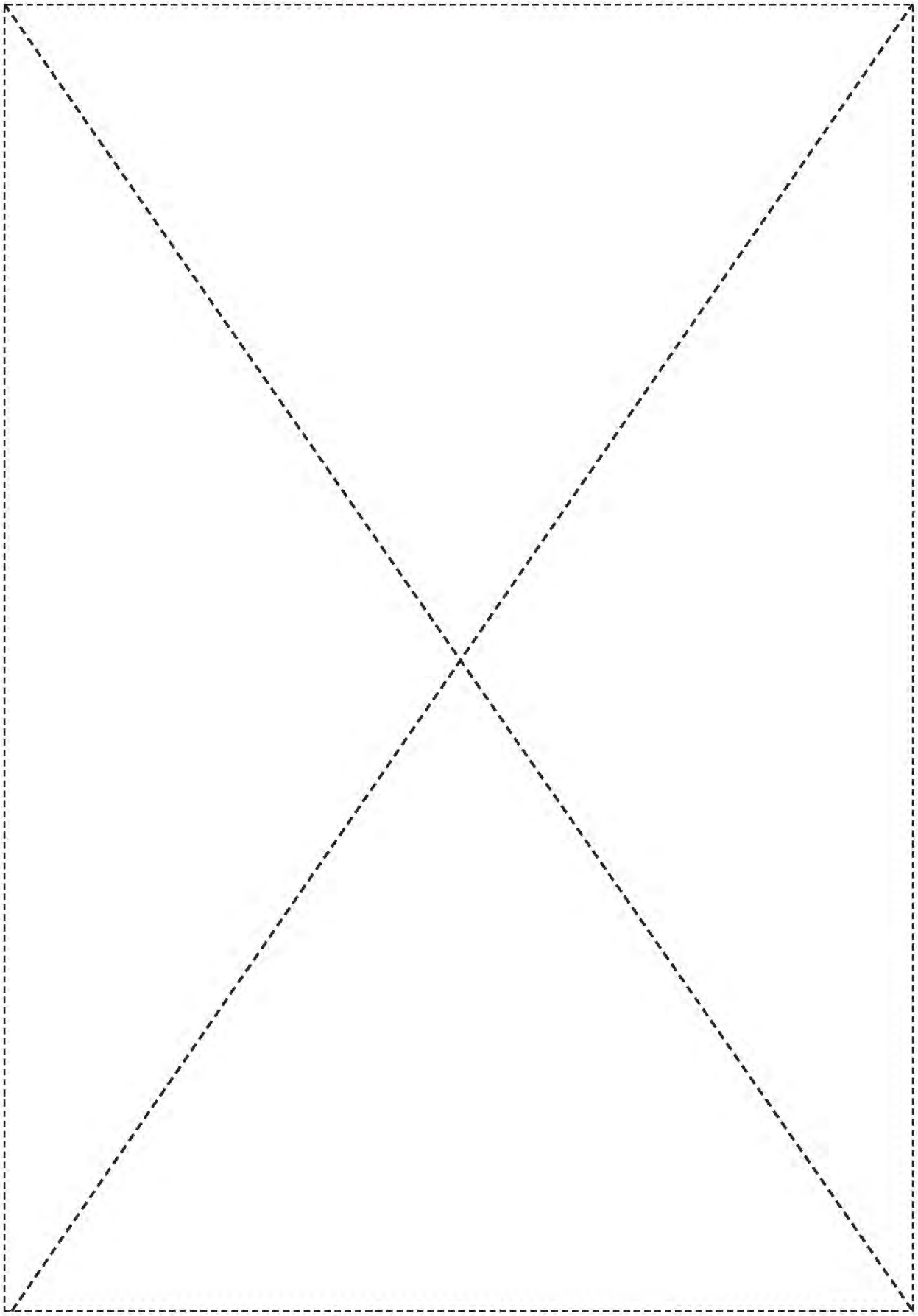
Brainstorm game points

- We create a table to organize the possible game points. The columns represented the different objectives of the game and the rows represented different attributes
- Each game objective was ranked by complexity of the task, points awarded, time/duration it would take during the game, and the practicality to accomplish it





Written by: Logan Peterson	**Checked by:** Nadya Dooley



Sunday, 09/08/13, 9:30 am - 1:00 pm

Event Report: Car Wash Fundraiser

Attending:	Logan Peterson, Carter Peterson, Brandon Villar, Nadya Dooley, Cole Kenny	**Coaches/ Mentors:**	Patti Poston, Jim Poston, Carol Villar

Tasks	Reflections
Wash cars to raise money!	We were successful in earning $250 we also donated $50 to the FLL Team.

Car Wash Fundraiser

- We washed cars at our local 7-11 to raise money for our team. We also invited our two FLL teams that we are mentoring and five of the kids were able to help. We worked very hard for close to three hours and then clean-up.
- FRC coach Russell showed up with his huge robot that we used to attract customers.
- One of our awesome moms donated tacos to the team for lunch and another donated water.

Written by: Jamie Poston	**Checked by:** Nadya Dooley

Saturday, 09/08/13, 2:00 pm - 4:00 pm

Meeting #8: At the empty store

Strategy Team

Attending:	Logan Peterson, Brandon Villar, Nadya Dooley, Price Poston, Jamie Poston, Carter Peterson, Cole Kenny	**Coaches/ Mentors:**	Patti Poston, Wade Peterson, Carol Villar

Goals:

- Discuss possible design ideas
- Take team picture

Tasks	Reflections
Take Team Pictures	It was a little tricky to get good height balance on the rocks, but the team pictures turned out great and after a few shots, we were finished.
Discuss how to pick up blocks	We had some solid ideas, but we all knew that we wouldn't have the best ideas after the first meeting. Nothing was set in stone, and we will discuss further in at later date.
Discuss how to lift blocks into basket	As with the grabbing mechanism, the ideas for lifting are far from complete. We followed the four rules of brainstorming, so we have plenty of ideas to think on. Like before, the final idea will be decided on at a later date.

Team Pictures

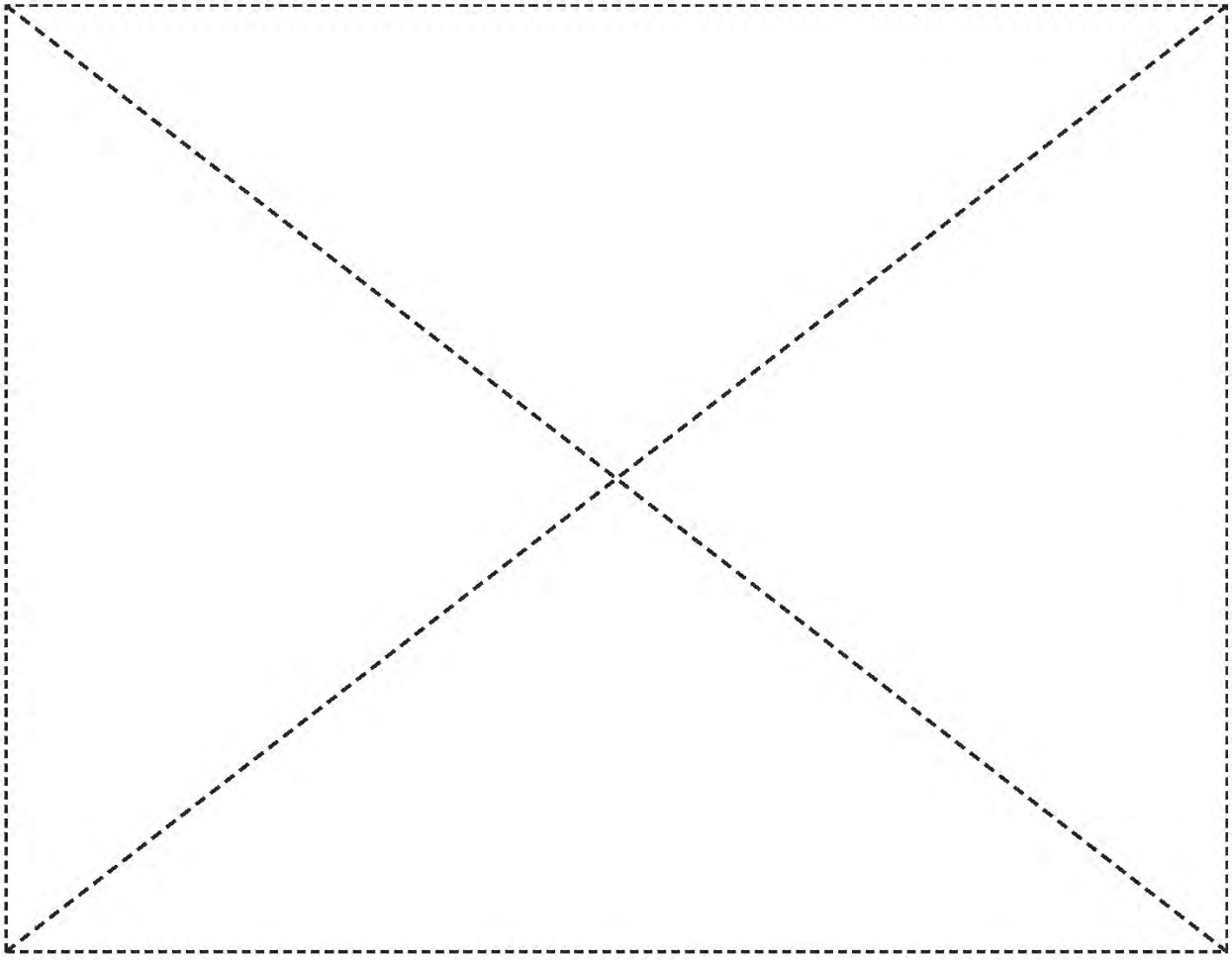
- We put on our costumes and posed for some pics!

Blocks

- Many ideas were discussed, including claws, conveyer belts, scoops, and even a system of foam wheels.
- The belt idea was expanded upon, and was modified to include two belts on the sides rather than one belt in the middle.
- Gripping mechanisms were also brainstormed. We are still unsure of whether grippy tape used in football is legal. Ruling pending.

Lifting

- Lifting mechanisms were also discussed.
- Everything from more conveyors, geared lifters, and launchers were discussed.
- Ideas for getting blocks into the baskets during the autonomous period were also brainstormed.



Written by: Cole Kenny	**Checked by:** Nadya Dooley

Sunday, 09/15/13, 2:00 pm - 4:00 pm

Meeting #9: At the empty store, again

Discussion Team

Attending:	: Logan Peterson, Brandon Villar, Nadya Dooley, Price Poston, Jamie Poston, Carter Peterson	**Coaches/ Mentors:**	Patti Poston, Wade Peterson, Carol Villar

Goals:

- Discuss camps
- Discuss how to pick up blocks
- Get ideas for robot lift

Tasks	Reflections
Camps and dates set up	Everything complete and scheduled
How to pick up blocks, share ideas	Many ideas tossed some can work
How to lift, different ways of lifting	Different ways were more practical than others

Camps and Dates

- Next weekend, the 22nd, two - three hour camps
- Full day on Friday the 18th of October
- Should get about $1-2k

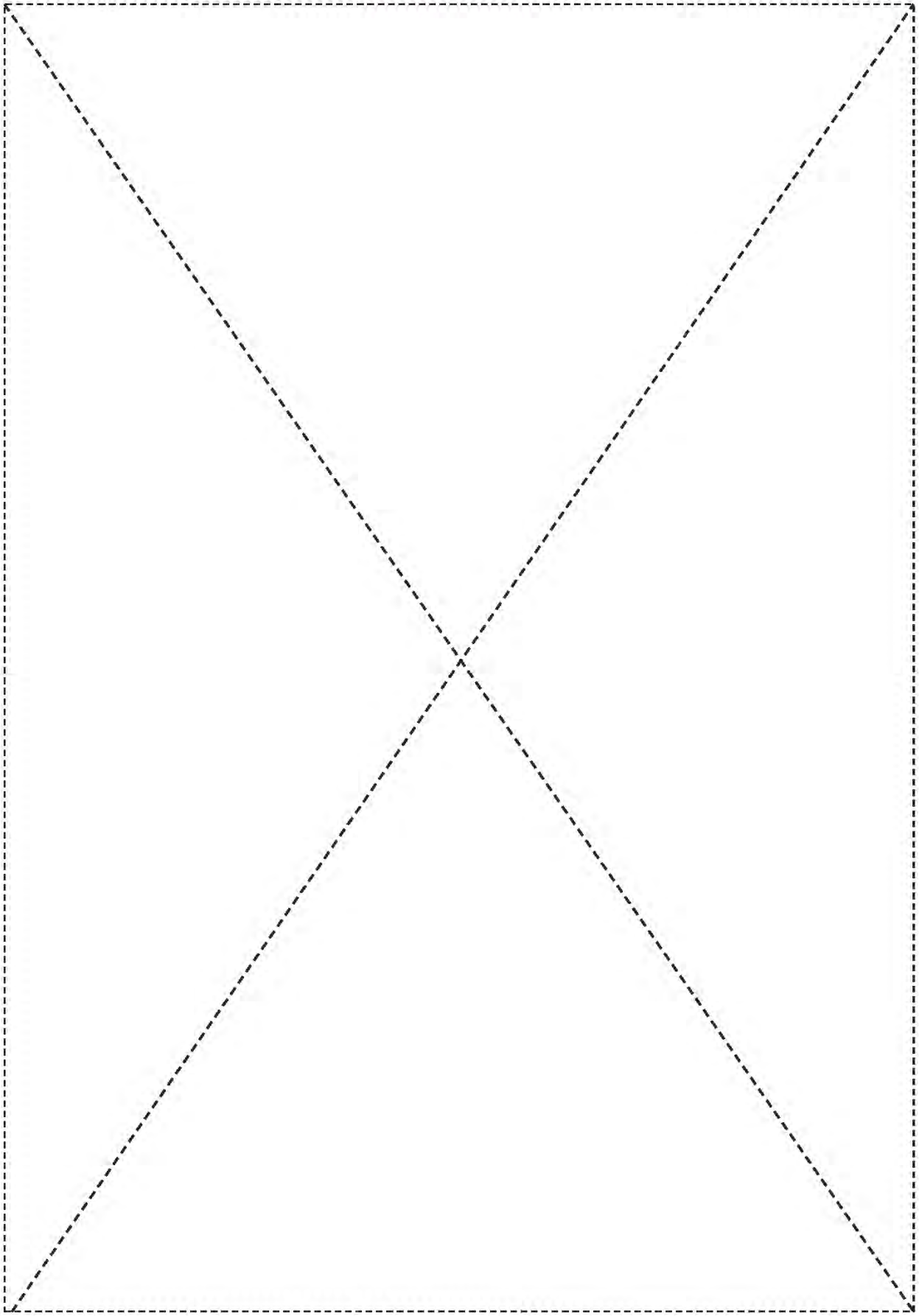
Blocks

- Ideas on how to pick up blocks with a conveyor belt
- Conveyor belt moves up/down and use an elevator
- Discussed how to keep only 4 blocks in

Lifting

- Use a coat hanger type of device
- Multiuse for blocks and lift
- Possibly also include device for lifting flag

Written by: Brandon Villar	**Checked by: Cole Kenny**



Sunday, 09/22/2013, 9:00 am - 4:00 pm

Jr.FLL Camp Event Report

Attending: : Jamie Poston, Cole Kenny, Brandon Villar, Logan Peterson, Carter Peterson

Mentors: Patti Poston, Carol Villar,

Tasks	Reflections
Arranged for Learning Express to process registration and fee collection	All went smoothly
Conduct two - three hour Jr.FLL Camps with 12 students in session#1 and 13 in session#2	During Tanks and Targets team kept running mentors into the wall! We raised $375, we should of charged more as the going babysitting rate is more and we are teaching the robotics!
Borrowed chairs and tables	More profit for the team

Jr.FLL Camp Event Report

We hosted a Jr.FLL camp where we taught the attendees how to build and program using the Lego WeDo kits. We had two builds from the WeDo Kits - a soccer goalie, cheering audience, kicker, monkey, crocodile, and lion. We also had activities throughout the day. The first activity was the Hula Hoop Game to get to know their teammates and mentors - they held hands in a circle and had to pass the Hula Hoop around using no hands. It was funny to see the big mentors and the little trying to do this. Another activity was to familiarize the kids with the lego parts, this was the Treasure Hunt. The last activity emphasized programming -Tanks and Targets. In the Tanks and Targets the mentors were blindfolded and the kids had to give explicit instructions for them to pick up an object and put it in a bucket. A lot of the kids purposely ran the Mentors into the wall because they thought it was funny!

LEGO™ ROBOTICS Camps
FTC Team # 6024
The Enterprisers

Junior FIRST LEGO League Robotics Camp
K-3rd Grades

Ages 6-9 Kids will explore robotics in a playful learning environment. They will build actual working models using LEGO™s and moving parts. Students learn how to work in small teams, to program their models with simple motors and gears and learn about team work with fun games.

Sunday, September 22nd 9a-12p Learning Express, 197 Damonte Ranch Reno, NV

Camp introduces Jr. FLL in 3 hours. $25/child; Snacks and LEGO build kits provided . Students bring their own water bottles
Limit 12 students

Register and Pay:: at Learning Express 197 Damonte Ranch, 853-7884
Checks are due by 1 week before classes.

For more Information contact:
Patti at PPoston@mm.st or
Suzanne at Suzepete12@gmail.com or check our website at:
http://ftcteam6024.com/

Register early!

Class sizes are limited

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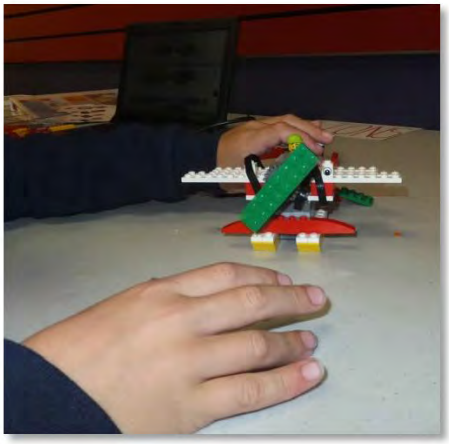
FIRST NV

www.firstnv.org

Agenda

Session #1 Time	Session #2 Time	Activity	Members
9:00 am	1:00 pm	Hula Hoop Game and Check-in	Check in students, Meet the team, give them name tags and play hula hoop!
9:15 am	1:15 pm	Introduce Jr.FLL and WeDo Kits, team sort	Let teams sort parts
9:30 am	1:30 pm	Treasure Hunt	Monitor team as they do the treasure hunt make sure they bring the right pieces
9:45 am	1:45 pm	Build #1	Make sure each member is doing their job - one builder, one part finder, one quality control Switch off jobs every so often so everyone gets to build
10:15 am	2:15 pm	Program Robots	Mentor shows team how to program the robots
10:30 am	2:30 pm	Snack Break	
10:45 am	2:45 pm	Tanks and Targets	Mentors are the Tanks - Kids guide the tanks to pick up 3 rings of each color and put in the target area
11:00 am	3:00 pm	Build #2	Mentors guide team
11:30 am	3:30 pm	Program Robots	Guide team
12:00 pm	4:00 pm	Check out students	Mentors make sure each team member is checked out by parent



Written by: Logan Peterson	**Checked by:** Brandon Villar

Tuesday, 10/01/13

Costumes/Promote/Radio Show Personal Progress Report

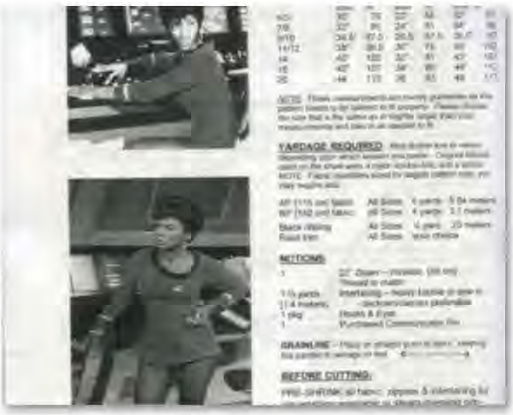
Attending: Nadya Dooley **Mentors:**

Tasks	Reflections
Work on Costumes and tribbles	Sewing the costumes proved to be a far greater task than initially anticipated, but they are turning out wonderfully!
Radio Show	Finding listeners is difficult, but the show has proven a success
Work on Promote Video script	The goal is to do filming the next time I visit the team on the 17th
Brainstorm presentation ideas	I'll share the ideas that I've come up with the team at the next meeting, and we can refine them from there and start working on them

Work on Costumes & Tribbles

- Sewing Fanatics

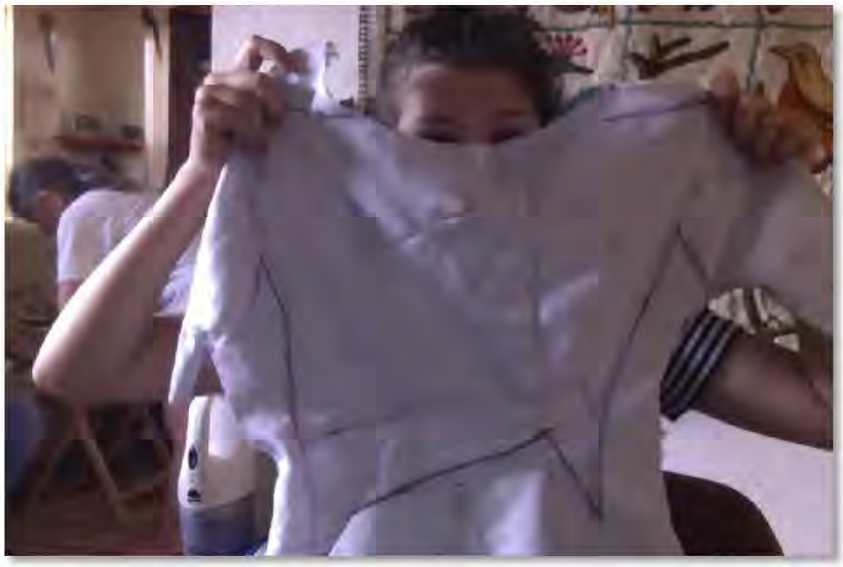
- I began the creation of Jamie and my own costumes by looking up TNG themed dresses on the internet, and coming across



- We decided to create our costumes using an Original Series skant pattern, but modifying the color scheme to match the Next Generation theme
- However, when the pattern arrived I was dismayed to find that it was very old fashioned and difficult to follow:
  - All the sizes of the pattern were laid out on top of each other
  - There was no seam allowance shown on them
  - It didn't say how much fabric was required or how long the zippers should be

  - There were no sizing instructions so it wasn't clear what size to make
  - The sewing instructions were very vague

- As I have little sewing experience, I decided to make a practice version out of sheets to start with
- Although the costume turned out very satisfactorily, it was too small so we decided to make it a size bigger
- We ordered another pattern and I drew lines onto the "sheet costume" where we planned to modify it to create the two colors
- Transferring the lines from the costume to the pattern that was a size bigger proved to be very difficult- I realized what an insane task we'd decided to undertake, and after more than an hour of struggling to see if the lines were lining up, almost decided to give up on two colors and just make the costumes black
- However, patience is a virtue! By making a dress by pinning the pattern itself to create a paper dress, I was able to draw the lines straight onto it



- After this, I cut the pattern pieces where the lines were drawn, taped on a half inch seam allowance to each piece, and drew on the grain lines
- We went to Mills End Fabric for our fabric, and were able to find the exact right type (double knit jersey) in the perfect colors! The prices were far cheaper than we were expecting when we created our original budget (PIC)
- I was then able to cut and sew all the pieces together, and Jamie pinned and cut her pieces
- There are a couple minor mistakes to be fixed, but the completed costume looks wonderful so far, fits very well, and has a successfully installed invisible zipper! (PICS HERE)
- We still have to attach the collar, pin the pleats, and hem the sleeves, as well as sewing Jamie's and Ming's costumes, but the hardest part of the creation has been completed, as we successfully modified an already cryptic pattern with little sewing experience (PIC)

Tribbles!

- Making tribbles has been a great way to fundraise, as they're fairly inexpensive and quick to make (PIC)
- We purchased three colors of fabric and Mills End Fabric: rainbow, gray, and "beachy"
- At kickoff, we auctioned three tribbles, making $34!
- Jamie and I both took fabric home, and we have used the tribbles as prizes for contestants who listen to the radio show
- It's a wonderful and practical way to make money! We're also considering auctioning drawings, action figures, etc.

Work on Radio Show – Captain's Logs

- As I can't attend most of the camps or work on the robot, my main role besides costume creation is the radio show
- Jamie and I generally talk on Skype outside of meetings to brainstorm ideas for the show, and then I create a layout and write a draft of the script
- After I finalize it, I get everyone to send in their recordings and I edit them, Jamie and I each find a caller to be on the show, and one of us interviews an engineer
- I send the edited recordings (songs, ads, etc) to Jamie, and she plays them during the radio show
- I'd like to recognize FTC team RAWALA, as one of their team members, Sam, has been very helpful to help us record things for the radio show and troubleshoot problems during broadcasts
- By emailing other teams, posting on Facebook, and asking listeners to tell their friends, I have been trying to get us more listeners- at this point in time, we generally have 8 - 15 listeners per show, but we're trying to expand our audience
- So far, listener responses have been positive! (PIC)

Promote Video

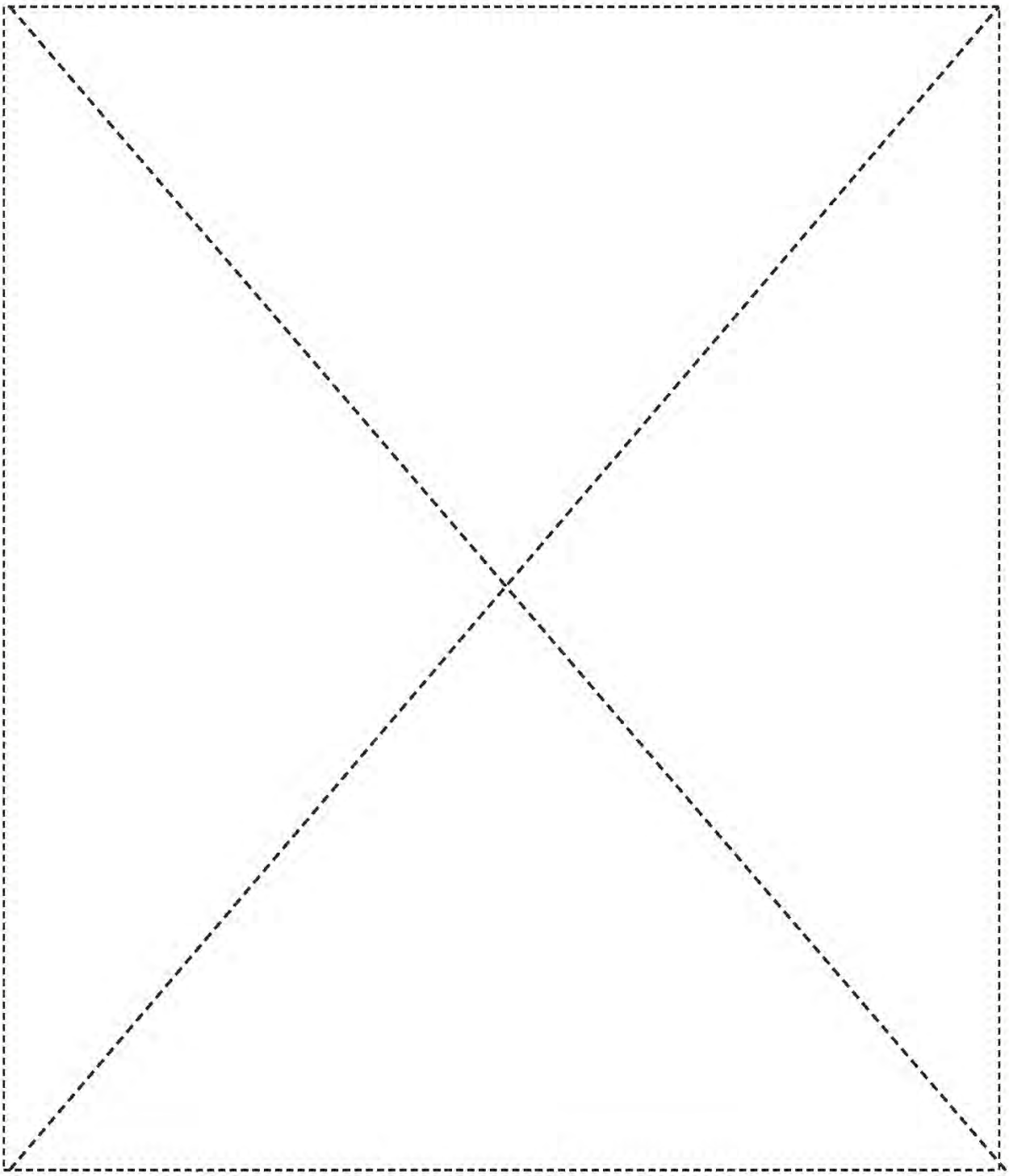
- So far, the team has come up with these ideas
    - Everyone wears their old costumes from last year. We then "beam up" onto our ship, and are all wearing our Star Trek costumes
    - Using the "give a man a fish and he'll eat for a day…" quote to explain leadership
    - "Leadership should never come second….leadership is FIRST!"
    - Use clips from tournaments, camps, etc. to demonstrate real life examples of leadership
- This week I'm starting work on a script. I'll send it out to the other team members to discuss, and I and plan to have it ready by the time I fly up to Reno on the 17th
- I'll also record music on my violin!
- After the trip, I'll edit the clips and send a draft out to the team for review, before finalizing it

Presentation ideas

- Turning off the lights and having lights above our heads to make it more dramatic
- Violin playing and singing upon entry, and "Space, the final frontier… we are The Enterprisers…" entrance
- PowerPoint in the background with a slide for each topic
    - About Our Team/our theme

- Outreach/fundraising
- Robot
- CAD
- Teamwork/Connecting/Google docs & Skype

- Give pins or tribbles (raffle tickets?) to the judges!



Saturday, 10/06/13, 2:00 pm - 6:00 pm

Meeting #10: Base Ten

Strategy Team

Attending:	Jamie Poston, Brandon Villar, Logan Peterson	**Coaches/ Mentors:**	Patti Poston, Wade Peterson, Carol Villar

Goals:

- Robot design
- Outreach Events

Tasks	Reflections
Brainstorm Robot designs - focus on chassis	We have a pretty good idea of how our chassis is going to look, and some arm ideas!
Discuss Outreach Events	Pretty much every event from here to early January was talked about.
Brainstorm Robot designs - focus on chassis	We have a pretty good idea of how our chassis is going to look, and some arm ideas!

Brainstorm Robot Design

- We talked about a lot of the different pros and cons of chassis designs and arm designs
- Nothing yet has been decided on absolutely, but we do have a workable chassis design that we are going to build next Sunday with the parts from last year's Lords of the Ring robot.
- This is the design for the chassis that we sketched out on the whiteboard. It'll have 8 wheels and a metal plate to scoop up cubes
- The design is pretty much to scale, as you can see with the cubes as reference.

Discuss Upcoming Events

- Other future outreach events, most notably the FLL and Jr.FLL camps, were discussed.
- The FLL camp scheduled for the fall break will be dropped, as elementary and middle school students do not have fall break. But some team members will be visiting the two Eagle Co-op FLL teams during their fall break to help with strategy, programming, and building.
- The sleepover FTC workshop hosted by Coral Academy of Science sounds like a great way to work on the robot and meet with other teams. When mentioned, it was met with all around approval.

Written by: Cole Kenny	**Checked by:** Nadya Dooley

Tuesday, 10/08/13, 2:30 pm - 4:00 pm

Meeting #11: Galena HS Destruction

Build Team

Attending:	Jamie Poston, Brandon Villar, Logan Peterson, Scott Dooley	**Coaches/ Mentors:**	Wade Peterson, Carol Villar

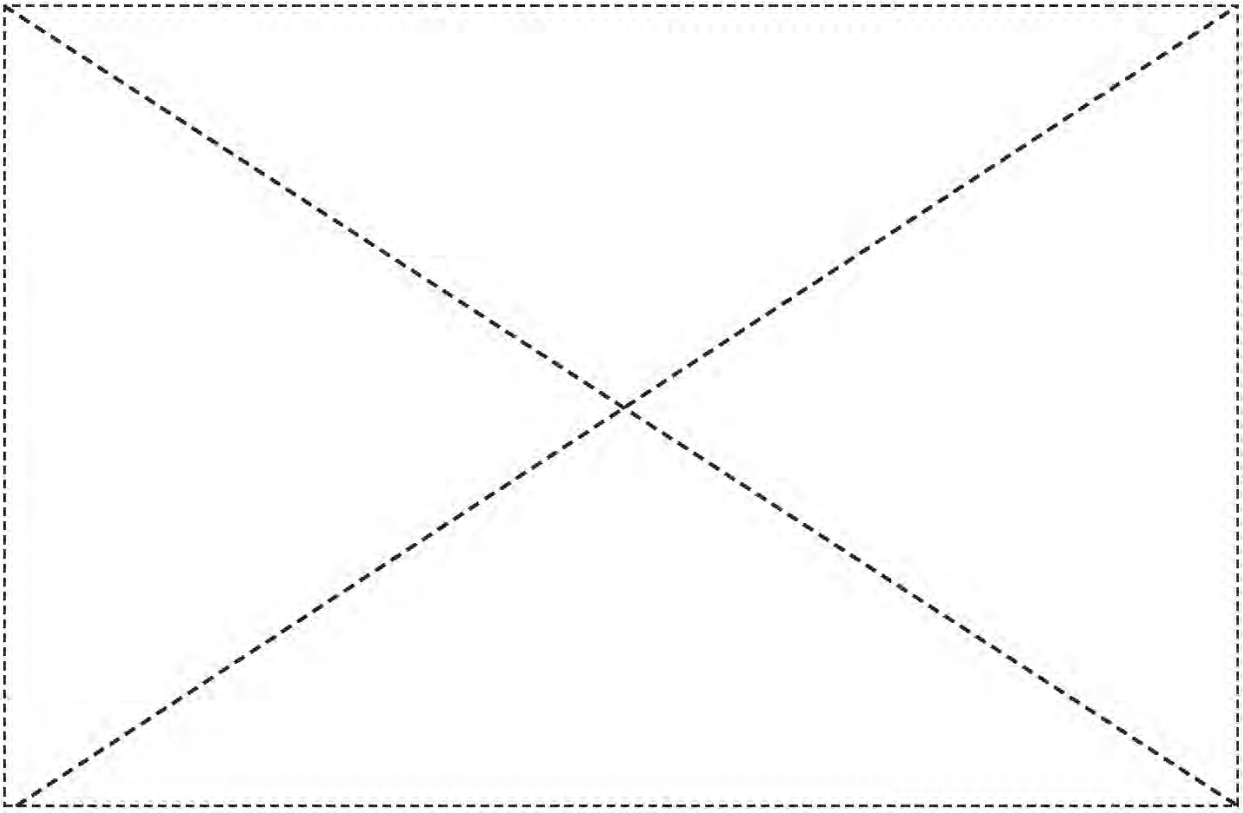
Goals:

- Take Precious apart (last year's robot)

Tasks	Reflections
Camps and dates set up	Everything complete and scheduled
How to pick up blocks, share ideas	Many ideas tossed some can work
How to lift, different ways of lifting	Different ways were more practical than others

Brainstorm Robot Design

- Organized and took the robot apart in order recycle parts to so that we could build our new chassis
- Good bye "Precious"



Written by: Brandon Villar	**Checked by:** Nadya Dooley

Tuesday, 10/09/13, 3:10 pm - 4:30 pm

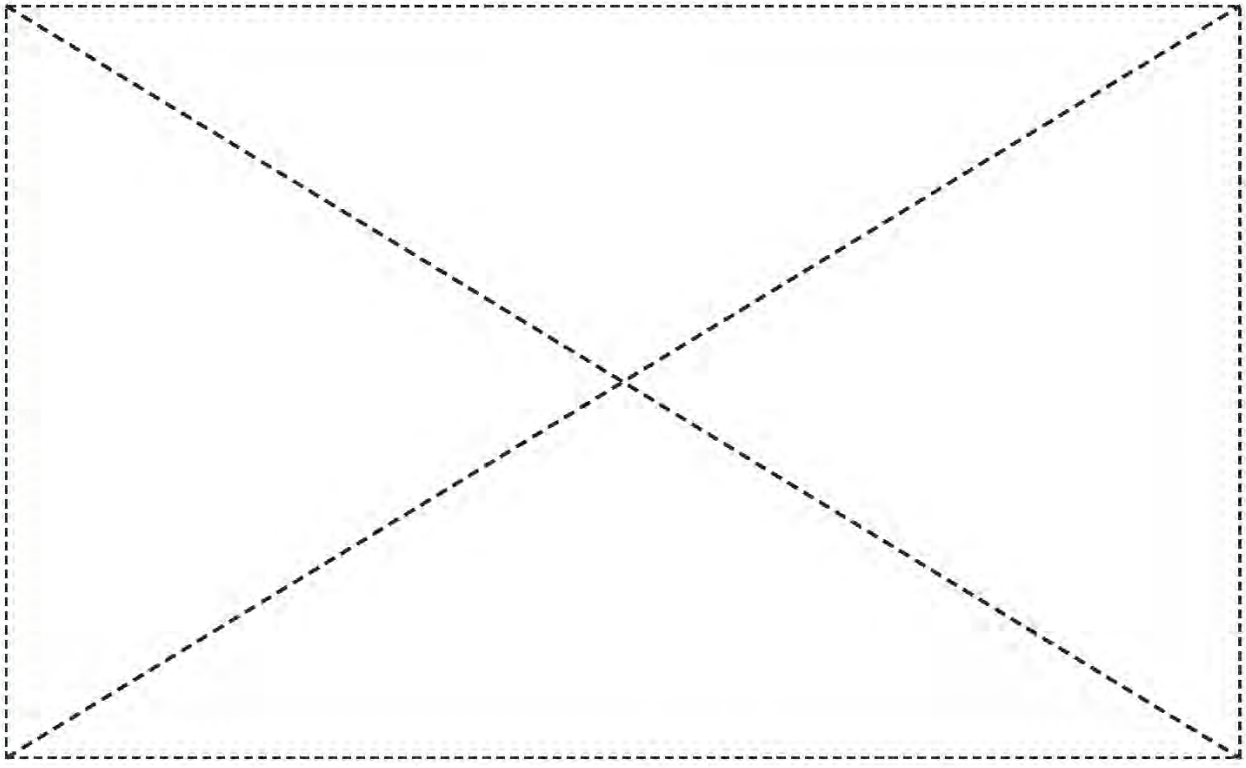
Event Report: Outreach with RAWALA

Attending: Nadya Dooley **Mentors:** Dr. McCurdy

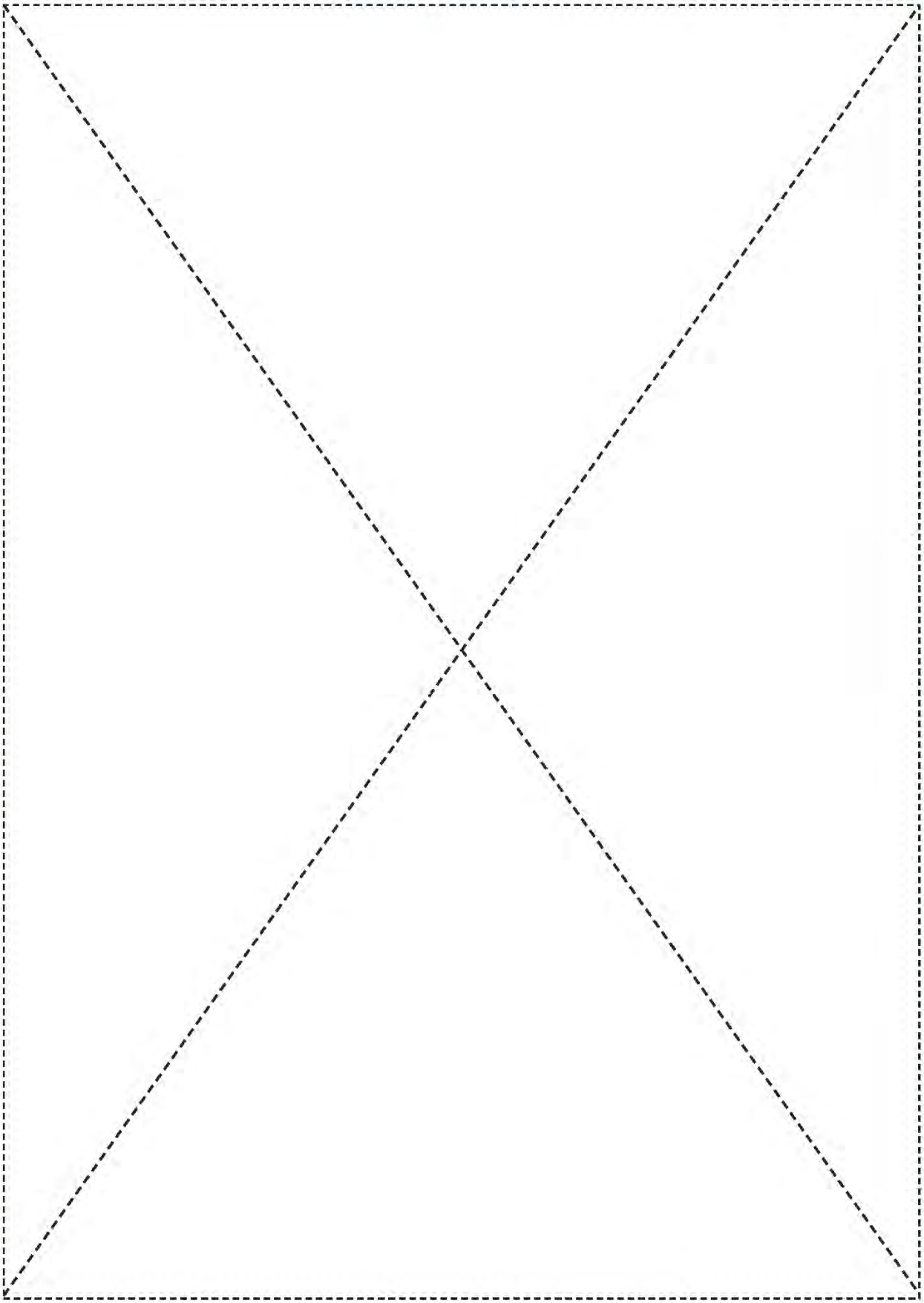
Tasks	Reflections
Attend FTC team 6074's meeting, discuss ideas, and interview them for the radio show	It was fun to see what kind of ideas another team has come up with, as well as spending time with some great minds!

Outreach with RAWALA

As previously discussed, we've had a lot of opportunities to meet the Robotics Assemblers With A Long Acronym (RAWALA), including one of their members helping us with the radio show, another being a caller on the show, and competing with them in last year's season! As they are a San Diego team, Nadya was invited to meet with them in order to interview some of their members for the radio show, as well as their coach Dr. McCurdy. It was a very familiar environment, as the meeting was very small and everyone seemed to be very good friends! Throughout the meeting, Nadya pulled members aside to interview them, discussed robot ideas, and helped them troubleshoot the fact that their motor controllers didn't seem to be responding. After helping them lay down tape for their field, she had the opportunity to interview Dr. McCurdy, the school's Vice Principal, IT Manager, and team coach. Everyone was incredibly friendly and the interviews will be appearing on the next radio show, on October 20th!



Written by: Logan Peterson **Checked by:** Brandon Villar



Tuesday, 10/13/13, 2:30 pm - 4:00 pm

Meeting #12: Here comes the chassis

Build Team

Attending: Jamie Poston, Brandon Villar, Logan Peterson, Scott Dooley, Carter Peterson, Cole Kenny

Coaches/ Mentors: Wade Peterson, Carol Villar

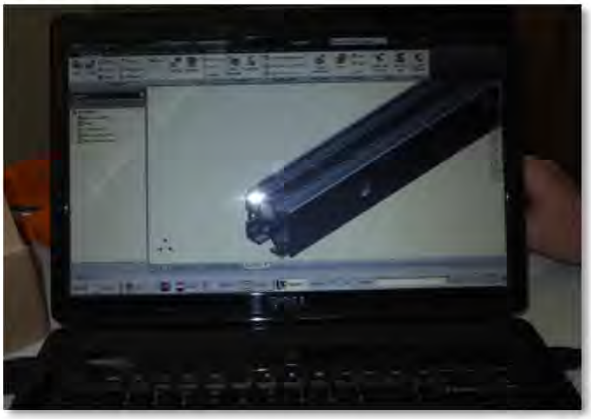
Goals:

- Build robot chassis
- Ideas/prototype for block grabber

Tasks	Reflections
Build robot chassis	A little time consuming - measuring, drilling attaching
Try to create block grabber prototype	Our first shot worked pretty well
Build robot chassis	A little time consuming - measuring, drilling attaching

Build robot chassis

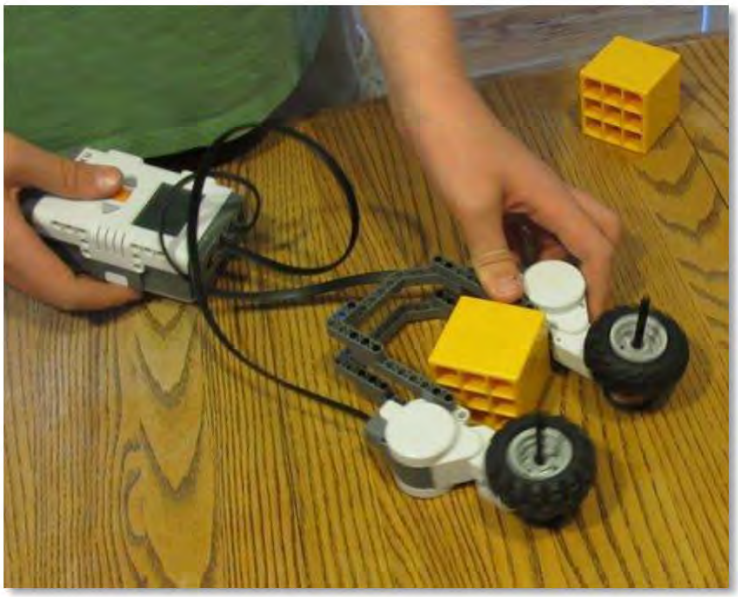
- Designed chassis with 80/20
- Built chassis by cutting 80/20 to size and drilling the holes in order to attach wheels to base
- Formed the drilled 80/20 in the U shape with brackets
- Designed chassis with four - four inch wheels on each side with two motors on each side for more traction, more speed
- Designed chassis in U shape because the block grabber had fit inside and have access to the cubes
- Used Tetrix chains, motors and sprockets
- Used Autodesk inventor for preliminary 80/20 drawings

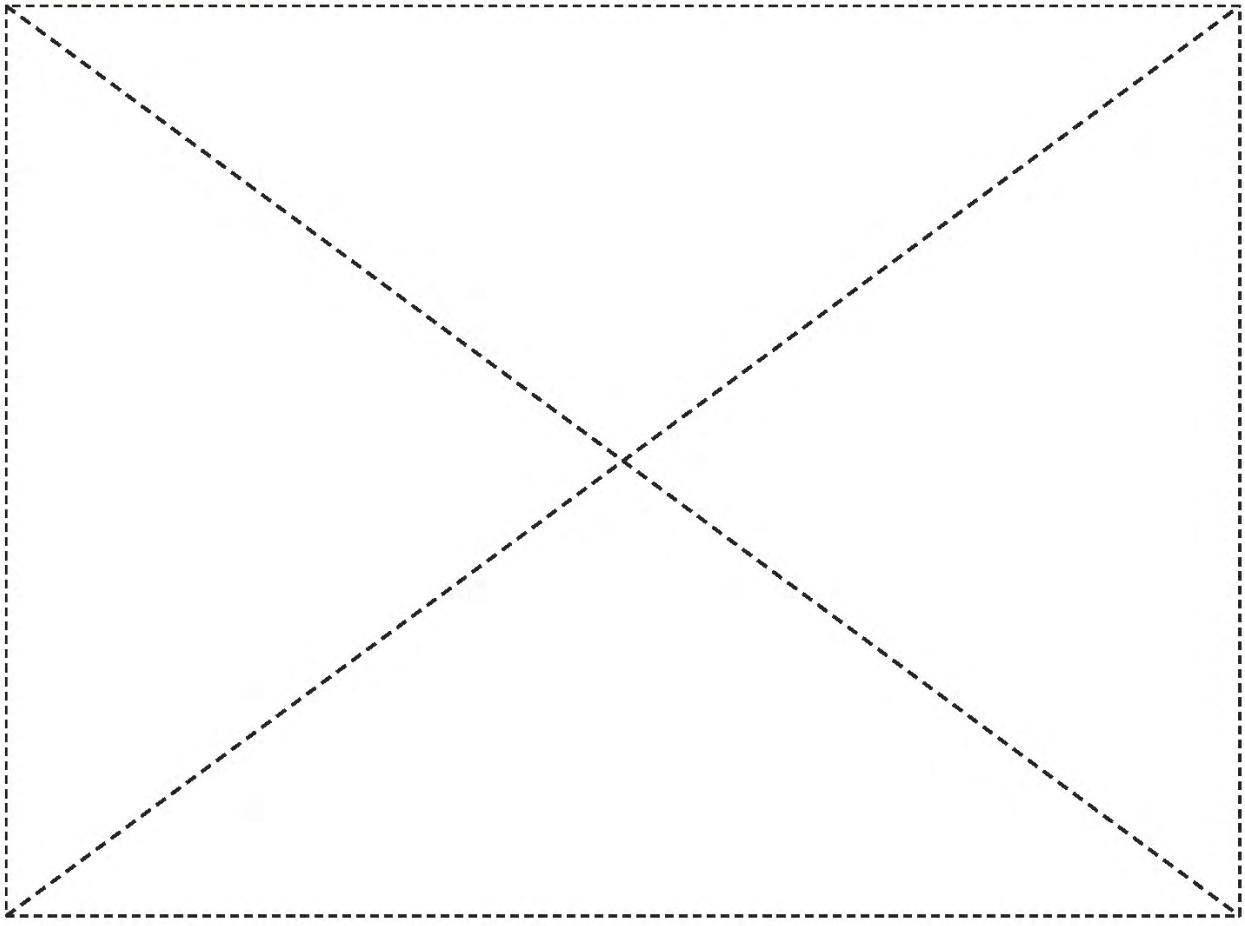


Prototype for block grabber

- Created prototype with Lego Mindstorm NXT parts

- Used two wheels attached to four struts and arranged Lego Technic beams in a U shaped and wired them to a brick
- Tested the prototype





Written by: Cole Kenny	**Checked by:** Nadya Dooley

Saturday, 10/16/13; 3:00 pm - 6:00 pm

Meeting #13: Base and "The Tractor Beam"

Build Team

Attending: Brandon Villar, Jamie Poston, Logan Peterson, Carter Peterson, Scott Dooley

Coaches/ Mentors: Wade Peterson, Carol Villar

Goals:

- Take Precious apart (last year's robot)

Tasks	Reflections
Construct Wheel Base	The wheel base was completed on only one side considering we didn't have enough parts
Make a part list	Created a list which described the new parts needed so they could be ordered
Tried to Improve Block Grabber	The main design is basically complete, but needs to be completely prototyped and finalized

Construct Wheel Base

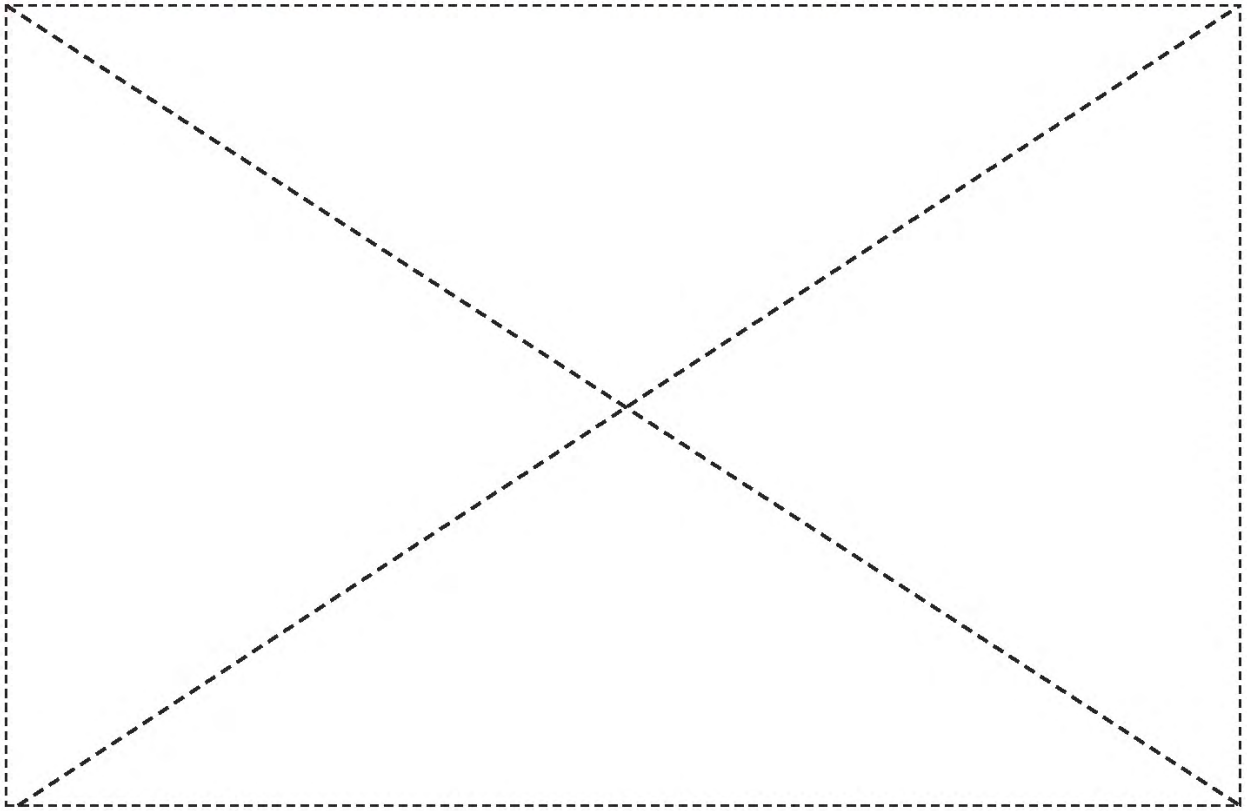
- The wheels were not fully completed but can be easily completed when the parts come in
- The part list included things such as more sprockets, a "complete" lifter device, and other items
- Ideas were thrown about on how the block grabber should raise up and down and whether it would be gravity "powered" or "spring" powered

Make parts list

- Determined parts needed in order to place order
- Order to be placed this week

Tried to improve block grabber

- This is our first prototype for our block grabber which we named “the tractor beam”
- Since it’s a prototype, we used what supplies were handy - wood, NXT parts - just for proof of concept.



Written by: Brandon Villar	**Checked by:** Cole Kenny

Thursday, 10/17/13, 11:45 am - 1:45 pm

Event Report: FLL Mentoring

Attending: Price Poston Jamie Poston, Carter Peterson, Logan Peterson, Cole Kenny, Brandon Villar

Mentors: Patti Poston, Carol Villar

Goals:

- Mentor FLL Team #9930 and 9951 and get them working on this season's challenge

Tasks	Reflections
Help team learn the board	The teams were receptive to our help
Help team build robot	The teams listened and were excited
Teach team to program	We ran out of time

Help team learn the board

- We discussed the point values of different game elements and helped prioritize them
- We also discussed the what actions would receive the most points for the effort required

Help team build robot

- We helped the team build their robots for the all-terrain obstacle
- We also helped prepare attachments to their robots to complete other challenges

Teach team to program

- We ran out of time and were unable to complete this task

Written by: Logan Peterson	**Checked by:** Cole Kenny

Thursday, 10/17/13, 2:00 pm - 6:00 pm

Meeting #14: Spacing Panels

Build Team

Attending: Brandon Villar, Logan Peterson, Carter Peterson

Coaches/ Mentors: Wade Peterson, Carol Villar

Goals:

- Finish chassis

Tasks	Reflections
Created four spacing panels	This was hard and tedious as they had to be really precise

Finish Chassis

- Created spacing panels by building them by cutting inch thick plates to size and drilling holes in order to attach them to the chassis

Written by: Logan Peterson	**Checked by:** Brandon Villar

Friday, 10/18/2013, 10:00 am - 12:30 pm

WNC Camp Event Report

Attending: Price Poston **Mentors:** Patti Poston

Goals:

- Mentor FLL Team #9930 and 9951 and get them working on this season's challenge

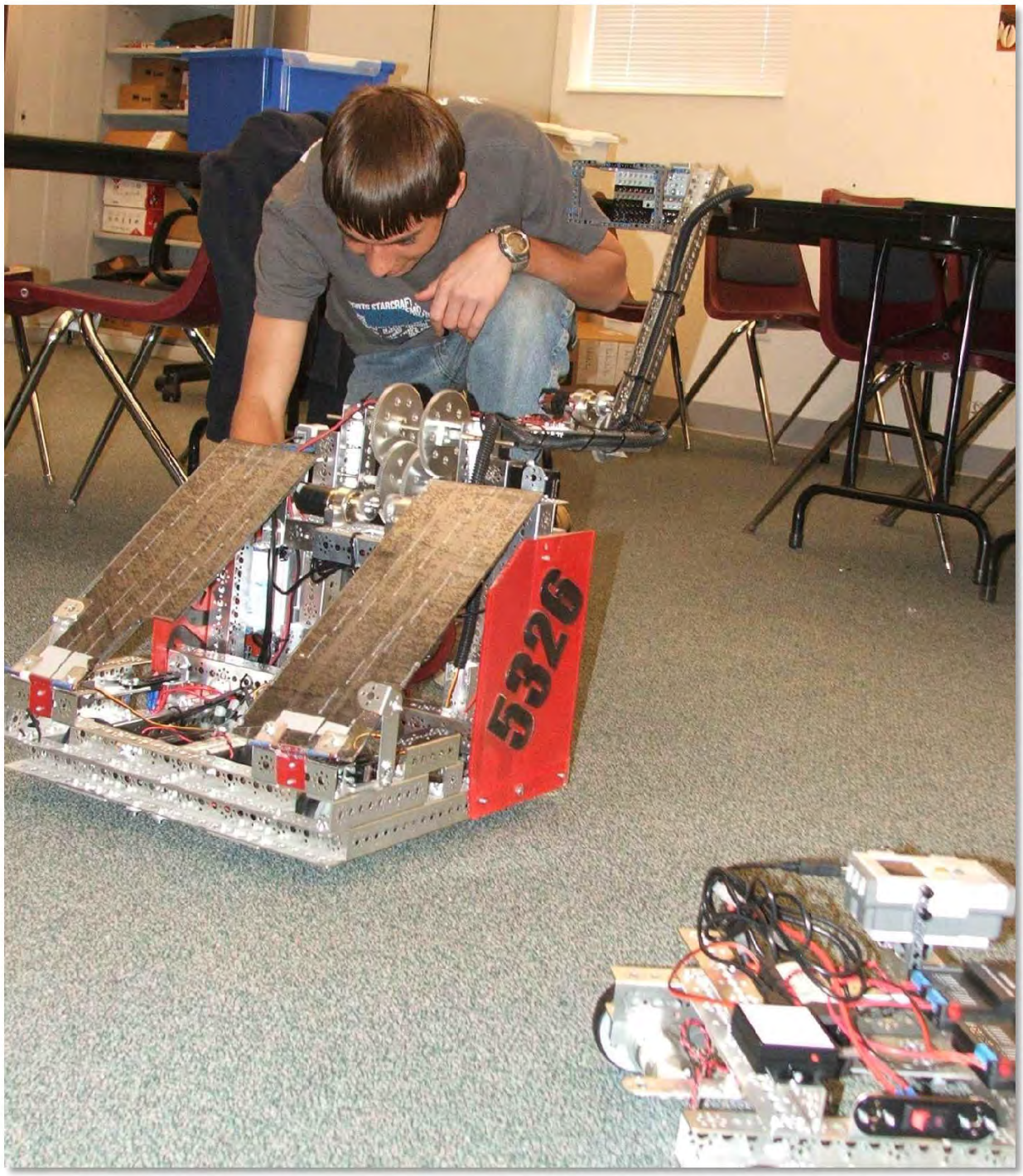
Tasks	Reflections
Help setup Western Nevada College network for the 2014 Qualifier in Carson City	We were successful in getting things hooked up
Build a FTC robot for WNC to troubleshoot with	Went smoothly
Teach team to program	We ran out of time

Network Setup

We helped WNC troubleshoot their network, field control software and got their controllers to work. We had some difficulties finding a router to connect to but found an extra router and used that one. The FCS wasn't working but once we rebooted the software it found both robots and we were able to drive both robots around.

Robot Build

The WNC people had a Tetrix kit and they asked me to build a basic robot so they could use it to troubleshoot their network when I wasn't there. I built the basic robot from the tutorial and was able to successfully wire it to work with their network.



Written by: Price Poston	**Checked by:** Brandon Villar

Friday, 10/18/13, 2:00 pm - 6:00 pm

Meeting #15: Back in town!

Outreach Team

Attending: Nadya Dooley, Jamie Poston, Brandon Villar, Logan Peterson, Carter Peterson, Scott Dooley

Coaches/ Mentors: Wade Peterson, Carol Villar

Goals:

- Nadya's back in town, so have her and Scott meet!
- Write Promote Video script
- Finish Jamie and Nadya's costumes

Tasks	Reflections
Sewing	We're just about done with both costumes and they look awesome!
Brainstorming Leadership Ideas for Promote video	Each team member contributed what their idea of leadership is, and we compiled them into a list to use in the PSA

Costume time!

- Jamie and Nadya started out by working on the costumes
- After Jamie tried hers on, we pinned the sides, and then Nadya walked her through sewing the seams up
- After she made sure that it fit, we sewed up the sleeves and cut them to the right length
- We then secured all the pleats on both costumes, and voila, they're just about complete! We only need to hem them now
- The communicator and ranking pins we ordered also arrived today, but we only received one communicator pin instead of two, so we sent amazon an email

Promote video

- Nadya sat down with everyone's ideas so far for the video and started to refine them on the computer
- She discussed her idea of having Carter play a child who then 'grows up' into Logan, after being taught to build robots and creating a team
- It turns out both Scott and Nadya play violin, Jamie and Carter play saxophone, Price plays guitar, and several people also play piano, so we decided that using the sheet music for the TNG

theme that Nadya found online, we could record our own arrangement for the PSA

- Nadya then asked everyone what their idea of leadership was, and we compiled a list for the video
- At the end of the day, we had this rough draft complete:
    - Open with quote "give a man a fish and he'll eat for a day, but teach a man to fish and he'll eat for a lifetime". slow music introoooooo...Show Carter, coach gives him a robot, he drives it off the table and it breaks. For the second part of the quote show the coach teaching him to fix it. Pan down on robot, then pan up and it's 'grown up Carter', IE Logan, with the rest of the team. Everyone strikes a pose and suddenly star trek costumes! STAR TREK MUSIC FAST PART STARTS (BUM BUM BUM BUM BUM BUM BUM BUMMMMMMM). Alternate pictures, dancing clips, clips from FLL camps, staged clips demonstrating each leadership quote
    - LEADERSHIP IS:
    -
    - Standing up and taking action
    - Guiding your companions while standing alongside them
    - Inspiring others to trust your judgement
    - Leadership is being the captain of your starship
    - Showing a man how to catch a fish
    -
    - LEADERSHIP SHOULD NEVER COME SECOND. LEADERSHIP. IS. FIRST (waaahhdolfkdkdkdkdkdfodo)

Team bonding!

- Nadya was introduced to "her long lost brother", Scott!
- After the meeting, we all had pasta and cake, and it was delicious.
- We hung out until everyone had to leave, and tried out Carter's whip, climbed the side of the house, and taught Brandon how to play slide

A little robotics too!

- Deconstructed the Ring It Up! Arm
- Redesigned the prototype Tractor Beam

Friday, 10/18/2013, 6:30 pm - 10:00 pm

Event Report: Team Bonding Through a Corn Maze!

Attending:	Nadya Dooley, Brandon Villar, Jamie Poston, Price Poston, Logan Peterson, Carter Peterson, Scott Dooley (dinner only)	**Coaches/ Mentors:**	Patti Poston, Carol Villar, Wade Peterson, Suzanne Peterson

Tasks	Reflections
Go out to dinner as a team, and then get lost for a couple hours in a corn maze	It was an extremely enjoyable evening!

Team Bonding

As being on the team wouldn't be any fun if all we ever did was work, we decided to go to Mari Chuy's Mexican Kitchen after the meeting and have some team bonding time! The food was good, and after we'd eaten we headed over to a nearby corn maze. It was incredibly cold, but Brandon had uncountable extra jackets that were passed around. Although we'd planned to stay together in the maze, we ended up splitting off into groups of twos and threes. We were in there for nearly two hours, but finally everyone got out! The exit was so badly marked that Price, Jamie and Logan found it at least three times and didn't realize it was the real way out. Finally Nadya and Brandon had to go in to find them. It was cold and dark, but incredibly fun, and we had a good time scaring some people, and afterwards, picking out pumpkins.

Written by: Jamie Poston	**Checked by:** Nadya Dooley

Sunday, 10/20/13, 2:00 pm - 7:30 pm

Meeting #16: Promote party

Outreach Team

Attending:	Nadya Dooley, Jamie Poston, Price Poston, Brandon Villar, Logan Peterson, Carter Peterson, Scott Dooley, Cole Kenny	**Coaches/ Mentors:**	Wade Peterson, Carol Villar

Goals:

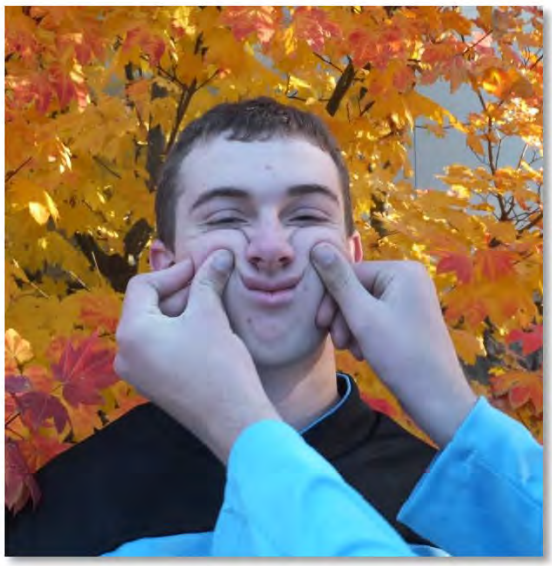
- Get all the footage for the PSA video and team pictures
- Radio show!

Tasks	Reflections
Promote video	We didn't get all the clips we needed, but we got the essential ones and Jamie and Price can send Nadya the rest
Team pictures	We found a scenic spot and everyone had their picture taken for the website

Getting Footage

- Once the video camera was charged and ready, Nadya discussed the details of the video with the rest of the team
- We filmed coach Wade giving Carter a robot, him crashing it, and then being taught how to fix it, to demonstrate the concept of giving a man a fish vs. teaching a man how to fish
- This was quite a process, as the robot we were using wasn't functional at the time: Logan hid in the closet and pulled it into the doors using fishing twine, and then with another strand, we pulled it over sideways
- After getting all that footage, we all changed into our costumes and went outside to find a scenic place to film us playing our instruments and dancing around

- Everyone was then photographed individually for bio pictures (see our website), and we snapped a couple team photos! Everyone looked dazzling in their costumes.




Showtime!

- Nadya and Jamie left the meeting early to head back to Jamie's house for the radio show
- After recording and preparing all the last minute audio files, they sat down together and broadcasted! It was a lot easier for the show to flow because it wasn't over Skype
- It was probably the best broadcast yet, lasting 45 minutes with live singing, tips, robot discussion, and question answering
- We also took videos of Nadya and Jamie broadcasting to use in the Promote Video

Written by: Nadya Dooley	**Checked by:** Scott Dooley

Saturday, 10/26/13, 9:00 am - 10:30 am

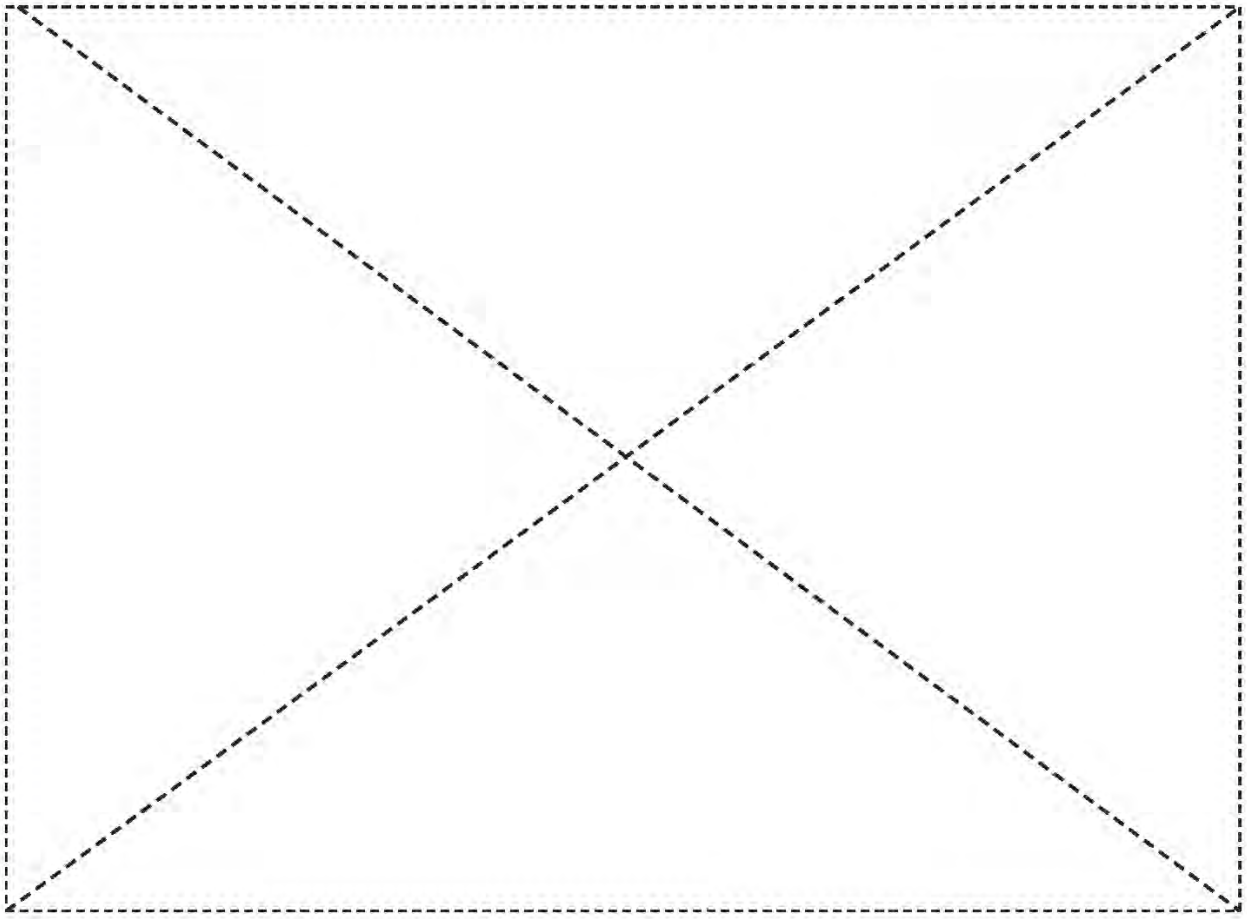
Event Report: Outreach at Northern Nevada Inventors Association Meeting

Outreach Team

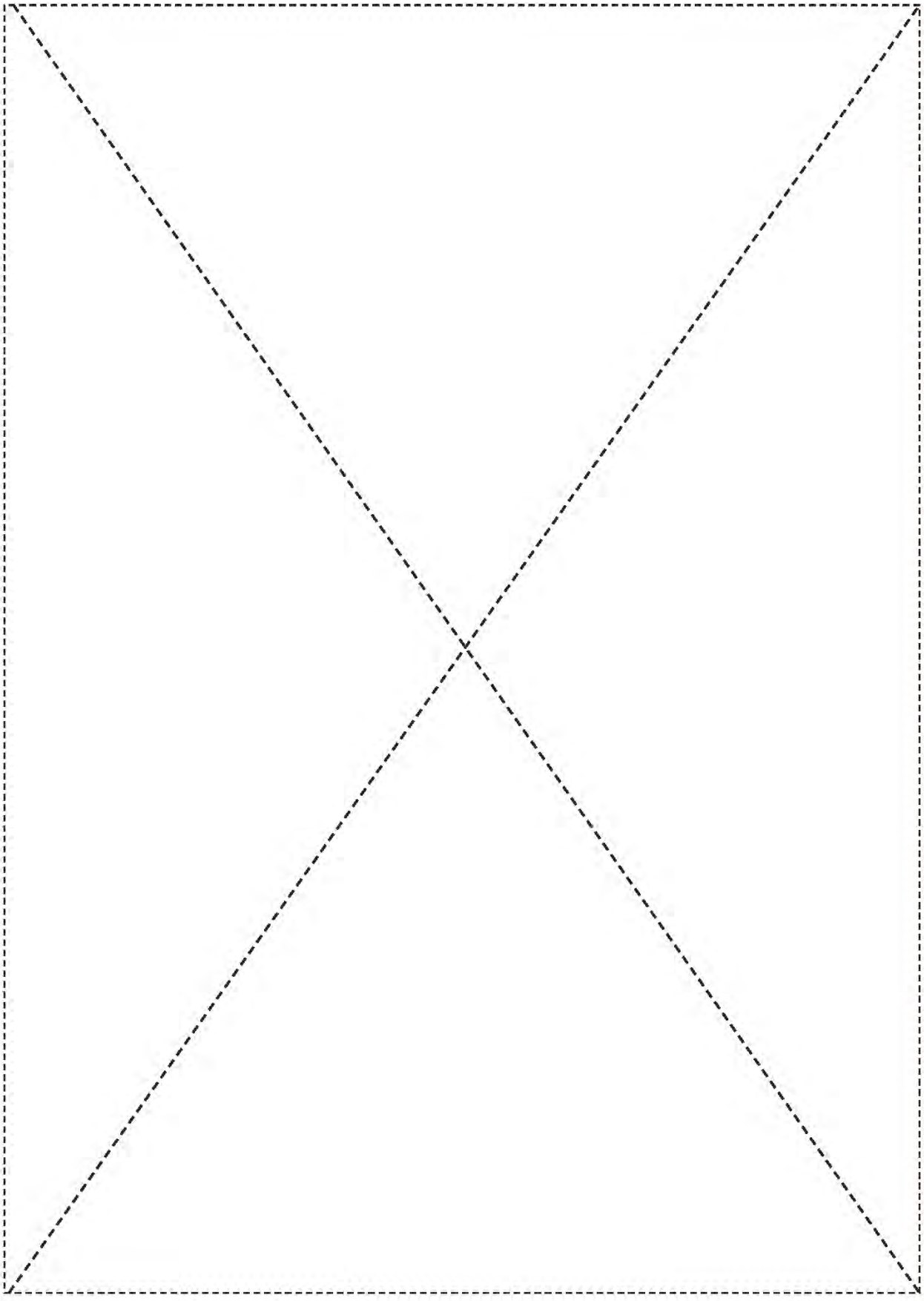
Attending: Scott Dooley **Coaches/ Mentors:** None

Tasks	Reflections
Promote video	We didn't get all the clips we needed, but we got the essential ones and Jamie and Price can send Nadya the rest
Team pictures	We found a scenic spot and everyone had their picture taken for the website

My presentation was okay - I need to work on my public speaking skills. I explained that the arm and the base are almost completely done. I was also able to show the Promote video from the First Tech Challenge. They asked lots of questions on the robot, such as how it was built and how and what we did to program the robot. The attendees thought that the challenge was pretty hard to do.



Written by: Nadya Dooley **Checked by:** Scott Dooley



Friday, 11/01/13

Costume/Promote/Progress Report

Personal Progress Report

Attending: Nadya Dooley **Mentors:** None

Tasks	Reflections
Work on costumes	After my costume was completed, Jamie's was a piece of cake and only took a few hours
Visit the team!	It was great to meet Scott and spend some time with everyone
Radio Show	Now that we're becoming more experienced, the shows are flowing much more smoothly and there are a lot less nerves beforehand
Promote video	We did the filming, and the video has been nicely drafted

More Sewing

- With my costume nearly completed, I began work on Jamie's.
- After I pinned and cut all the pieces, and with mentor Ming's help with the more difficult triangle pieces, sewing the costume only took about three hours!
- At this point her costume only required the sides, sleeves, collar, and hem to be sewn up, and mine only needed the sleeves and hems finished
- We finished both costumes when I visited the team on October 18th! (See "131018_OutreachTeam" journal)
- Jamie's turned out even better looking than mine, but they're both beyond satisfactory based on my expectations when we started the project

Visiting the team!

- I flew up to see the team after school on Thursday, October 17th, and stayed for the weekend
- It was great to hang out with everyone, have a chance to work some on the robot, get some clips for the Promote Video, and broadcast the radio show with Jamie
- We finished Jamie and my costumes and took team pictures!
- Jamie and I also learned the violin and saxophone parts to the Star Trek Next Generation theme

music and practiced together so that we can record it for the Promote Video

Radio show

- As I'm the main script writer for Captain's Log, most of my time has been put into designing and creating the episodes
- Jamie and I have come up with a lot of unique ideas to make the show more interesting, including discussing video games, singing and playing Star Trek songs, reporting FTC and FLL news, and doing more live Q&A's with the listeners
- We're still having trouble getting all the listeners we'd like, but having a small audience to begin with is probably a good idea- we're still doing way better than I thought we would when Jamie and I first came up with the idea while touring together in Europe during the summer!

Promote Video

- After filming the clips for the PSA while staying with the team (see "131020_OutreachTeam" journal), I went home and started work immediately
- I recorded the theme song on my violin and then sent it to Jamie so she could record the saxophone part alongside Carter
- I then created a rough draft of the video!
- I emailed the team asking them all to send me clips of themselves from previous years in tournaments, and pictures from mentoring that we can use that demonstrate leadership.

Written by: Nadya Dooley	**Checked by:** Jamie Poston

Friday, 11/01/13

Website Progress Report 6
Personal Progress Report

Attending: Brandon Villar **Mentors:** Carol Villar

Tasks	Reflections
Looking Good	Website Screenshots
WordPress plugin	Plugins can extend WordPress to do almost anything you can imagine. You can search, find, download, install plugins easily. Always consider the rating and look at the Reviews as well as the Support section.

Looking Good

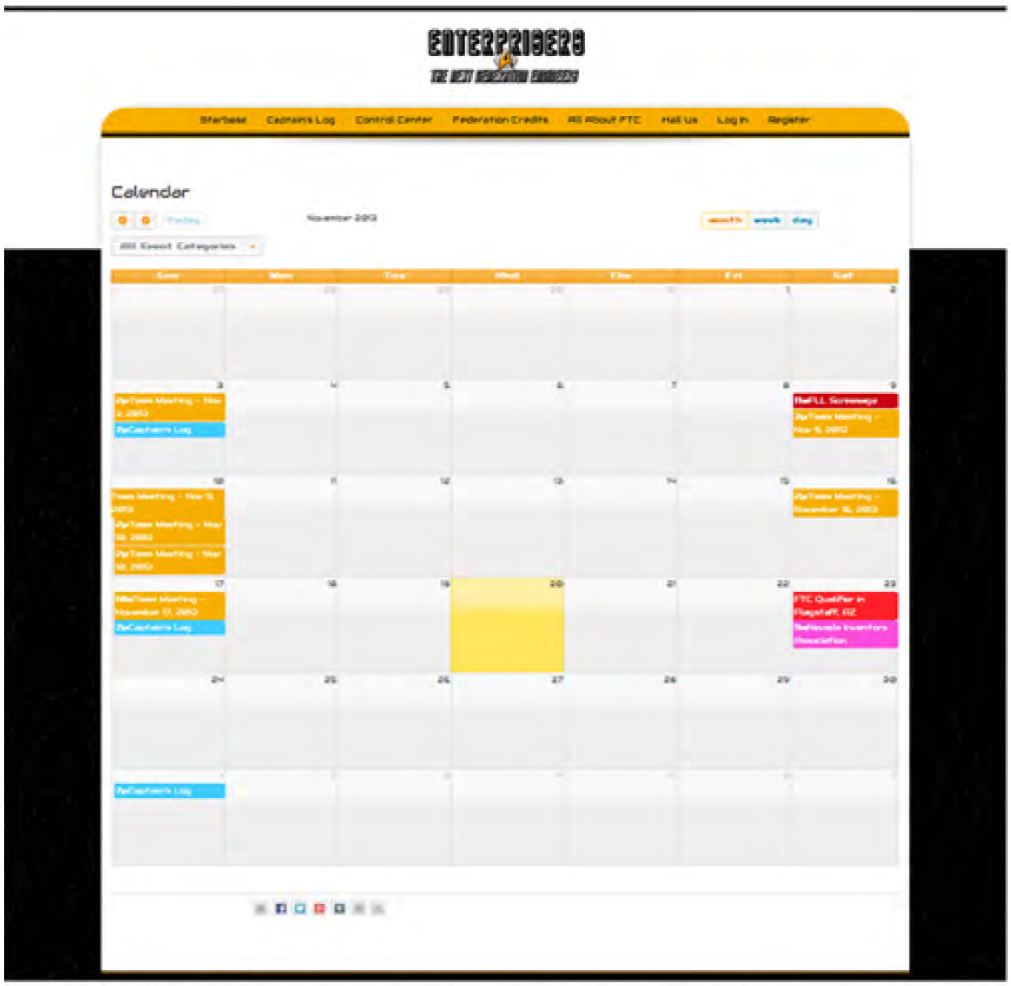
Here are some screenshots of the website. It has been a great learning experience. WordPress is not very hard but can be time consuming within some of the plugins it's just trial and error!

FEATURES	Best viewed in Chrome
Menu	 **Theme:** Preference Lite a responsive theme, built with the latest HTML5 and CSS3 styling methods to give you more flexibility. You get an amazing level of styling and layout features from Unlimited Colours, a customized WordPress Gallery, several Post Formats, styled widgets, gorgeous typography, 8 sidebar widget positions, plus you get a special Showcase Header for sliders and image banners. Take full advantage of the built-in WordPress Customizer with many theme options that gives you real-time previews as you personalize your theme. **Google Font:** Audiowide using Google Typography and Wordpress Font Uploader Free plugins The Remove Admin Bar plugin does what it says and removes the non-user friendly admin bar on all the web pages.
Footer	 Mostly html here

Home -> Starbase

Cole wrote parallax scrolling code for the front page. Tried many parallax coding plugins but they did not work. Finally, used EmbedIt Pro to simple embed the code in the page. Note: doesn't look right on mobile phone.

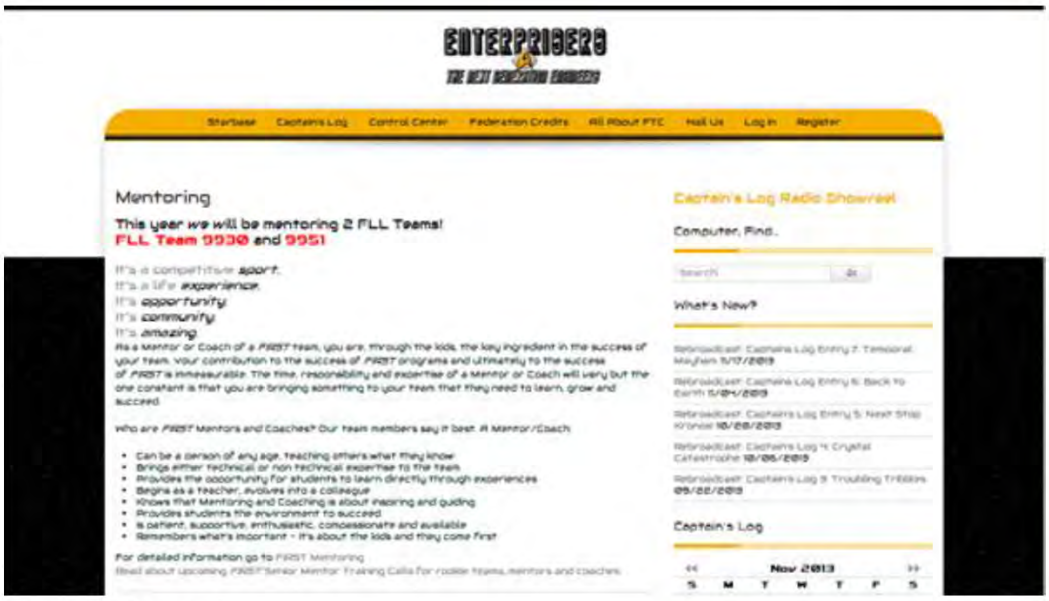
Captain's Log -> Calendar



Used WP FullCalendar plugin to show event entries. Used Events Manager plugin to enter calendar events. A great feature is that it allows you to make events registerable online, for example for our camps.

Captain's Log -> Stardates

Captain's Log -> Mentoring



Just a regular page.

Captain's Log -> About Our Camps

Another regular page

Control Center -> The Crew

Another regular page

Control Center -> Imaging

-> 2013-2014 Enterprisers

-> 2012-2013 FTC Team 6024 - Lords of the Ring

-> 2012-2013 FTC Team 5326 - VC Vendetta

Using the Jetpack plugin to show "mosaic" gallery

Control Center -> The Holodek

->2013-2014 Enterprisers

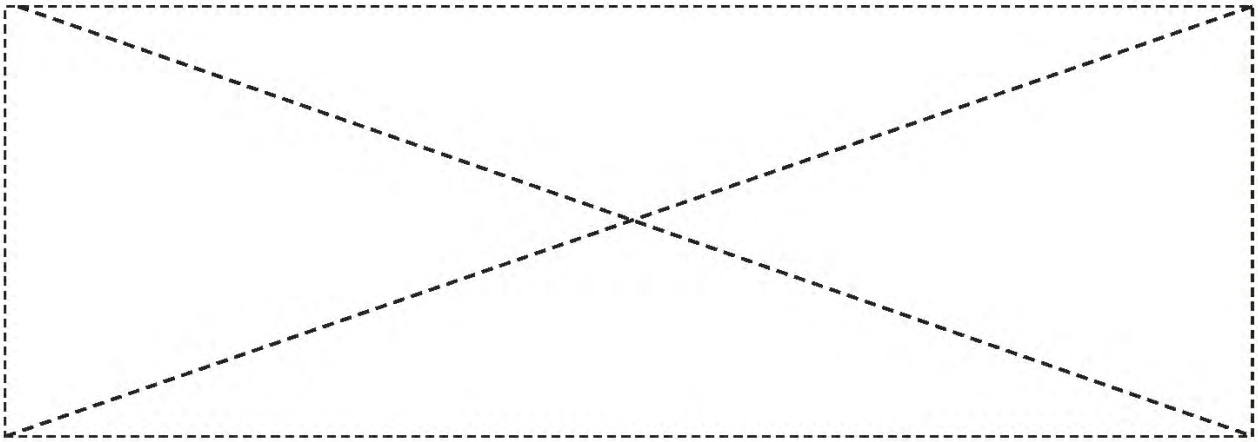
->2012-2013 Lords of the Ring Playlist

->2012-2013 ASCII Promote Video

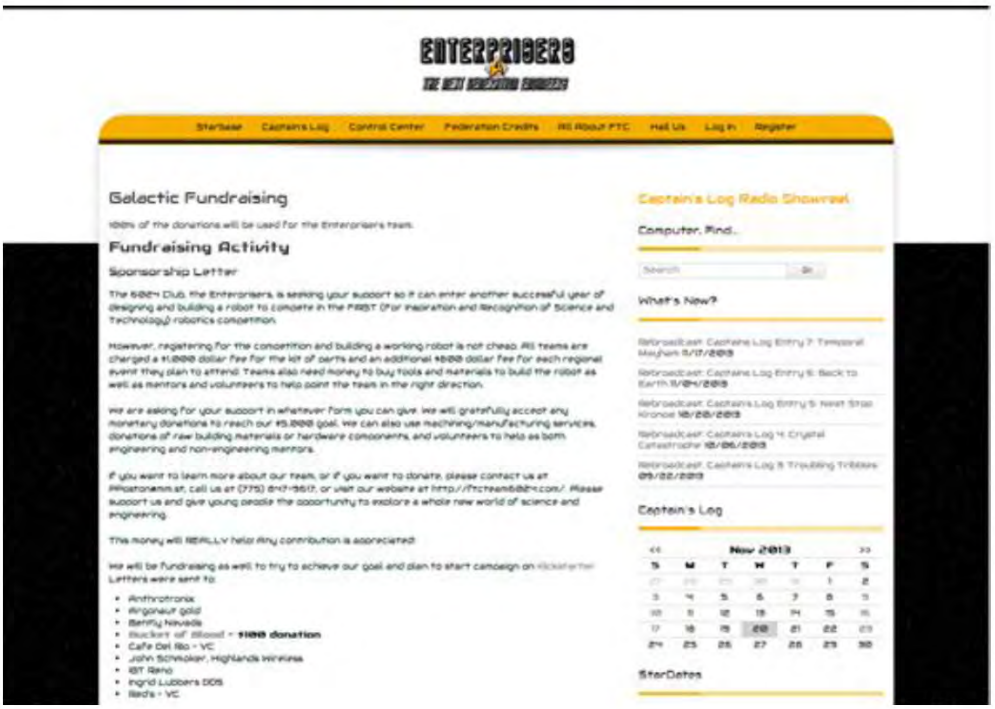
Federation Credits -> Credits Raised

Using Olimometer plugin to show our progress

Federation Credits -> -> Starfleet Sponsors

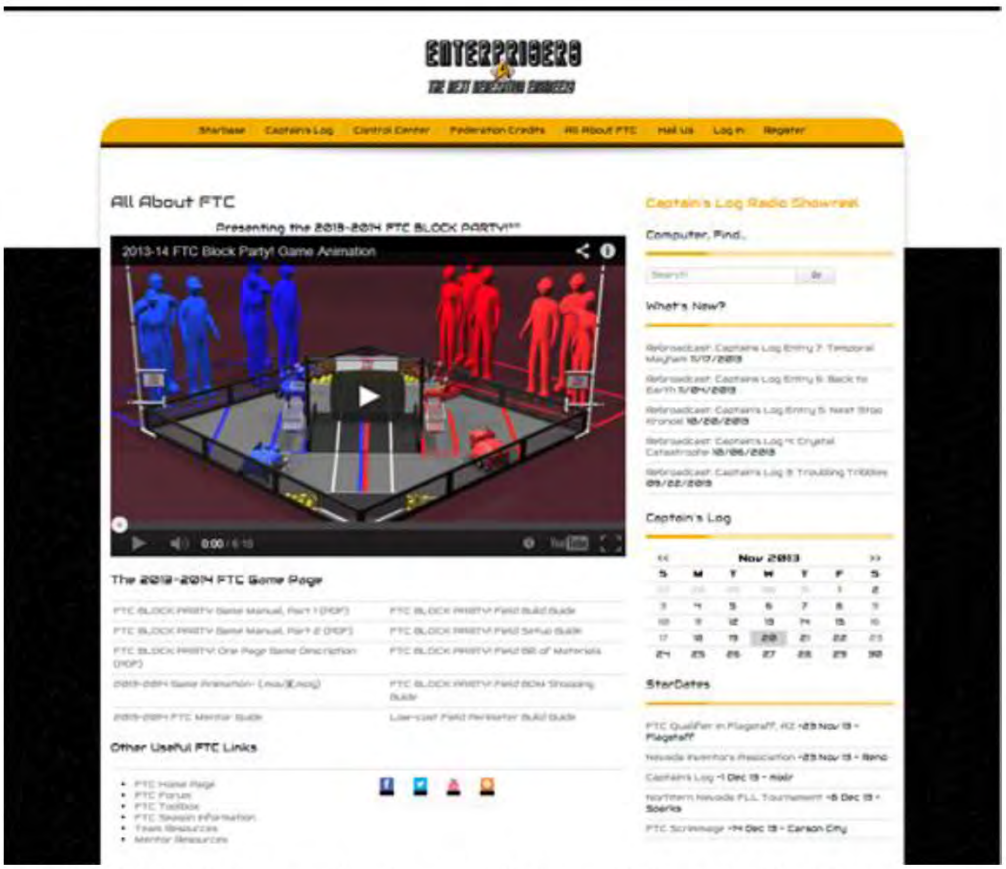


Federation Credits -> Galactic Fundraising

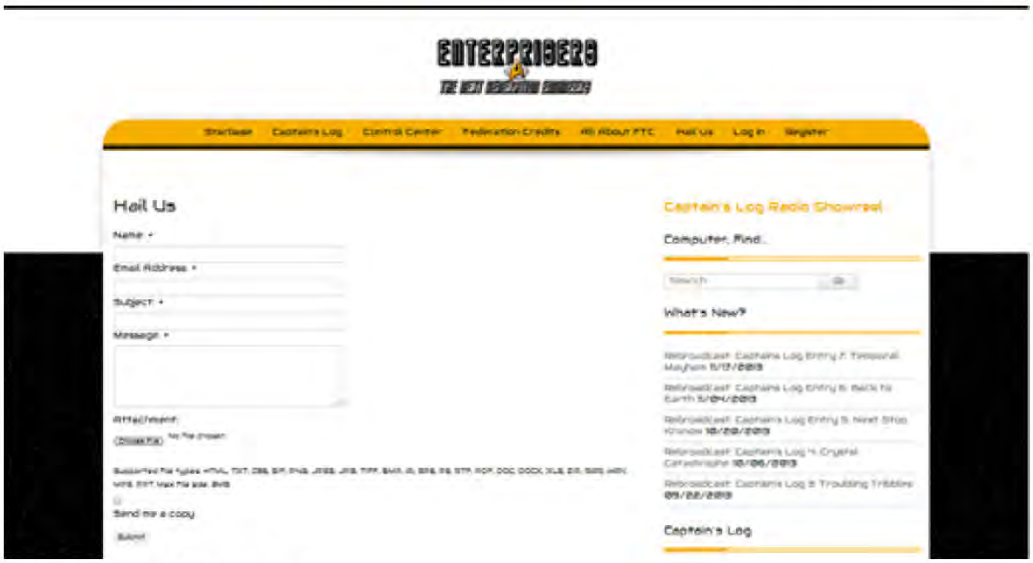


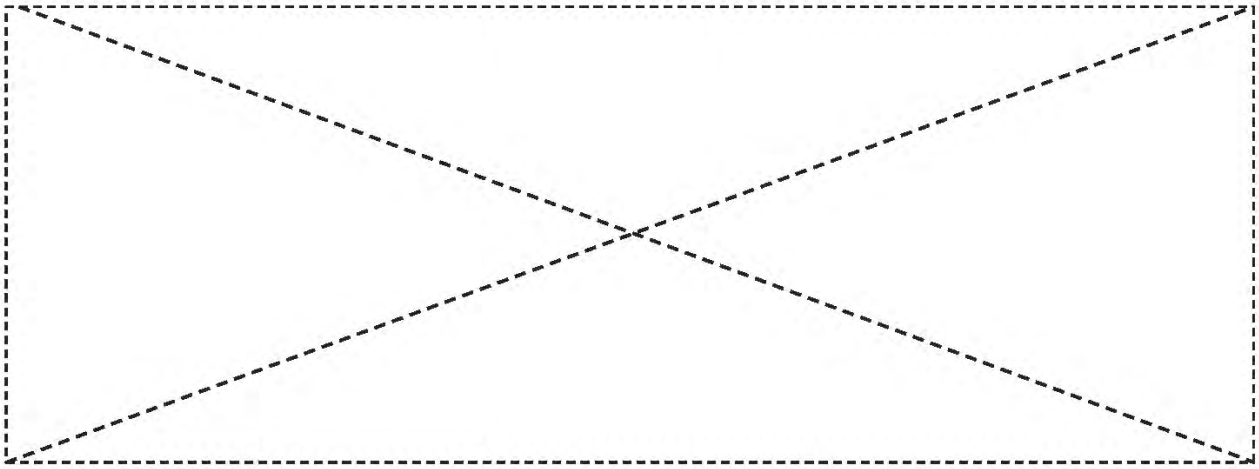
Regular page

All About FTC

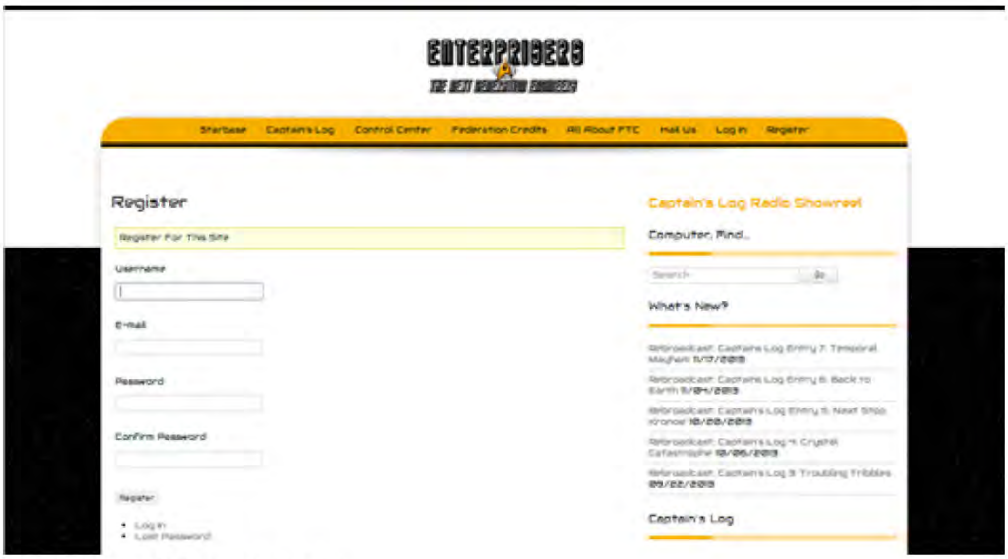


From the FIRST website – making it easy to find out all about the Block Party!

Hail Us	 Using Contact Form plugin
Login	 Login page and admin pages are not user friendly, using Theme My Login plugin to present a login page that matches our website theme. Also used WP Password Generator plugin to generate passwords and email them to new users when they are manually created.



Register

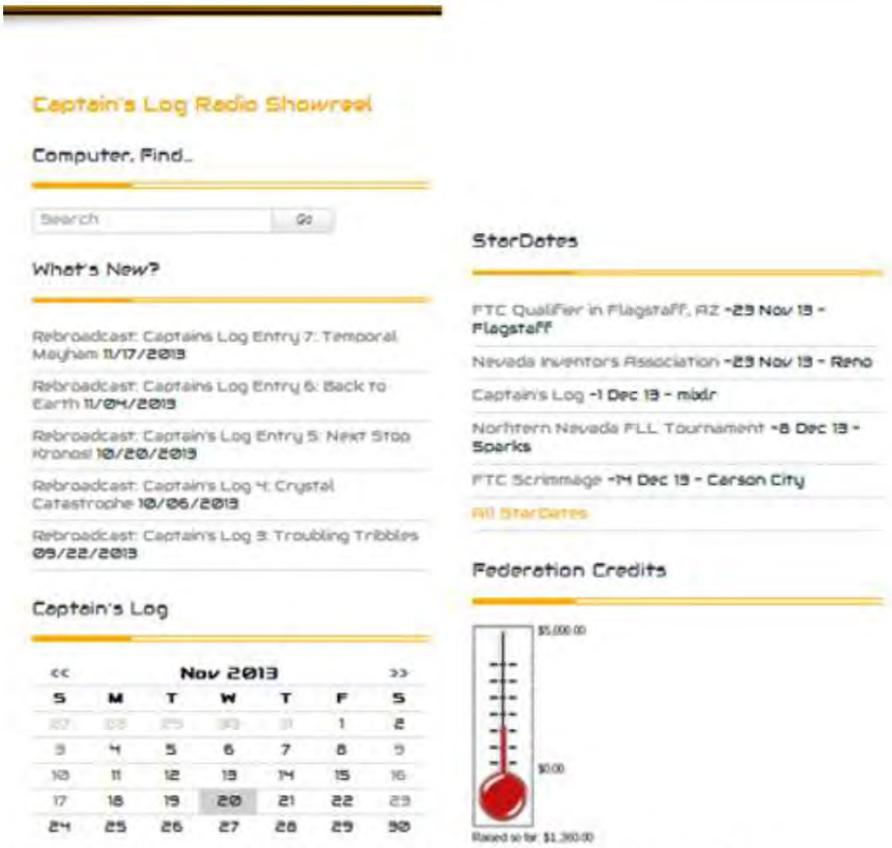


Part of Theme My Login plugin.

Sidebar for

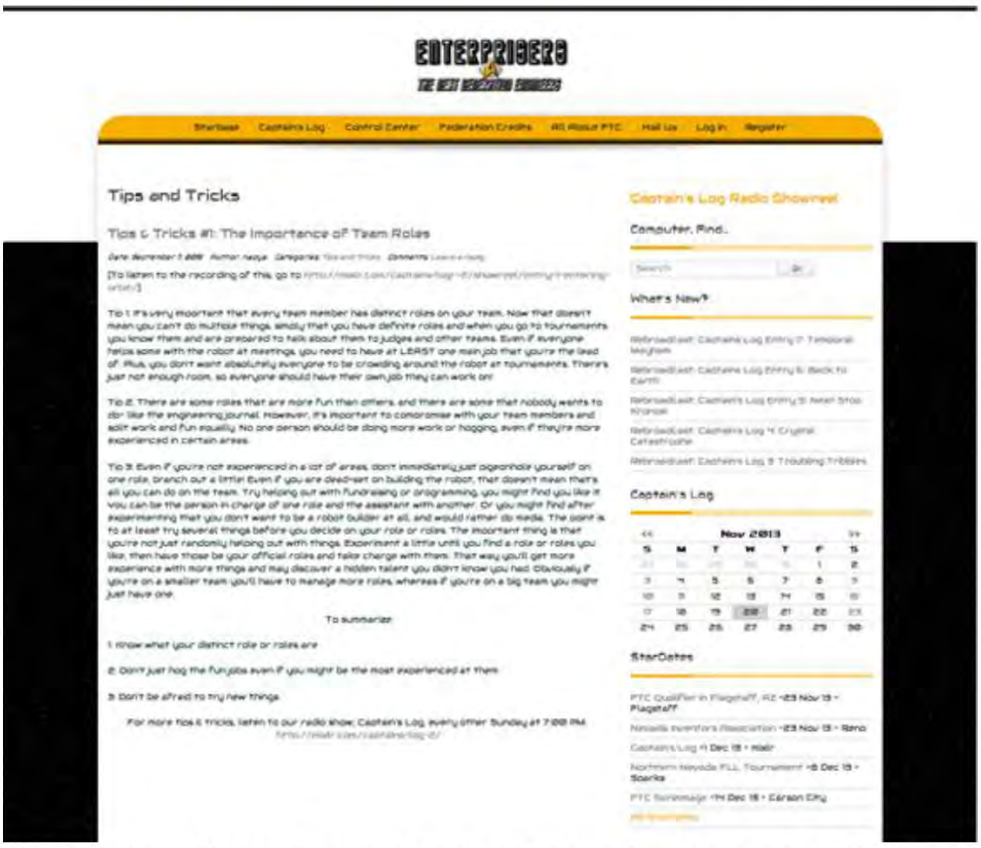
Searching

Posts & Events: Latest posts and Calendar & Events List



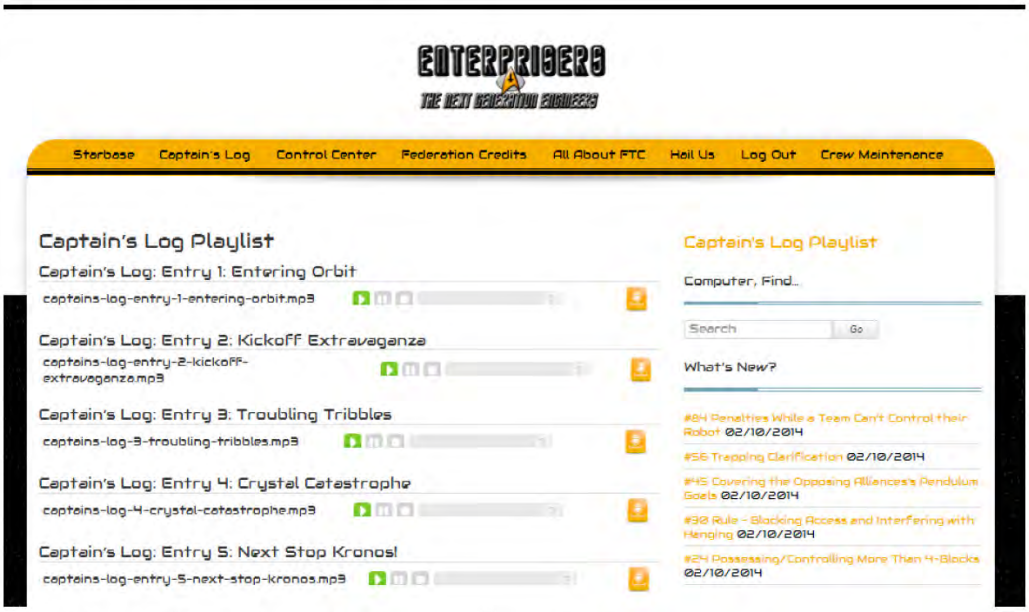
Created in the widgets area. Theme and plugins provide lots of options.

Tips and Hints? Posts from Team Members or Mentors



Self-serve feature allows our team to log in and post information on lots of categories. Categories can also be added as needed.

Captain's Log Radio show



Used Advanced Dewplayer plugin to enable mp3 play.

Written by: Brandon Villar	**Checked by:** Cole Kenny

Sunday, 11/3/13, 2:00 pm - 6:00 pm

Meeting #17: Progress - Chassis and The Tractor Beam

Build Team

Attending:	Scott Dooley, Jamie Poston, Brandon Villar, Logan Peterson, Carter Peterson	**Coaches/ Mentors:**	Patti Poston, Wade Peterson, Carol Villar

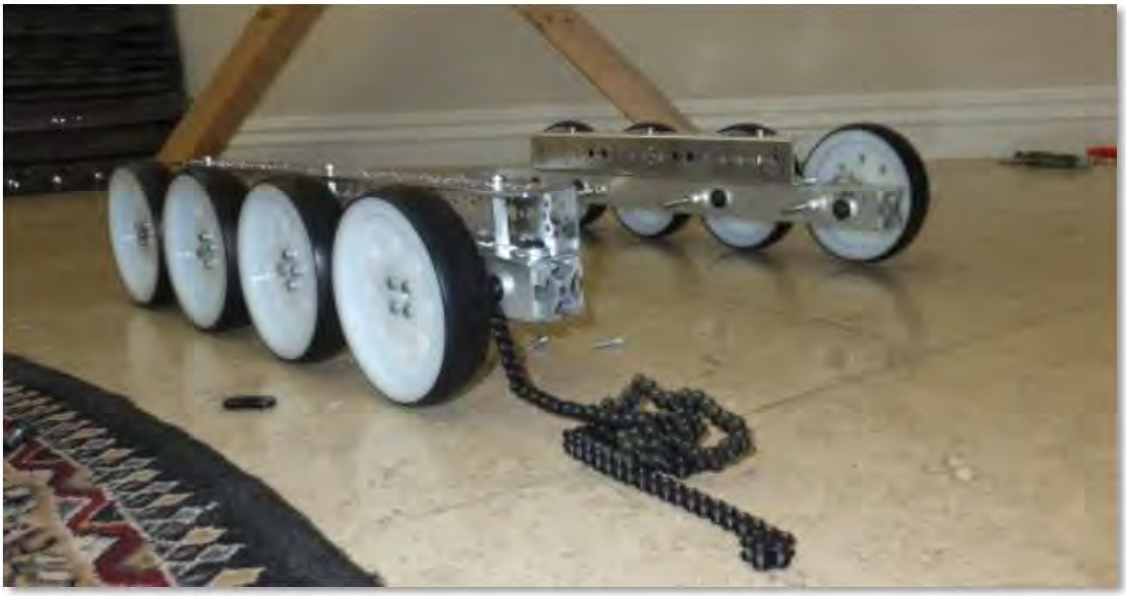
Goals:

- Add the rest of the wheels to the chassis
- Build the block picker upper aka "tractor beam"
- Build the linear slide for lifting the tractor beam

Tasks	Reflections
Complete Chassis	We were able to finish up the basic chassis design
Start building Tractor Beam from prototype	We developed the arm from the prototype and used all parts that we ordered to finish the arm

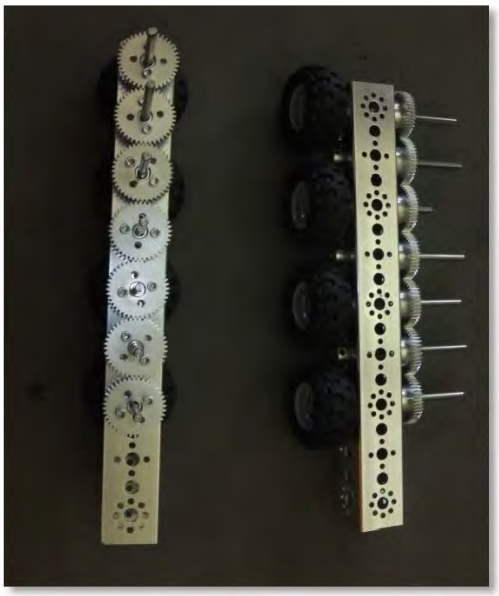
Complete Chassis

- Attached 16 ¼ inch channels to the 17" 80/20 bar
- Added 16 ¼ inch Tetrix channels to the chassis
- Added 8 wheels, 4 on each side, to the chassis
- Added sprockets to the wheels
- Added chain to the wheels



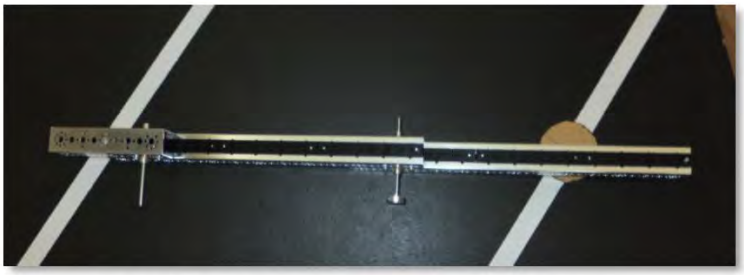
Tractor Beam (Arm)

- Attached 8 rubber Lego Balloon tires, 4 on each side
- Added gears to tires
- Added an aluminum plate for support
- Ordered more wheel hubs



Linear Slide

- Attached rack to 2 channels
- Attached the pinion to 2 channels
- There is a pinion on 1 channel, a pinion and a rack on 1 channel and a rack on one channel



Written by: Carter Peterson	**Checked by:** Logan Peterson

Saturday, 11/09/13, 2:00 pm - 6:00 pm

Meeting #18: Rack and Pinion

Build Team

Attending:	Jamie Poston, Brandon Villar, Logan Peterson, Carter Peterson, Cole Kenny	**Coaches/ Mentors:**	Patti Poston, Wade Peterson, Carol Villar

Goals:

- Attach the rack and pinion to the chassis
- Attach the tractor beam to the rack and pinion
- Redesign tractor beam

Tasks	Reflections
Construct the second rack and pinion	Racks and pinions are way less complicated than they seem.
Attach the rack and pinion to the chassis	One rack and pinion is attached to the chassis. Before we attached the other one, we stopped to talk about just how we are going to attach the motors and the tractor beam.
Redesign tractor beam	Cubes were getting stuck in the tractor beam because of the friction
Discuss the lifting set-up for the tractor beam	We talked about the ideas we had currently, and brainstormed new ideas for lifting the tractor beam, and how to attach the tractor beam.

Construct the second rack and pinion

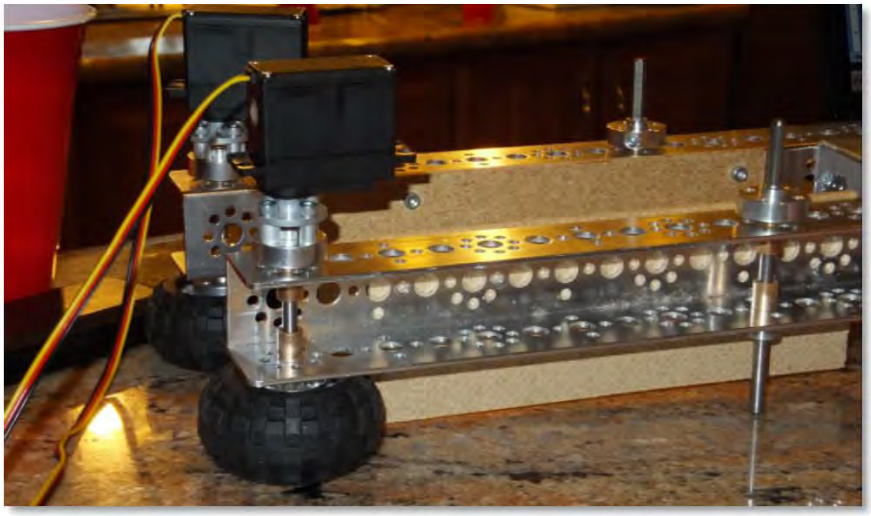
- With three channels total, one channel has a rack, one channel has a pinion, and one channel has both channel and a pinion.
- It took a lot of screws and a lot of time, but we finally managed to finish it.
- After finishing the second one
  - We discovered that we had to rotate the first channel to be able to attach it to the chassis, which meant we had to reattach the racks on both sets.
  - We also discovered we really didn't need a second one as it was sturdy enough, that would be less weight and most importantly less motors!

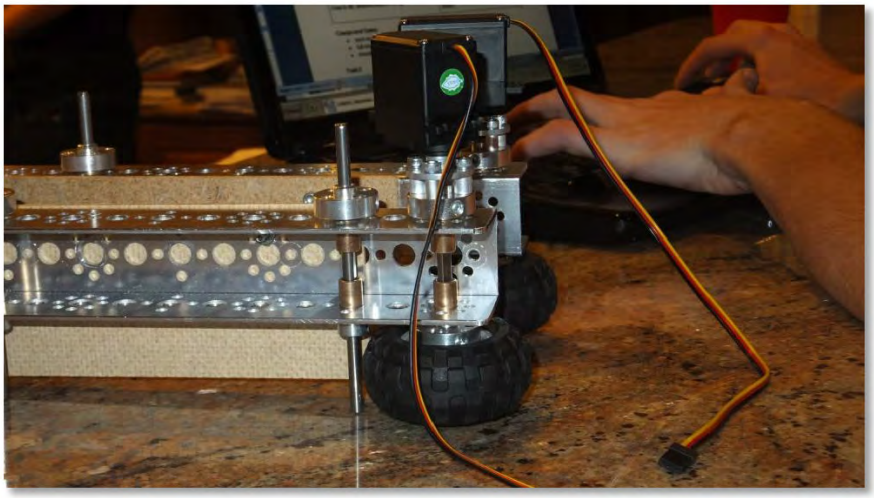
Attach rack and pinion to chassis

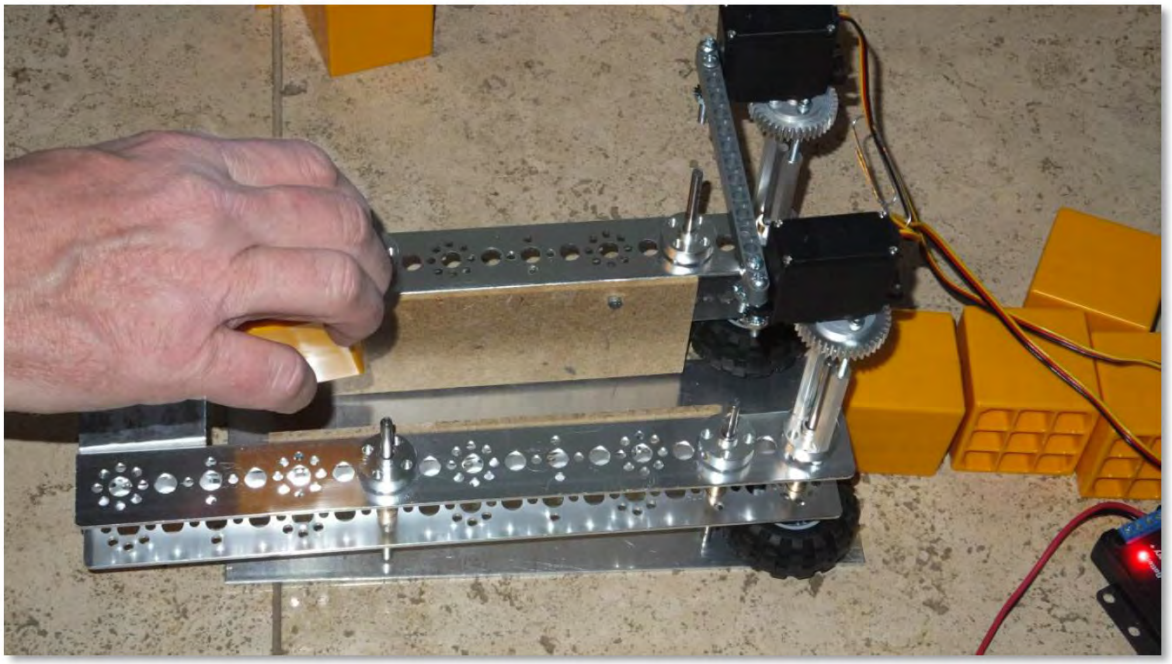
- The rack and pinion set is 16¼ inches by itself, so it has to be attached a little lower on the chassis base to fit within the 18x18 dimension limit set by FTC.
- We experimented with several different ways to attach the chassis, with different heights and places on the Tetrix channels.
- After we had one rack and pinion set attached, we stopped to discuss our ideas so far.

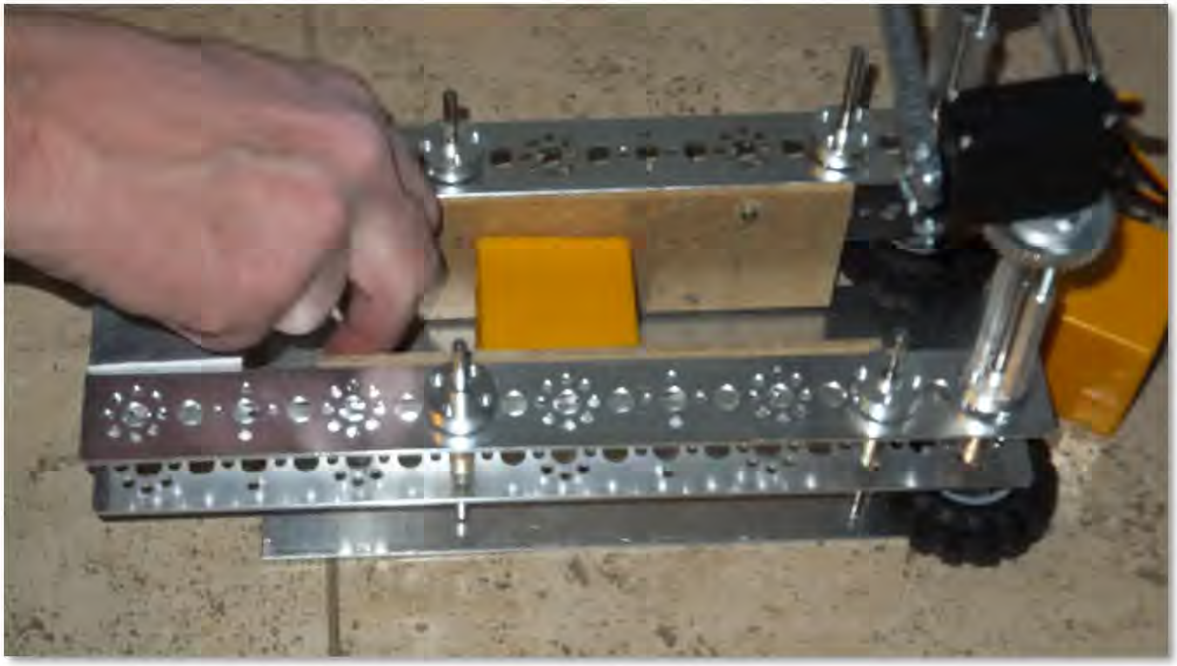

Redesign Tractor Beam

- After testing the tractor beam we found that the cubes were consistently getting stuck
- We decided to redesign by reducing the amount wheels from four to one on each side.
- We attached the servo motors to it - not as easy as it looks
- After manual testing, this design proved more effective and the cubes did not get stuck!
- Also attached the plexiglass bottom and wood sides



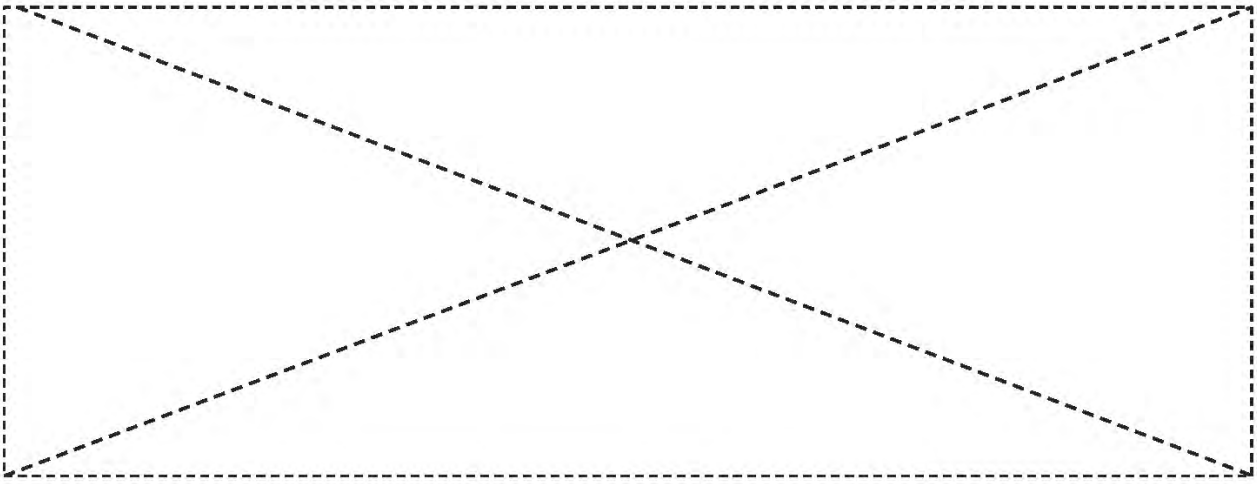







Discuss the lifting set-up for the tractor beam

- We attached the tractor beam to the linear slide with a coat hanger to test it out
- Our problems starting out were that we didn't know how to attach the motors to the rack and pinion to drive the rack and pinion assembly. Also that our tractor beam was so self-contained that it wouldn't reach the boxes. We would have to drive our lower assembly into the lower goal to drop the cubes into the upper goal.
- We brainstormed, and thought "What if the rack and pinion isn't straight up? What if it's at an angle?"
- This is a new way to attach the rack and pinion to the chassis would allow the tractor beam to expand vertically and horizontally to lean over the upper goal to drop cubes into the boxes.
- We also found that we could attach the motor for the middle channel at the bottom of the channel. This would sacrifice some range, but not height. This is great, since we especially need this height to balance out the boxes if the balance is maxed out on one side.



Written by: Jamie Poston	**Checked by:** Cole Kenny

Saturday, 11/09/13, 9:00 am - 1:00 pm

Event Report: FLL Scrimmage

Attending: Jamie Poston, Carter Peterson, Logan Peterson, Cole Kenny, Brandon Villar, Scott Dooley

Mentors: Patti Poston

Goals:

- Ref the FLL Scrimmage
- Coach the FLL Teams: 9930 and 9951

Tasks	Reflections
Ref Scrimmage	Our team members reffed
Coach Team 9951 & 9930	Jamie Poston coached the 2 teams at the scrimmage
Clean-up	We helped clean-up all the equipment

Ref Scrimmage

- Our FTC team and a friend were the only ref's at the scrimmage
- We were taught the game with the help of the M-Cubed coach and we successfully did close to 25 rounds
- We practiced reffing as we will be reffing the FLL Tournament in December
- Logan Peterson was asked to be the Captain of the refs

Coaching

- Jamie Poston is the coach of teams 9930 and 9951
- She helped guide these two rookie teams at the scrimmage by making sure they knew how to sign-up for the table and how to share running the robot at the table
- The teams took 6th and 8th place and score close to 100 points. Not bad for their very first time!

Clean-up

- Our team helped with cleanup, by packing up the game tables, folding tables and chairs and putting them back in storage and packing the trailer with all the equipment.

Written by: Jamie Poston	**Checked by:** Nadya Dooley

Sunday, 11/10/13, 2:00 pm - 6:00 pm

Meeting #19: It's all about the "Tractor Beam"

Build Team

Attending:	Jamie Poston, Brandon Villar, Logan Peterson, Carter Peterson, Scott Dooley	**Coaches/ Mentors:**	Patti Poston, Wade Peterson, Carol Villar

Goals:

- Perfect the Tractor Beam
- Add Plate to Tractor Beam
- Connect the motors to drive the two rack and pinion sets
- Build a parallelogram

Tasks	Reflections
Connect the motors to the rack and pinion	Although it was kind of hard to reach the connecting nuts and find motors without encoders, we still managed to connect them.
Make the rack and pinion run smoothly	The rack and pinion runs a lot smoother with washer spacers. The torque of the Tractor Beam when extended no longer affects the lifter.
Perfect the Tractor Beam by adding a bottom plate	After fiddling with mounting methods, we managed to get the Tractor Beam to run smoothly and consistently.
Parallelogram	We did not build the parallelogram as we decided our lifting mechanism looked great and there was no need at this time to build it.

Connect the motors to the rack and pinion

- The motors have to mesh with a larger gear to be able to turn the rack and pinion.
- To be able to do that, we took off one section of the rack, and attached the motor to the space that was provided from removal.
- It took several attempts to find the right spot to put the motor in, but it eventually worked out.

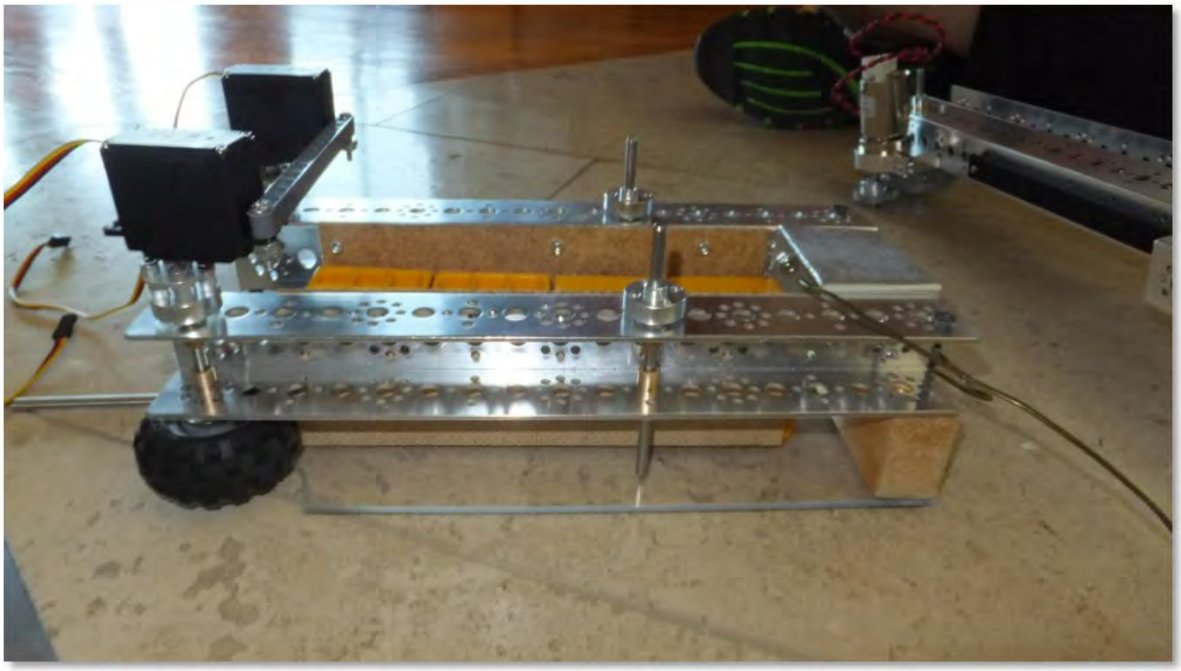
Make the rack and pinion run smoothly

- The problem we had with the rack and pinion was that it took way too much friction to move it up and down. If we tried to run it with the motors at that time, it would probably burn them out because of all the stress from torque.
- When we took off a section of the rack, we noticed that the 'trucks' (the parts that held the two channels together) were sticking when they slid along the rack.
- We tried to loosen the screws on the rack a little, and that worked pretty well, except the racks didn't line up.
- To have the two racks line up, we added washers in between the rack and the channel, and that worked great.
- We mounted a piece of 90 degree angle aluminum so it held the two parts of the sliders together, even when fully extended.


BIG GUNS
2012
SOFTBALL

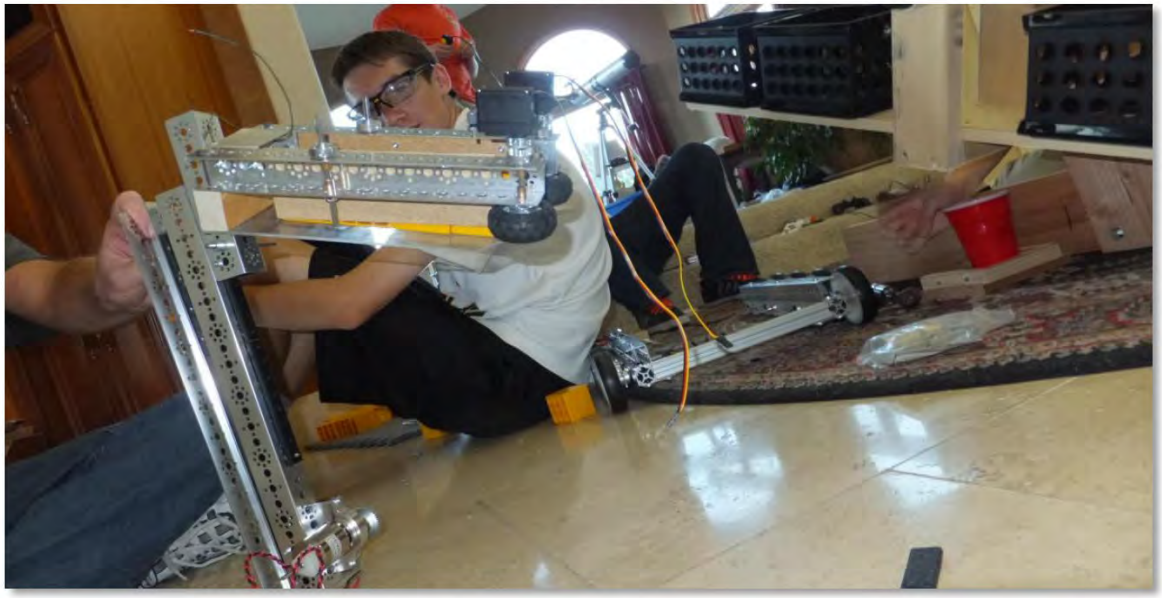
Perfecting the Tractor Beam

- We had to modify the side boards so the blocks would slide in and out without getting stuck.
- For the bottom plate, we chose plexiglass for its properties of transparency, low mass, and easy machinability.
- We beveled the front of the plexiglass and cut holes where our Tractor Beam's wheels would go. This allowed for minimum contact between the wheels and the plexiglass plate.
- We mounted it to the Tractor Beam using a block of wood and screws, making sure that the Tractor Beam would be able to flex.



Tested tractor beam on rack and pinion

- Attached tractor beam to rack and pinion with a coat hanger to manually test
- Tested a couple times by running the rack and pinion up and down a couple of times



Written by: Jamie Poston, Cole Kenny	**Checked by:** Brandon Villar

Monday, 11/11/2013

Coaching FLL Teams
Personal Progress Report

Attending: Jamie Poston **Mentors:** None

Tasks	Reflections
Coach FLL Team	I am head coach of FLL Team 9930 and assistant coach for team FLL 9950
Coach FLL at Scrimmage - November 9th, 2013	Coach the teams at their first scrimmage

Coach FLL Team

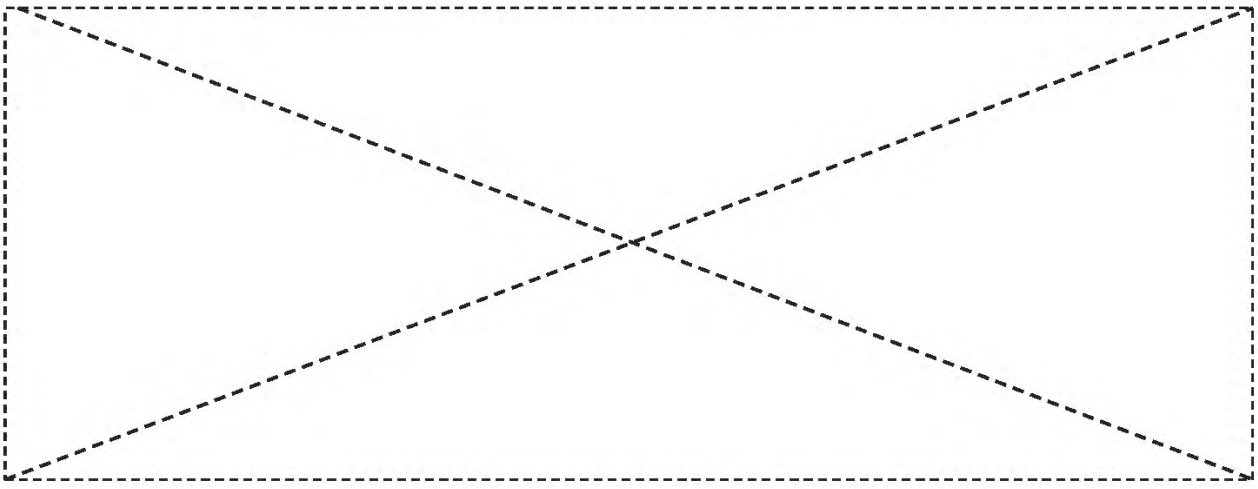
- I started coaching my 2 teams on Thursday, September 5th. Our team meets every Thursday from 12pm - 2pm at Reno Christian Fellowship. The teams are part of the Eagle-co-op Robotics Club. I am the head coach for Team 9930 with an assistant coach Angel Nugent (parent) and I am Angel's assistant coach for the 9950 team
- We started off by doing teamwork challenges so they could get to know each other a little better and get used to doing team challenges
- We then brainstormed different natural disasters, after having the kids do research on different disasters the team picked hurricanes to research. Then the team brainstormed and came up with a clever innovation, a computer game that prepares you for hurricanes that can be handed out to schools.
- We also had the team start building and programming their robots.

FLL Scrimmage

- We entered our teams in their first FLL Scrimmage on Sunday, November 9th. Team 9950 finished 6th with 83 points and team 9930 finished 8th with 74 points. We were very proud of our team for scoring so many points for their first time out.

Up Next

- Our team needs too:
  - Practice presentation
  - Work on teamwork challenges
  - Make posters and props
  - Practice running robot and work on tweaking programs
  - Do 2 practice tournaments with judges and scoring



Written by: Brandon Villar	**Checked by:** Cole Kenny

Saturday, 11/16/13, 2:00 pm - 6:00 pm

Meeting #20: Putting it all together

Build Team

Attending: Jamie Poston, Logan Peterson, Carter Peterson, Cole Kenny, Brandon Villar **Coaches/ Mentors:** Wade Peterson, Carol Villar

Goals:

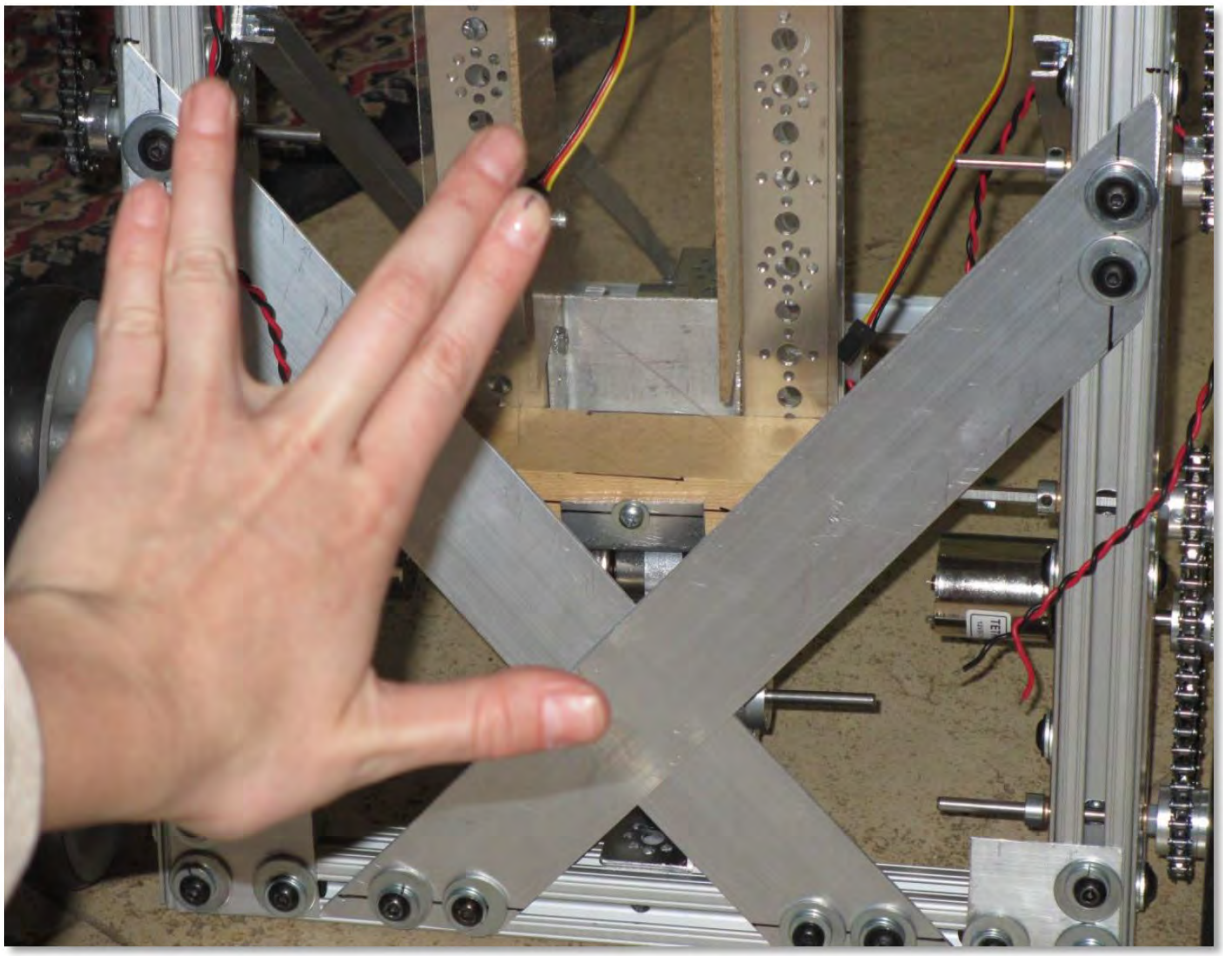
- Create metal supports for the linear slide/rack and pinion assembly
- Attach the drive motors to the chassis
- Wire the robot
- Create metal guides for the tractor beam
- Test the robot!

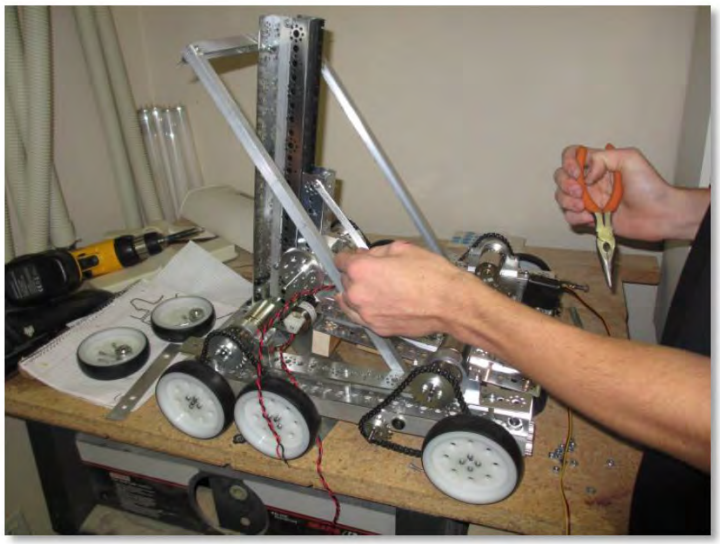
Tasks	Reflections
Create Metal Supports	Two pairs of supports were created. One for the tractor beam to attach to the rack and pinion/linear slide, and one for the rack and pinion to attach to the main chassis.
Attach Drive Motors	We attached the drive motors and chains, for each motor to control two wheels, to the chassis.
Wire the Robot	Decided to complete next time because of time constraints.
Test the Robot!	Tested some parts, but since the wiring is not completed further testing will be done later.
Make and attach the hook for lifting the robot	It works! However, the robot drifts down and doesn't lock into place. The official rules need to be looked at.

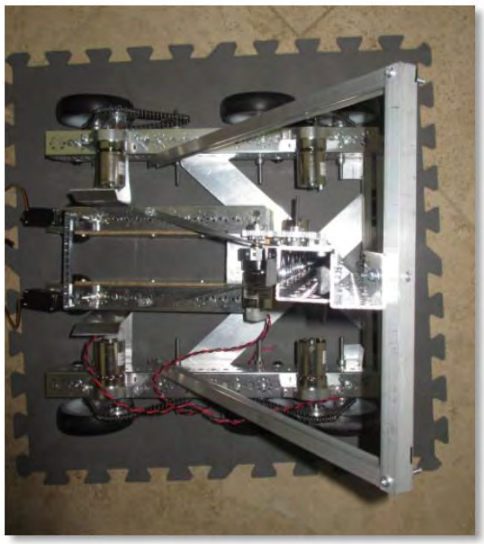
Create Metal Supports for the linear slide and block grabber/tractor beam

- When the linear slide extended, it was really shaking, and the linear slide and the tractor beam were both going from side to side and putting strain on the metal connectors connecting the tractor beam to the linear slide and the linear slide to the main chassis.
- We decided that we need two pairs of supports for the tractor beam and the linear slide.
- We measured and cut out the supports, twisting the pair used to stabilize that tractor beam so that they would attach to the channels.

- The tractor beam is still kind of shaky horizontally, but it is completely stable vertically. The linear slide is very stable now too.

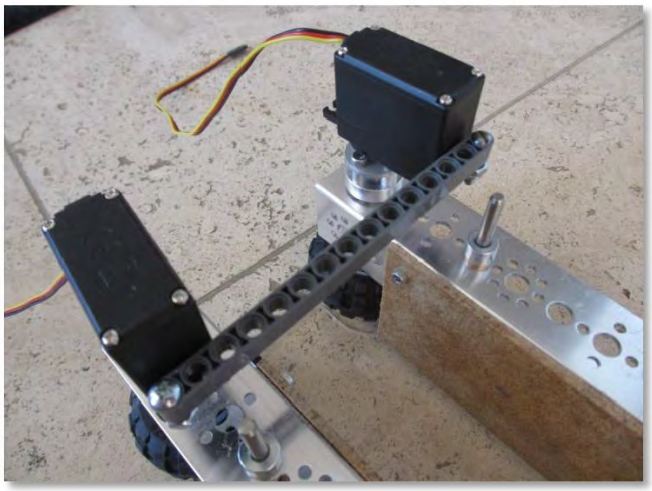


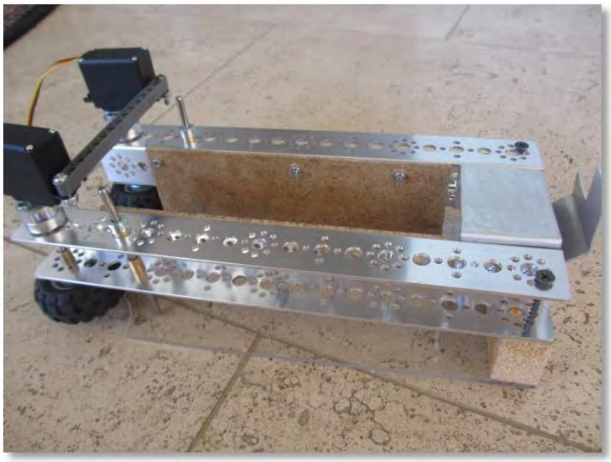


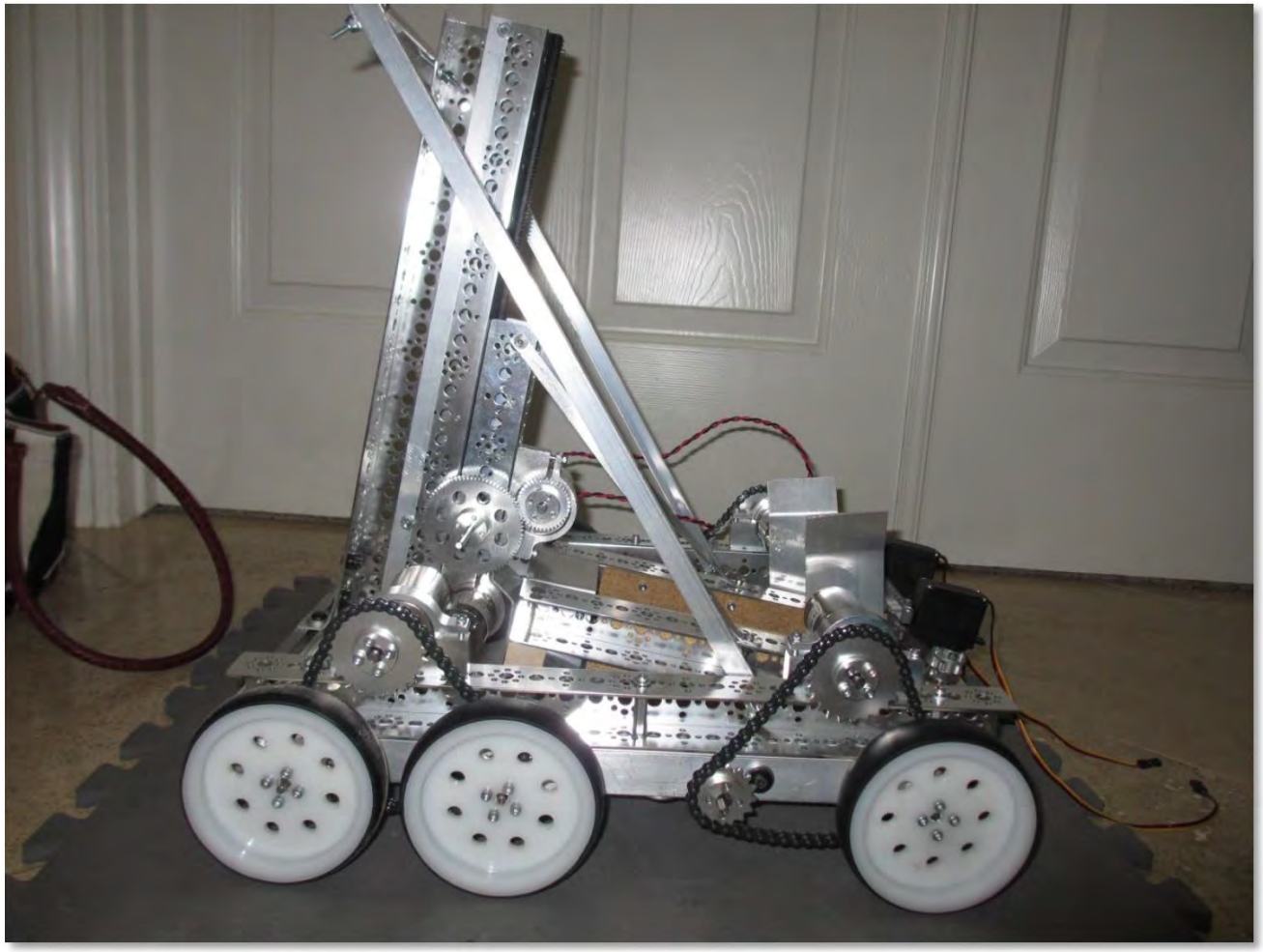


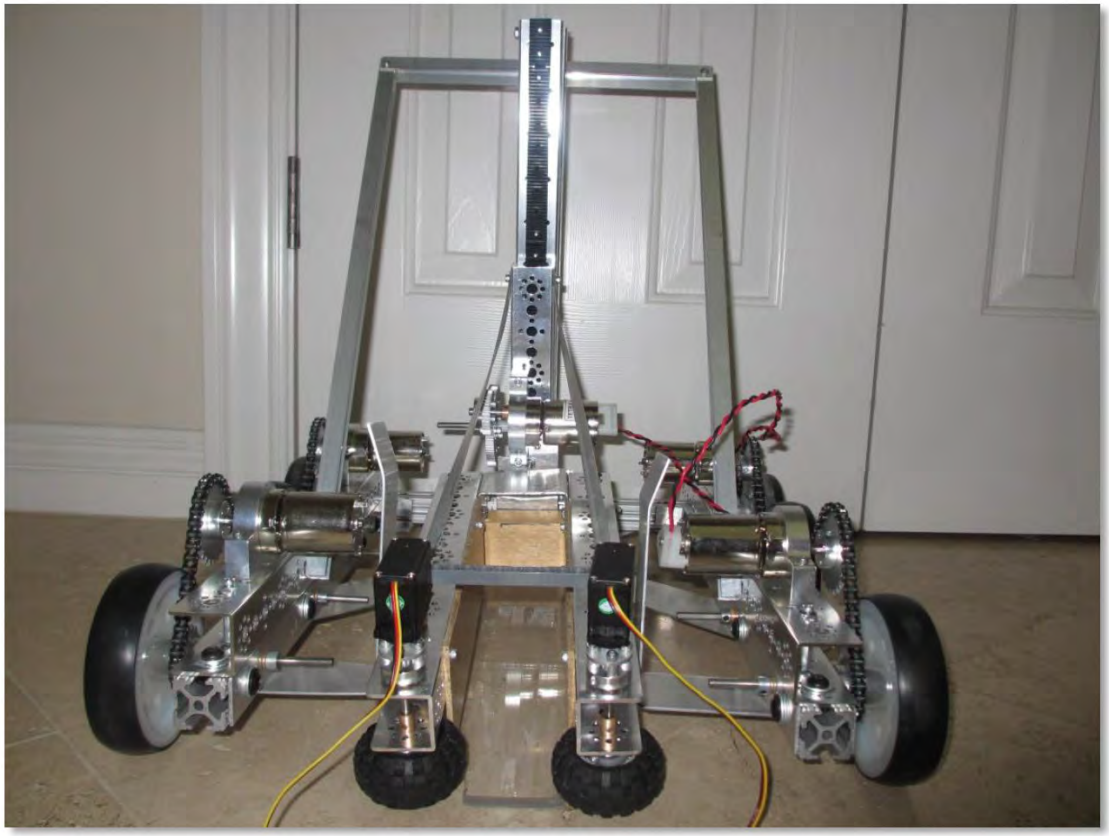
Attach Drive Motors

- We attached drive motors. We are using four motors, but the two motors on the left and the two motors on the right are controlled together. Each motor controls a pair of wheels, for a total of 8 wheels.



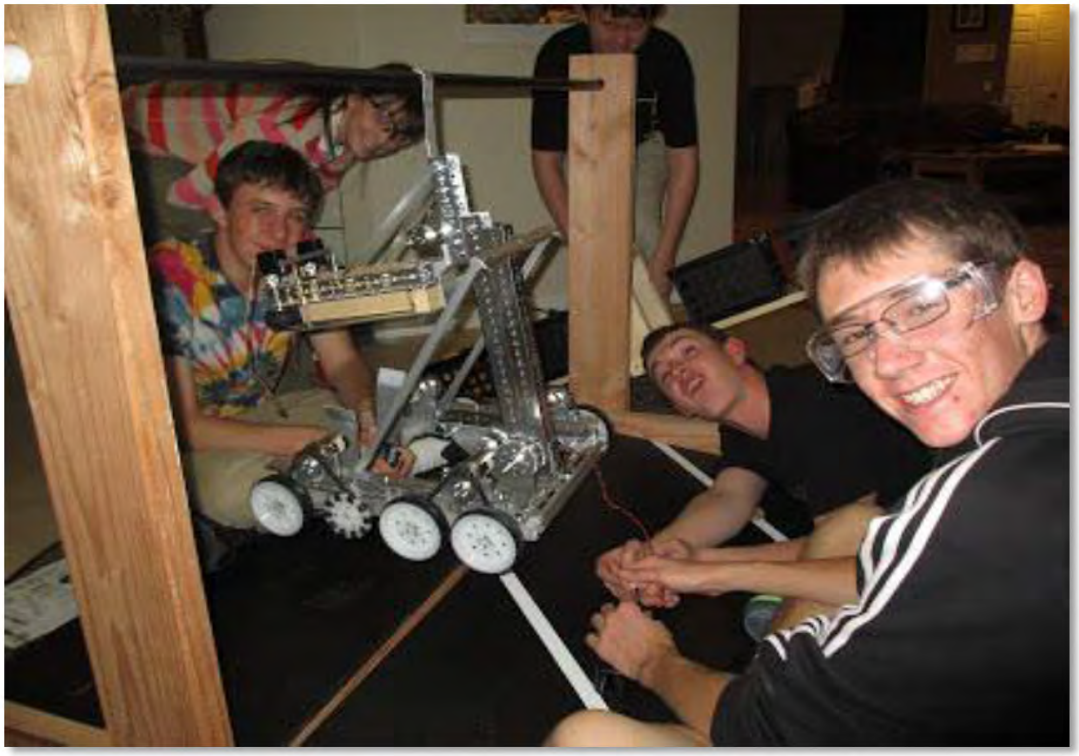






Make and attach the hook for lifting the robot

- We attached the hook and were successfully able to lift the robot!!



Written by: Jamie Poston, Cole Kenny	**Checked by:** Brandon Villar

Sunday, 11/17/13, 10:00 am - 6:00 pm

Meeting #21: Operation...Drive!!!

Build Team

Attending:	Logan Peterson, Carter Peterson, Jamie Poston, Price Poston, Brandon Villar, Cole Kenny, Scott Dooley	**Coaches/ Mentors:**	Patti Poston, Wade Peterson, Carol Villar

Goals:

Place finishing touches on...

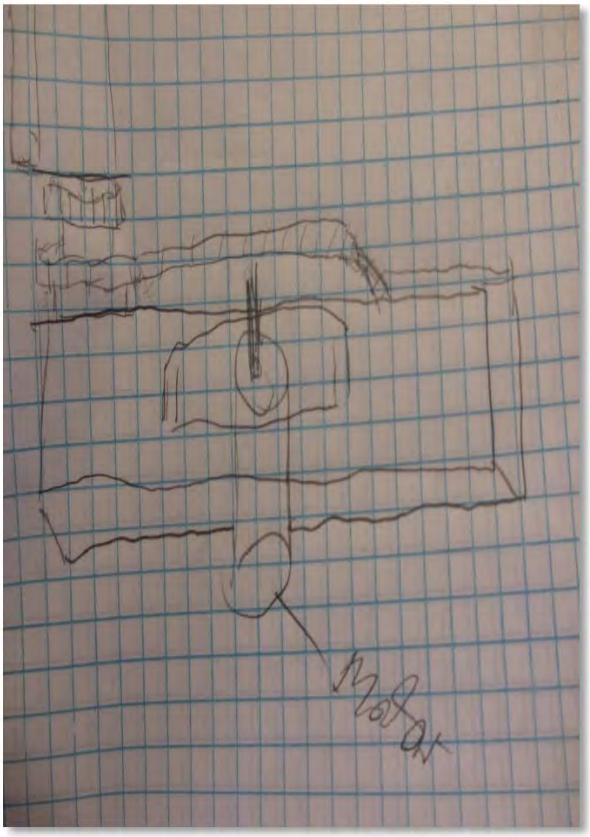
- Improve flag raiser
- Place the encoder motors
- Wire management - wiring and taping
- Make the block "knife" or the block separator
- Move front motors and back motor for wheels toward the center of the chassis
- Create a Bill of Materials
- Verify ruling on how long the robot must hang from pole
- Make buttons for the Flagstaff, AZ Qualifier
- Figure out how to hang the robot

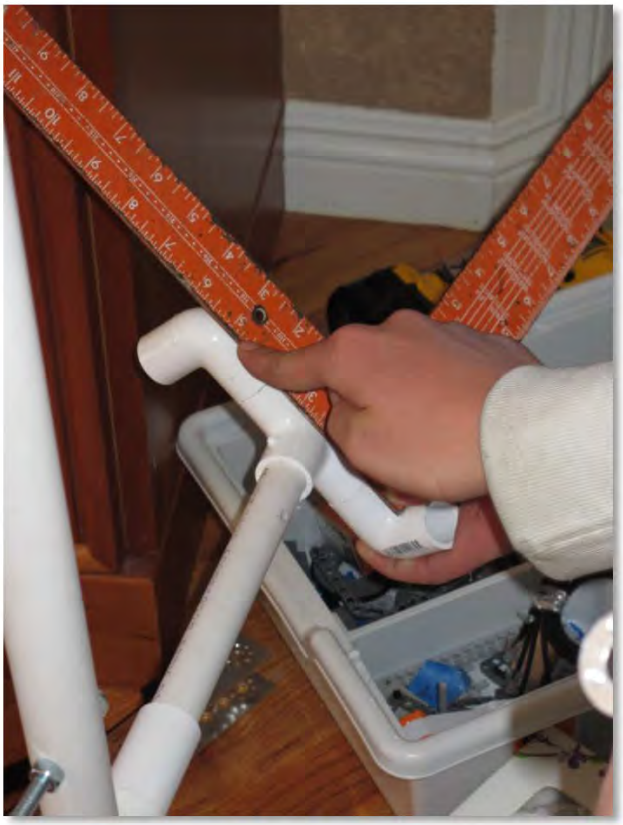
Tasks	Reflections
Flag raiser improvements	The flag raiser is working really well!
Encoder motors placement	It was pretty easy to do but had to remove wheels to get to nuts that held the motor mounts on.
Wiring/wire management	Wiring was attached together, soldered, shrink wrapped and duct taped.
Block "Knife"	The Block "Knife" works just like we need it to!
Lunch	Calzone - Yummy
Bill of Materials	Preparing for Flagstaff, AZ Qualifier
Hang the robot from the bar	We did it! Even though we thought our robot might be too heavy. We need to verify the rules for hanging the robot.
Attach flag holder	We did not get to this.
Make buttons to take to Flagstaff	We made 3 sheets of buttons. We need to make more.

Flag Raiser Improvements

- The first flag raiser needed improvement since it burned out a motor
- We decided replace the flag "turner" apparatus and build one from scratch using metal tubes and a piece of aluminum for the base
- After cutting and assembling it, we attached a DC motor to it and then attached it to the robot and tested it. It worked great!

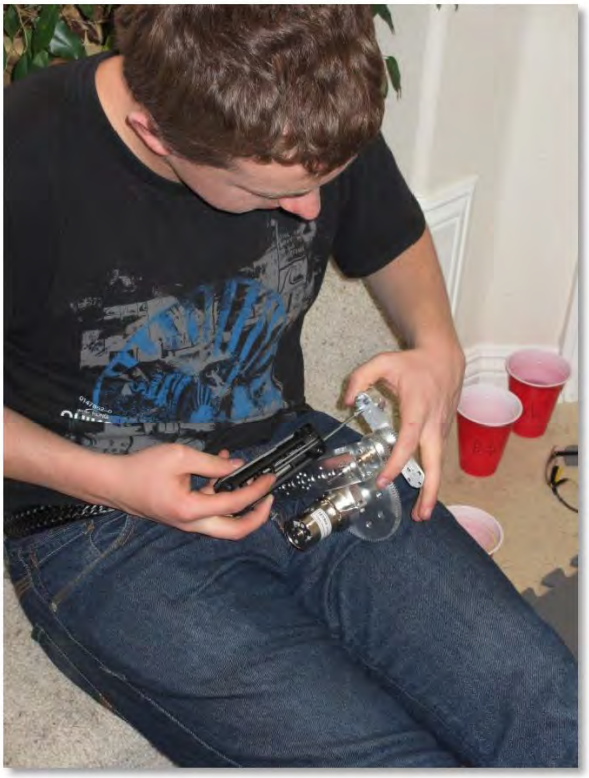
- We trimmed the tubes as they were a bit longer a bit and retested. Still worked great!
- We are ready to raise the flag!





Encoder motors placement

- Moved the two front drive wheel motors and replaced with encoders
- Decided that the back ones had to be moved as well and they were moved forward so that the would both be on the inside of the robot closer to the middle so that we would have more room to attach other electronics
- Adjusted the tension on some of the chains

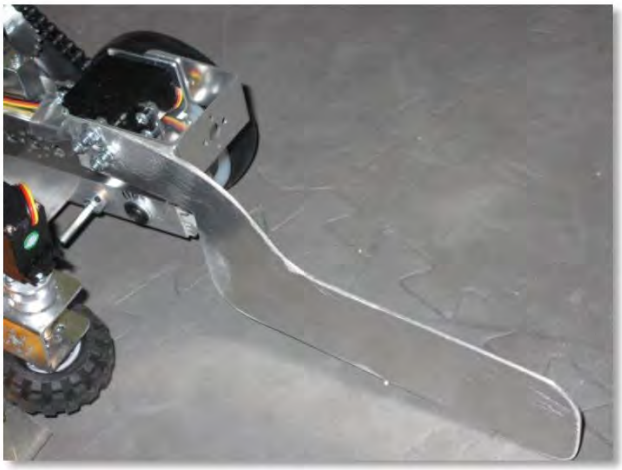
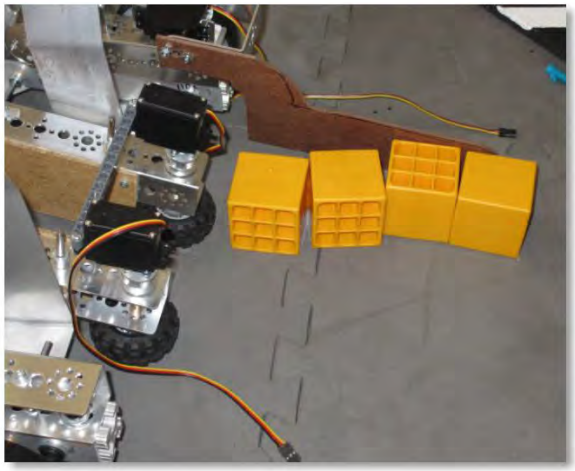


Wiring

- Wiring was extended and routed so that the wires would not get caught in gears or become pulled. Wires were soldered and heat shrinked.
- Duct tape and wire ties were used to route the wires along the frame of the robot.

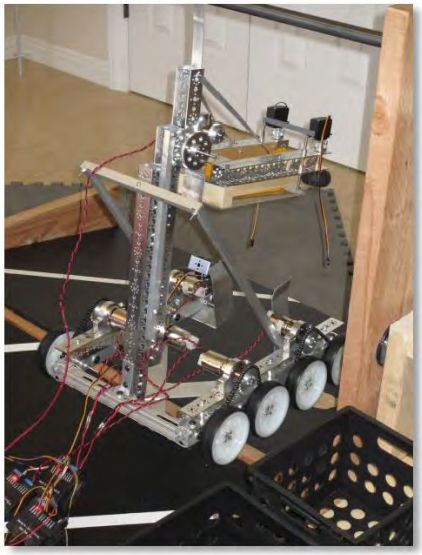
Block Knife

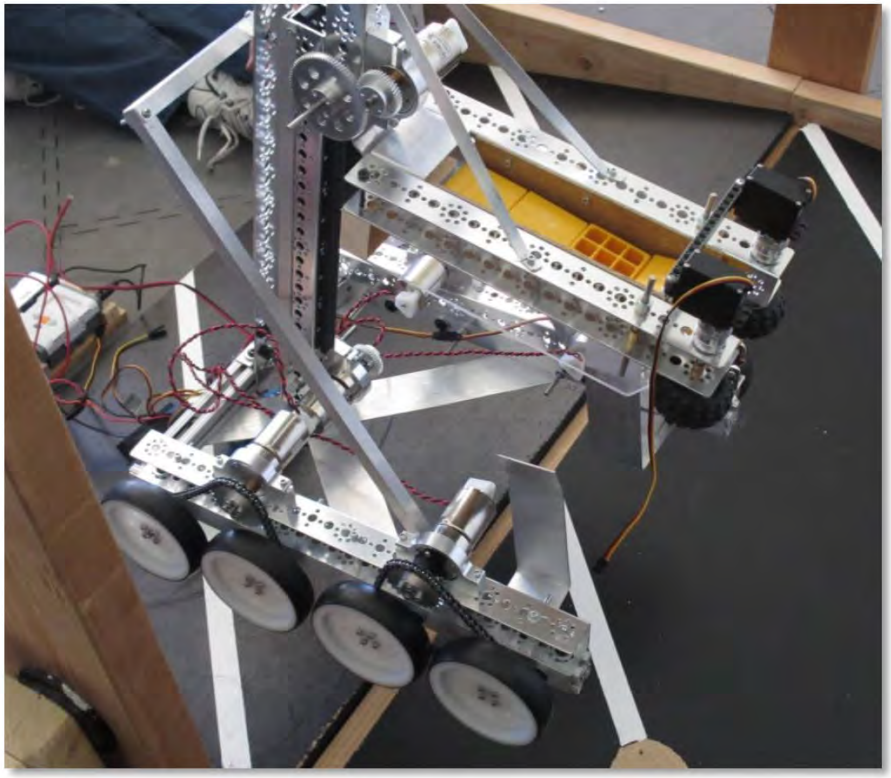
- We designed the block "knife" out of particle board. Once it was determined that it would work, we cut the piece out of aluminum in the workshop and installed it on the robot. It was installed with a Servo Motor attached to allow it to go up and down.
- We connected it and tested. Worked pretty well!


Hanging the robot

- We took a piece of aluminum metal and bent it to create a "hook" that would fit around the bar
- We attached the hook to the arm/rack and pinion mechanism that raises the tractor beam
- We tested it and it worked!





Bill of Materials

- Filled out the Bill of Materials form for tournaments

Make buttons to take to Flagstaff

- These are fun to wear and hand out!

Written by: Logan Peterson	**Checked by:** Carter Peterson

Sunday, 11/17/2013

PTC Progress Report 1

Personal Progress Report

Attending: Price Poston **Mentors:** Patti Poston

Tasks	Reflections
Learn PTC	Watched Week 3 of how to build a robot with Tetrix parts Webinar
Get Program Parts	I was able to successfully get all the program parts I needed
Build the Robot Chassis	I started to build the chassis of the robot
Brainstorm presentation ideas	I'll share the ideas that I've come up with the team at the next meeting, and we can refine them from there and start working on them

Learn PTC

- Watched the PTC Webinar 1, 2 and 3
- Webinar 3 actually showed me how to attach the Tetrix parts

Program

- Downloaded the PTC Program
- Downloaded the Tetrix Kit for the program
- Found 80-20 beam in FRC Kit our team uses this for their robot

Start Robot

- Inserted 2 16 inch U Channels
- Added one 80-20
- Added 2 motors with motor mounts on top of the 16 inch channels

Next Steps

- Add more motors, wheels
- Arm
- Lifting mechanism
- Flag turner
- Wiring
- Battery
- Controllers
- NXT

Written by: Price Poston	**Checked by:** Brandon Villar

Tuesday, 11/19/13, 5:20 am - 8:30 pm

Meeting #22: Let's get this robot ready for Flagstaff!

Build and Drive Team

Attending: Jamie Poston, Price Poston, Logan Peterson, Carter Peterson, Brandon Villar

Coaches/ Mentors: Patti Poston, Wade Peterson, Carol Villar

Goals:

- Get the robot ready to compete

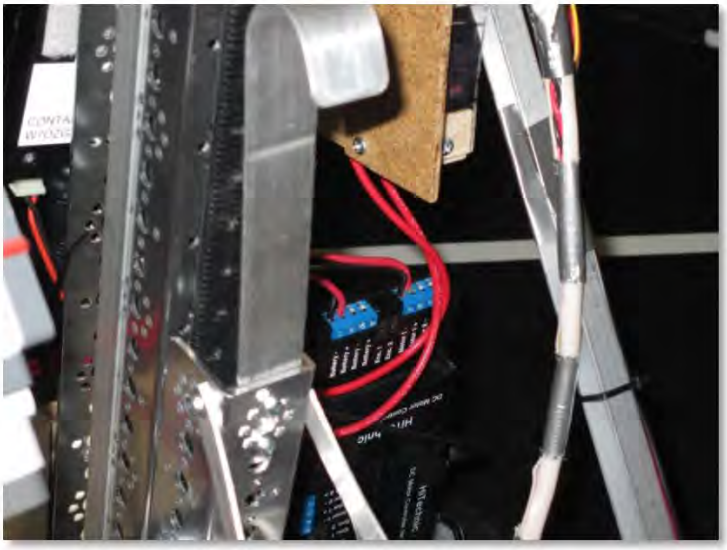
Tasks	Reflections
Assemble the wiring system and power components	All systems were connected, but wires still need to be neatened up.
Get the communications up and running	Samantha was connected, we ran the robot over the Samantha but did not have time to test with field control system.
Code joystick control	The code worked and we could drive the robot.
Test the robot	We tested the attachments and everything functioned.
Finishing touches	We didn't have enough time to get this completed tonight.

Assemble the wiring system and power components

- We found a good place to attach the NXT brick.
- Finished the soldering for the drive motors that are in the same direction.
- The battery is attached on the bottom. It doesn't seem to be very secure though. Will follow up in later meetings.
- We used a wood frame to attach the main power switch to the robot. We made sure that it is easy to get to.
- We created a wooden board, attached all the controllers onto that, and then attached that assembly onto the back of the robot in a vertical position

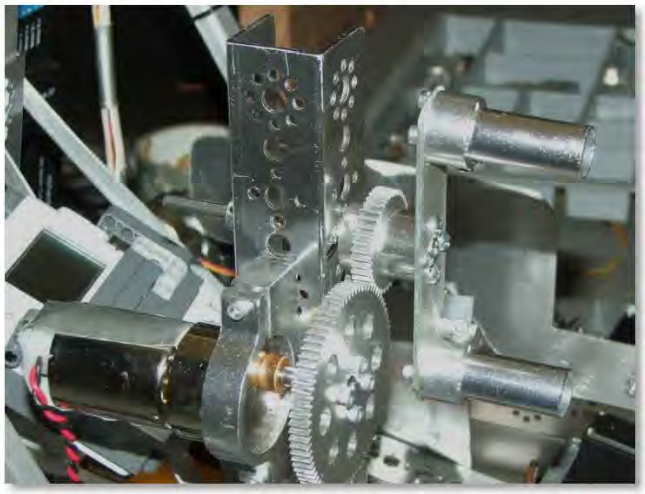
Get the communications up and running

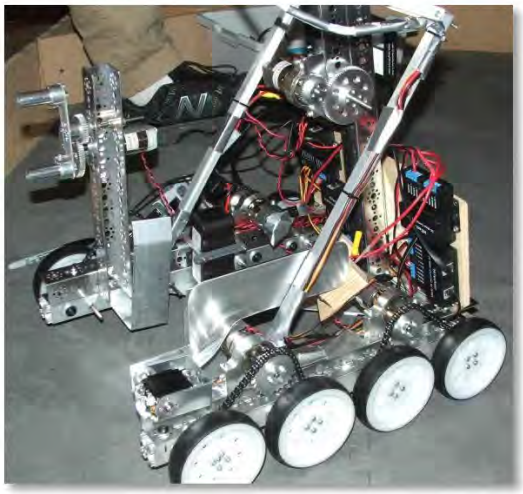
- The Samantha module was mounted in an easy to access location and high up on the first linear slide/rack and pinion.
- The wiring didn't work and after checking all the connection we figured it must be a bad USB cable. We tried a new USB cable and it worked.



Finishing touches

- We mounted the flag holder to the NXT cradle.
- We talked about a lot of ways for the numbers to attach, but we didn't attach them yet.





Code joystick control

- Logan coded a basic joystick control using one joystick to control directional movement, and including functions to allow us to run at half speed, be overridden by top hat controls, and to cut power if needed.

Test the Robot

- During one of the test runs, the pinion gear was sticking and the rack and pinion on the upper elevator needed to be taken apart and rebuilt. The pinion gear was stripped on the inside.
- Price and Jamie tested it and were able to raise the flag and lift in 20 seconds!

Written by: Jamie Poston	**Checked by:** Nadya Dooley

Saturday, 11/23/13, 9:00 am - 1:00 pm

Event Report: Flagstaff Qualifier Tournament

Attending: Nadya Dooley, Jamie Poston, Price Poston **Mentors:** Ming Dooley, Patti Poston

Tasks	Reflections
Attend the 2013-2014 Flagstaff Qualifier at Coconino High School!	We did better than we imagined we could, and took home not only 1st place robot performance, but the Inspire Award!

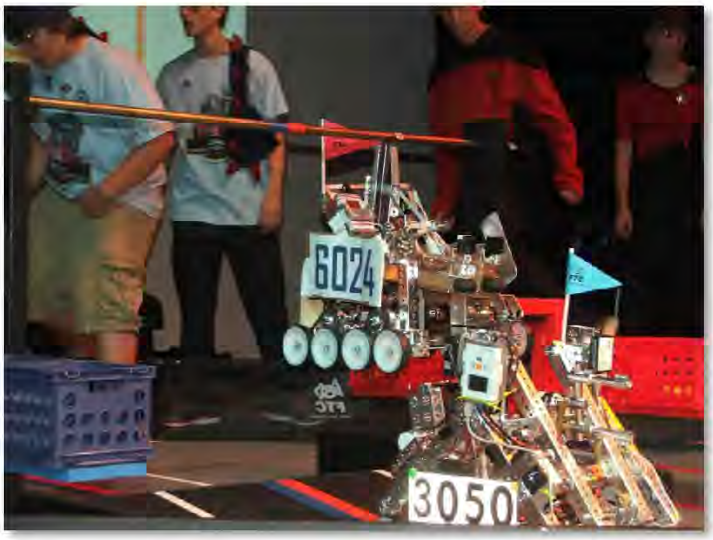
Tournament

Today our team attended the 2013 Northern Arizona Qualifying Tournament at Coconino High School! Although only Jamie, Price, and Nadya could attend, the rest of the team was there in spirit. We arrived at the school the night before to do check in and inspection, and said hi to the G-bots and AHERT, teams that we know from previous years. Then we headed back to the hotel to practice judging, do some last minute fixes on the robot, and sleep!

The next day was exciting from the start. We immediately went to the practice field to work on our autonomous, only to find that our flag turner was too low! We must've made an error when making our practice one. We immediately raised it, only to find that we couldn't use it in the corner of the field- no flag turner for this tournament then, because we didn't have enough pieces to fix it at the time. We didn't worry about it too much though, and went to judging. Our practice last night paid off- it went well! We then went to the opening ceremonies, from which we immediately went to our first match. WE WON!

At this point we discovered that some of the metal guides for the tractor beam and some braces were warped, which we temporarily fixed but in the long term we'll have to address more permanently. Besides that and the flag turner, everything went great! We had our autonomous finished by our 3rd match, and hung almost every single match. Our luck and teamwork with our alliance partners prevailed and we won every one of our qualifying matches (barely, in some cases)!

By the time alliance selection came, we'd already met so many amazing new teams, including Area 52, T-Rex, and more. In first place, after some careful deliberation and discussion with other teams, we decided that Area 52 would be the best match for our robot during the finals. We graciously invited them, and they accepted! The finals were very close, with us having to restart two matches due to everyone losing connection. In the final match, everyone's autonomous worked, we both raised our flags, and we both hung. We barely won, because we balanced



our blocks and they didn't. IT WAS SO EXCITING! The entire crowd was cheering and dancing, and afterwards we danced to Gangnam Style, The Fox, Radioactive, The Harlem Shake, Cupid Shuffle, and more. We were exhausted, but exuberant!

The awards ceremonies rolled around and we cheered for all the other teams as they won awards. At this point nobody really cared whether we got anything or not, because we'd already had such a wonderful time. But we were surprised and incredibly honored to be awarded with the first place inspire award! What?!

All in all, the tournament was a great way to kick off the season. We couldn't have been happier! After the awards ceremony we took pictures with other teams, interviewed the head ref and a couple of teams for the radio show the next week.

Live long and prosper!

Written by: Nadya Dooley	**Checked by:** Jamie Poston

Saturday, 11/23/13, 2:00 pm - 8:00 pm

Meeting #23: Beach Party!

Build Team

Attending: Nadya Dooley **Coaches/ Mentors:** Ming Dooley

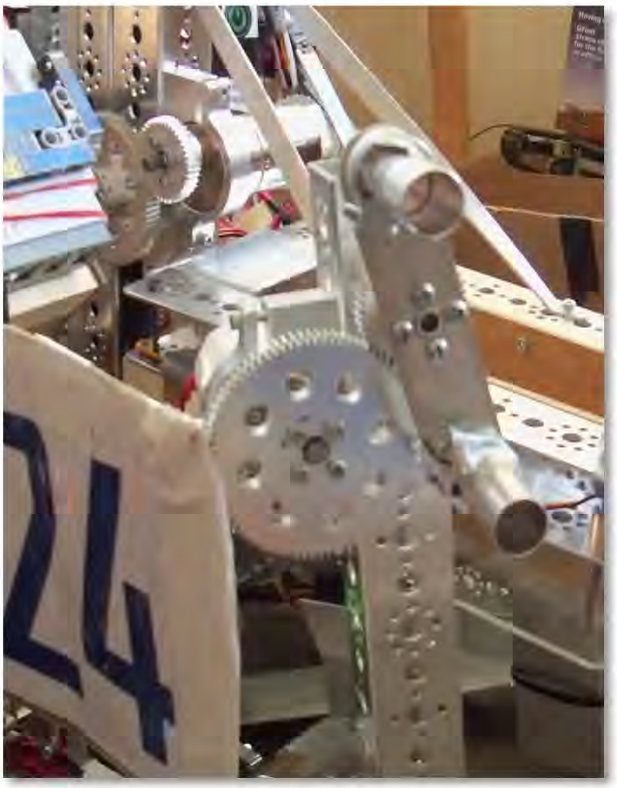
Goals:

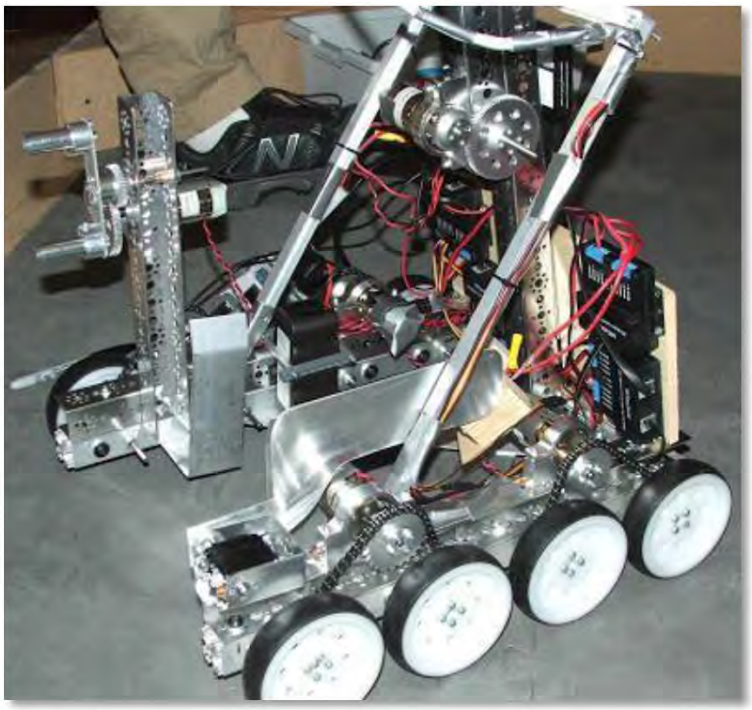
- Fix the Flag Turner
- Program a New Tank Drive
- Program a Mirror Autonomous

Tasks	Reflections
Angle the flag turner	Success! With the addition of only one new piece, it works.
Program another way to drive the robot	We coded a new tank drive method of control the robot
Make an autonomous that will work on the other side of the field	Although we didn't have a complete field to test it on, we're pretty sure it'll work based off of logical assumptions

Fixing the Flag turner

- As mentioned in the Flagstaff tournament report, we discovered that our flag turner didn't work because of the angle being off
- As Nadya kept the robot after the competition and didn't have a field at her house, the first step was to build one
- It was easy to set up some field walls from previous years and create a PVC flag turner
- After some deliberation, we realized that the easiest solution would be to simply attach a bent Tetrix corner piece to where the beam was attached and then attach the beam to that instead, angling it
- It was difficult to get the pieces off and on, but once completed, it looked great
- We tested it with our newly constructed PVC flag turner, and it worked- success!





Program the tank drive

- Although we already had a type of tank drive that could be used with the top buttons on the controllers, we decided to create an alternate method of driving by making one controller stick control one side of the robot, and the other stick control the other side
- It made controlling for those with less refined skills a lot easier

Mirroring the autonomous

- This was a fairly simple task- we wanted the autonomous to work on the other side of the field too
- We simply took our script for the pre-existing autonomous and reversed the right and left motors
- We couldn't test it without a complete field, but in theory it should work.

Written by: Jamie Poston	**Checked by:** Nadya Dooley

Sunday, 12/01/13, 7:30 am - 7:00 pm

Event Report: San Diego Qualifier Tournament

Attending: Nadya Dooley **Mentors:** Ming Dooley

Tasks	Reflections
Attend the 2013-2014 San Diego Qualifier at the Roberts Family Boys and Girls Club and hold Captain's Log afterwards	It was a great day - we received the Connect award, as well as the 2nd place robot performance award. The highlight of the day was double hanging our robot with our alliance partners!

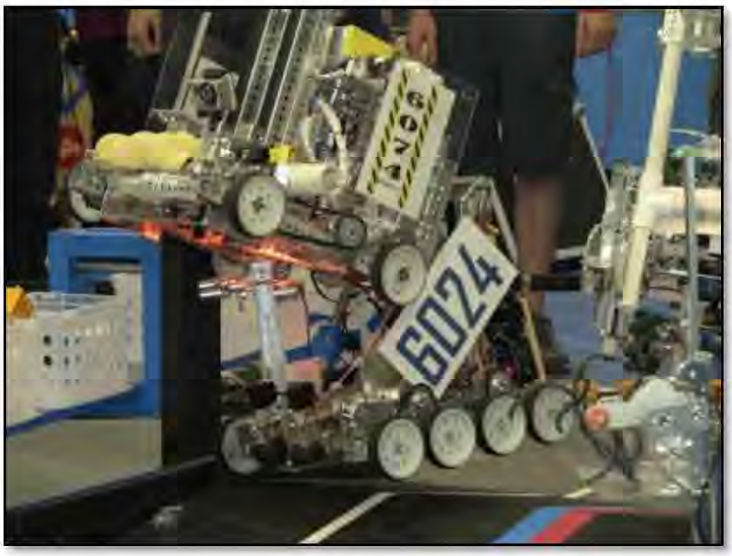
Tournament

Today Nadya attended the San Diego qualifying competition! As she was the only team member that could attend, we graciously invited several friends from her team last year (ASCII, 3483) to come help drive, and they were happy to comply.

The day started off with judging, which was an interesting experience due to the fact that there was only one team member to present. The judges seemed to be impressed by the fact that despite us being a long distance team, Nadya seemed to have a complete understanding of all aspects of the entire team's progress- this is thanks to using our engineering journal, email, and skype to communicate so consistently!

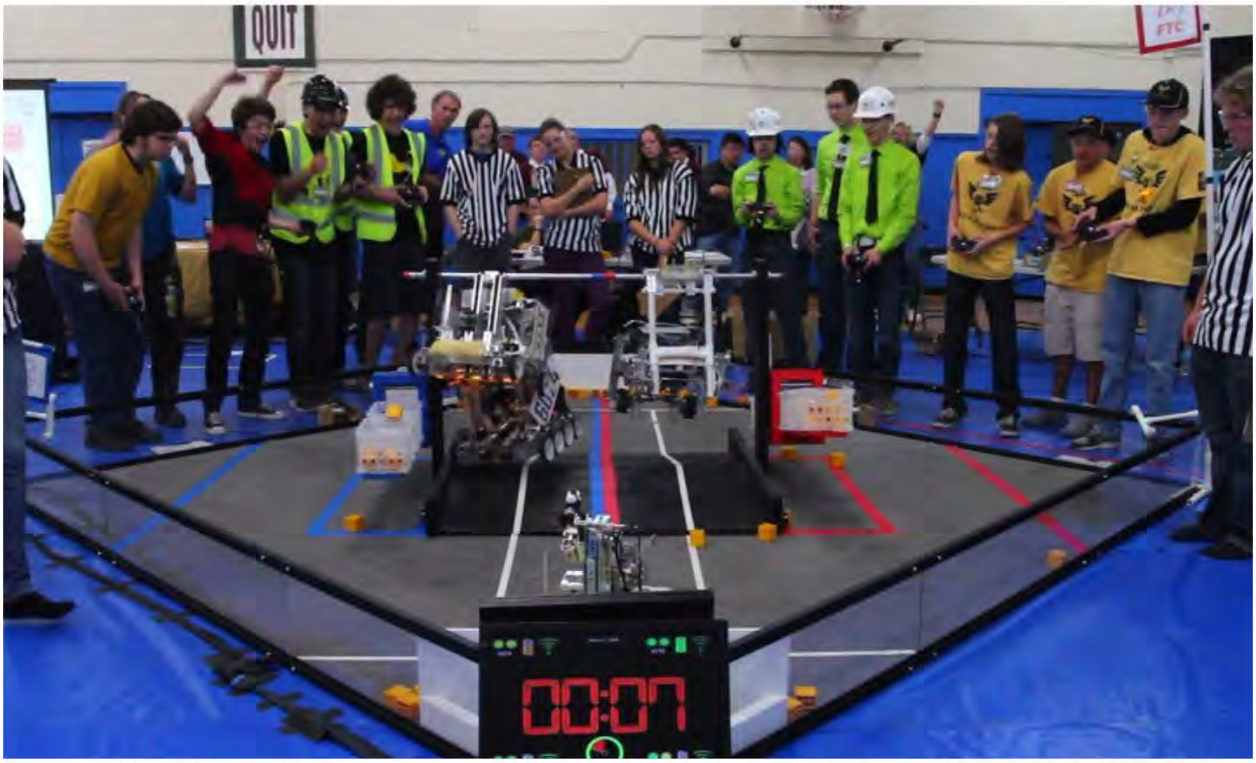
After judging, the three stand-in members - Sarah Conway, Kirk Silva, and Patrick Mulvany - arrived. They were all really excited to drive the robot and help compete! We worked our way through the qualifying matches, winning 4 out of 6. We had some good luck and some bad luck, and in the end we finished in 5th place, but had the most ranking points out of everyone at the qualifier. We ran into a lot of teams and people we knew, including The Positrons, RAWALA, Fusion, The Warriors, and more. In the finals we were moved up to 4th place, and were then invited by the 3rd place team, RAWALA. We graciously accepted and teamed up with Kings and Queens as our third alliance partner.

We had some great competition in the semifinals, but won and made it to the finals! In between matches we were putting our heads together and trying to figure out a way we could double hang with RAWALA. We finally realized that by attaching a loop of wire to the back of RAWALA's robot, we could hook on and hang from them! Between the semifinals and finals, we raced to the practice room, attached it, and tried it! It worked!



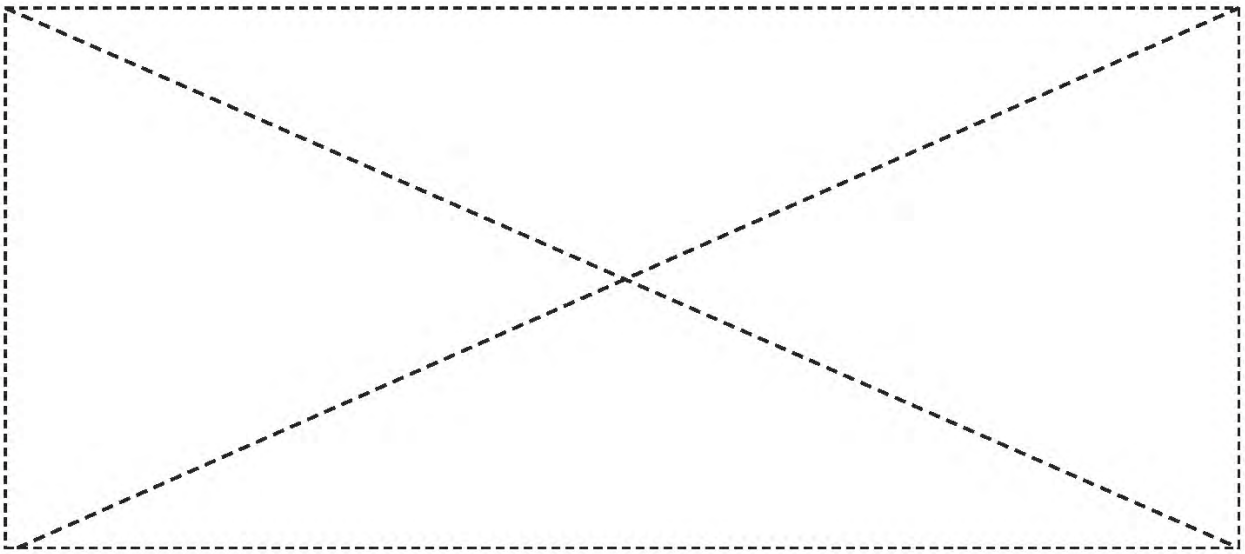
The first match of the finals we decided to try it. We strategized about what time we should try to line up,

whether we should get the flag, etc. We needed plenty of time to hang because grabbing onto their robot and pulling ourselves up without hitting the flag turner or the bottom of the arm on them was a challenge. It was very dramatic, but with seven seconds to spare, we succeeded! Everyone went crazy- it was incredibly cool.



Although we were beaten in the last two matches of the finals, double hanging was so awesome that nobody really cared; it was definitely the highlight of the day. We were then awarded with the Connect award and given a 2nd place alliance trophy, which was also very exciting.

All in all, everyone enjoyed themselves and it was definitely a success! After the tournament we had a radio show, which was one of the best ones yet because of our enthusiastic audience.



Written by: Nadya Dooley	**Checked by:** Jamie Poston

Saturday, 12/07/13, 2:00 pm - 8:00 pm

Meeting #24: Folsom Here We Come!

Build Team

Attending:	Logan Peterson, Carter Peterson, Cole Kenny, Brandon Villar, Cole Kenny	**Coaches/ Mentors:**	Wade Peterson, Suzanne Peterson, Carol Villar

Goals:

- Fix robot
- Incorporate Flagstaff notes
- Drive the bot!

Tasks	Reflections
Fix Robot	Get things up and running for scrimmage and Folsom
Incorporate Flagstaff Notes	Review and see what we can get done in one meeting
Drive the bot	Practice, practice, practice - makes perfect

Fix Robot

- Reattach right front wheel that came off during transport and check all wheels by tightening joints
- Build and try a wood block knife because metal chopper bends easily (see Flagstaff notes below)
  - Tape 4 pieces of hard board together,
  - Drew block knife outline and cut together
  - Attach to robot

- With some use and abuse it broke, not a viable alternative

Incorporate Flagstaff Notes

- **Problem:** When batteries power drops NXT loses connection ->
  Solutions/Ideas: Have 3 batteries at all tournaments and rotate them so one is on the robot, one is charging, one as a spare
- **Problem:** Battery terminals not inserted into connector tightly ->
  Solutions/Ideas: Known problem, getting new battery from first, check battery connection
- **Problem:** Metal guards bending ->

Solutions/Ideas: Temporary solution at Flagstaff was to zip tie the guards into place and that seemed to work.

- **Problem:** Metal V supports - when robot is hanging it can swing and the V supports are twisting ->
  Solutions/Ideas: Will address after Folsom
- **Problem:** Flag turner - The mechanism is about 1-2 inches to low and it can't reach as the flag is in the corner and the robots wheels get in the way ->
  Solutions/Ideas: After testing this did not appear to be happening, will re-address after Folsom
- **Problem:** Servo plastic piece broke - when we got to the tournament noticed that one of the servo's plastic piece had broken (not sure why) ->
  Solution/Ideas: The servo was replaced, need to look at to see why this happened, perhaps we can build a box to put the robot in for transport?
- **Problem:** Chopper - The chopper is working extremely well to move the blocks around but it bends easily and can sometimes get in the way of the arm going down ->
  Solution//Ideas: (1) strengthen with another piece, (2) bend bottom in L-shape form, (3) put a brace across top, (4) make another chopper using hard board.
- **Problem:** Tank turning - because we have 8 wheels with 4 motors it was time consuming to use one button to control the turning of the robot
  Solution/Ideas: Recommendation for tank drive?
- **Problem:** New Numbers - Cardboard numbers were used but started to deteriorate ->
  Solution/Ideas: Recommend stronger sidewalls
- **Problem:** Method to change drive motors takes too long ->
  Solutions/Ideas: New brackets that attach simpler need to be ordered - will probably not be in for Folsom
- **Problem:** Motors - hard to change if burned out
  Solutions/Ideas: Will address after Folsom
- **Problem:** Motor Tester and Voltmeter ->
  Solutions/Ideas: Obtain a motor tester and add a voltmeter to our parts list

Drive the bot

- Updated the PC RobotC software as it was out of date
- Test drive with new chopper - broke - need to reinforce original metal chopper so it doesn't bend as easily
- Practiced driving for the tournament
  - Score 111 penalties picking up 5 (Brandon - driving, Cole - arm)
  - Score 90 penalties picking up 5 (Cole - driving, Brandon - arm)
  - Score 120 placed blocker not to pick up 5 (Brandon - driving, Cole - arm)
  - Flag raised in 14.5 seconds
- For practice, place a cube to serve as a stopper so that 5 cubes don't get sucked in. Will need to create some kind of stopper.

Saturday, 12/08/13

Event Report: Coaching FLL Teams

Attending: Jamie Poston **Mentors:** Patti Poston

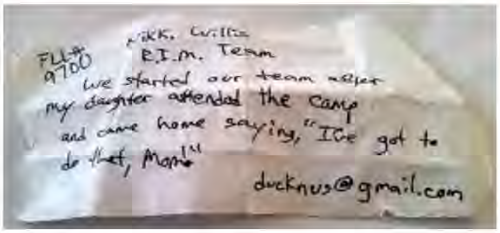
Tasks	Reflections
Coach at team meeting	Everything was finished up!
Coach FLL at FLL Tournament - December 8th	We did really well!

Coach at team meeting

- We practiced on the field, running the same programs.
- We didn't change any programs, and didn't change the robot at all, so we could just practice running the programs.
- Since we'll have three championship runs and six team members, there are three pairs that will run the whole game each time. Also, everyone knows how to run all the programs!
- Also, since the robot game isn't the only part of FLL, we also practiced out presentations for the technical judging and the project judging.
- Everyone has memorized their lines for the project presentation! For the technical presentation they still have to use the paper, but everything goes pretty smoothly.
- We also practiced core values, and that went pretty well. After the team went through the core values project once, the parents and us coaches switched places with them, so they could see how it looked from a judging perspective! They definitely got a kick out of that
- Overall, that practice went very well!

Northern Nevada FLL Championship Tournament

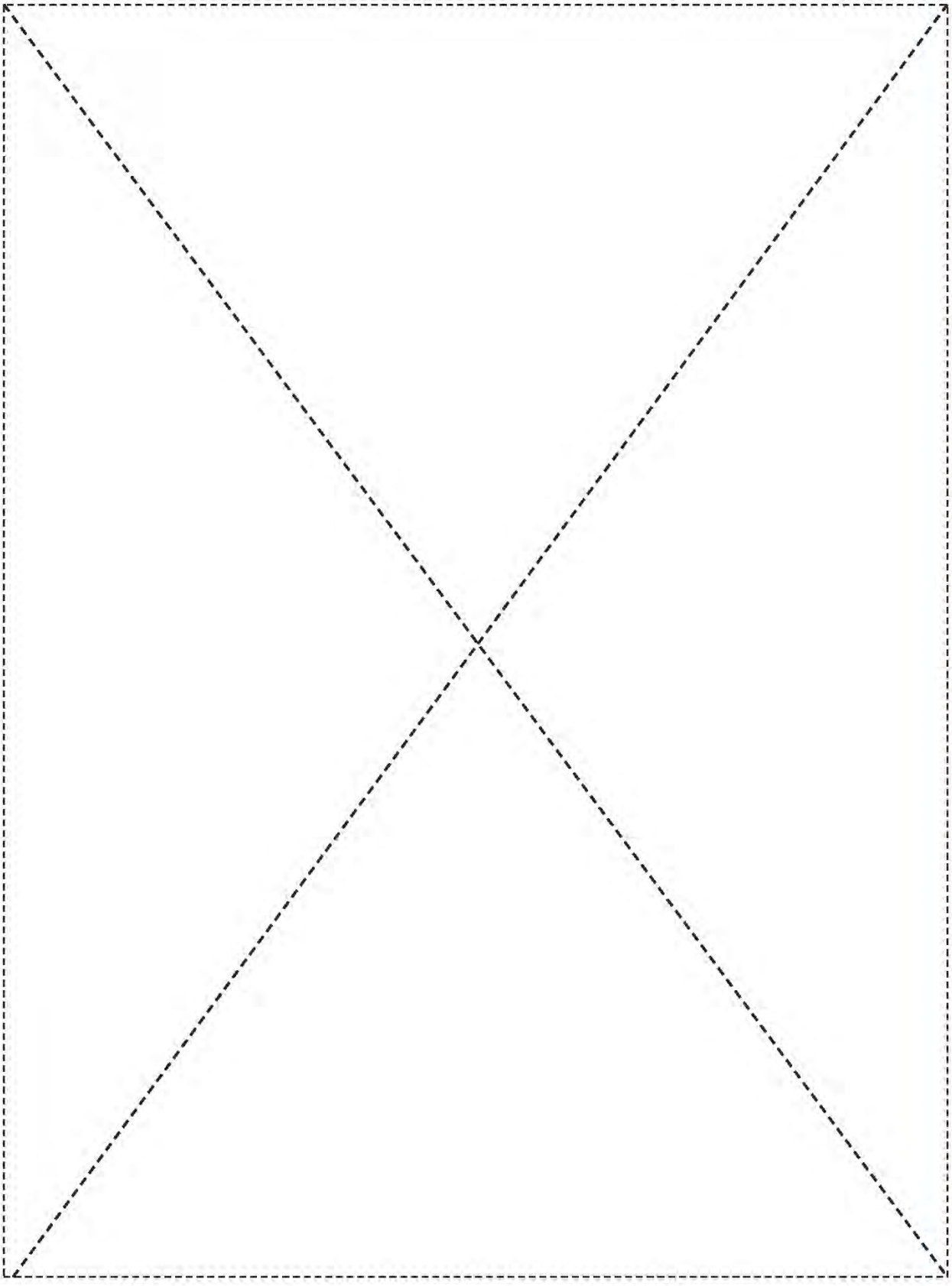
The first thing was the morning technical, project, and core values judging. The judging went really well and the judges seemed to really like the presentations. We also got a practice time on the main championship field, and on the practice field. Then came opening ceremonies, and then the championship rounds! We were doing pretty well, but not all of the programs were working until the very last round. We ended up getting 200 points for the older team and 166 points for the younger team in the robot performance. But the best part in the whole tournament....Team 9951, the Transbots, got the Best Research award and Team 9930, the i-Bots, got runner-up champions!



Not only this, but we were given this note from one of the teams: "We started our team after my daughter attended the camp and came home saying, 'I've got to do that, Mom!'" - FLL team #9700. It was great to see that both our FLL camps and our coaching have been successful!

Overall, the tournament was definitely a success!

Written by: Jamie Poston	**Checked by:** Nadya Dooley



Saturday, 12/14/13, 10:00 am - 3:00 pm

Event Report: State High School, Carson City, NV

Attending: Logan Peterson, Carter Peterson, Jamie Poston, Price Poston, Cole Kenny

Mentors: Wade Peterson, Patti Poston

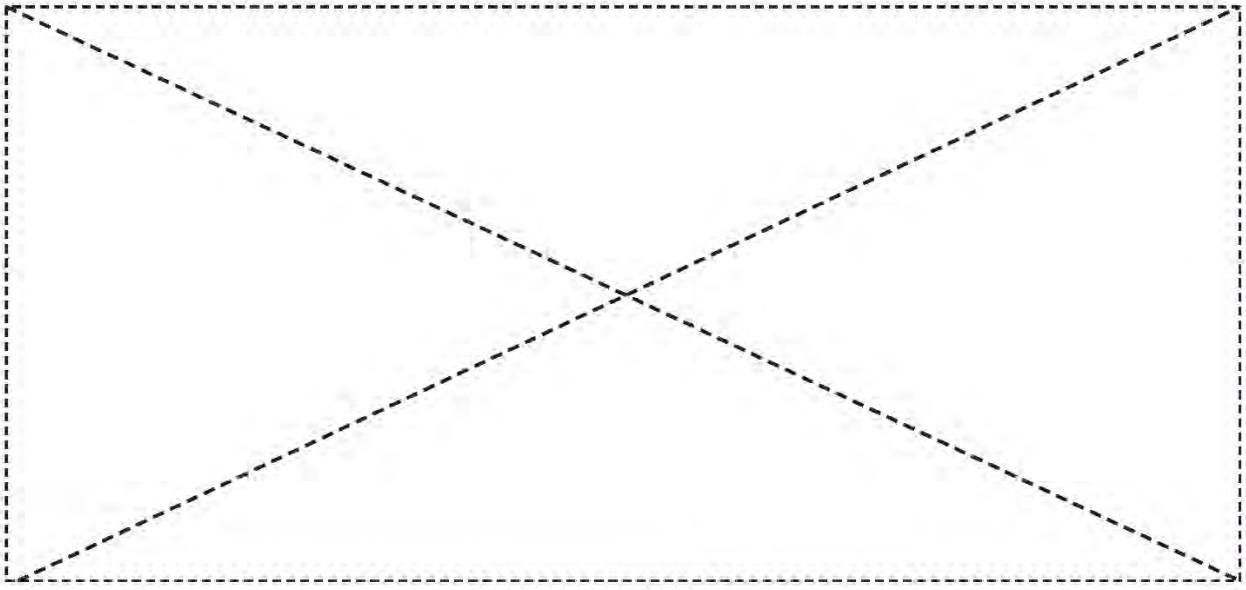
Tasks	Reflections
Practice with other teams in the area	Only Silver State High School attended the scrimmage so we were able to work together to practice alliance strategies. We were trying to hang two robots!
Identify problems	Identifying problems today will help us in our competition tomorrow in Folsom, CA.
Practice the team presentation	The Folsom, CA Qualifier is tomorrow!

Identify Problems

- The hook was bending when we tried to hang two robots.
- The flag turner was not working. The Flag Turner was removed from the robot because it was bending at the location that it was mounted to the robot.
- Driver controls did not allow for "tank" or "arcade" modes.

Changes to Code

- Between matches, Logan made tweaks to the program to allow for better driver control.
- Switching between "tank" and "arcade" modes is now possible.
- The team has drivers that prefer each method so this will help the drivers perform better.



Written by: Carter Peterson | **Checked by:** Logan Peterson

Saturday, 12/15/13, 8:30 am - 7:00 pm

Event Report: Folsom Qualifier Tournament

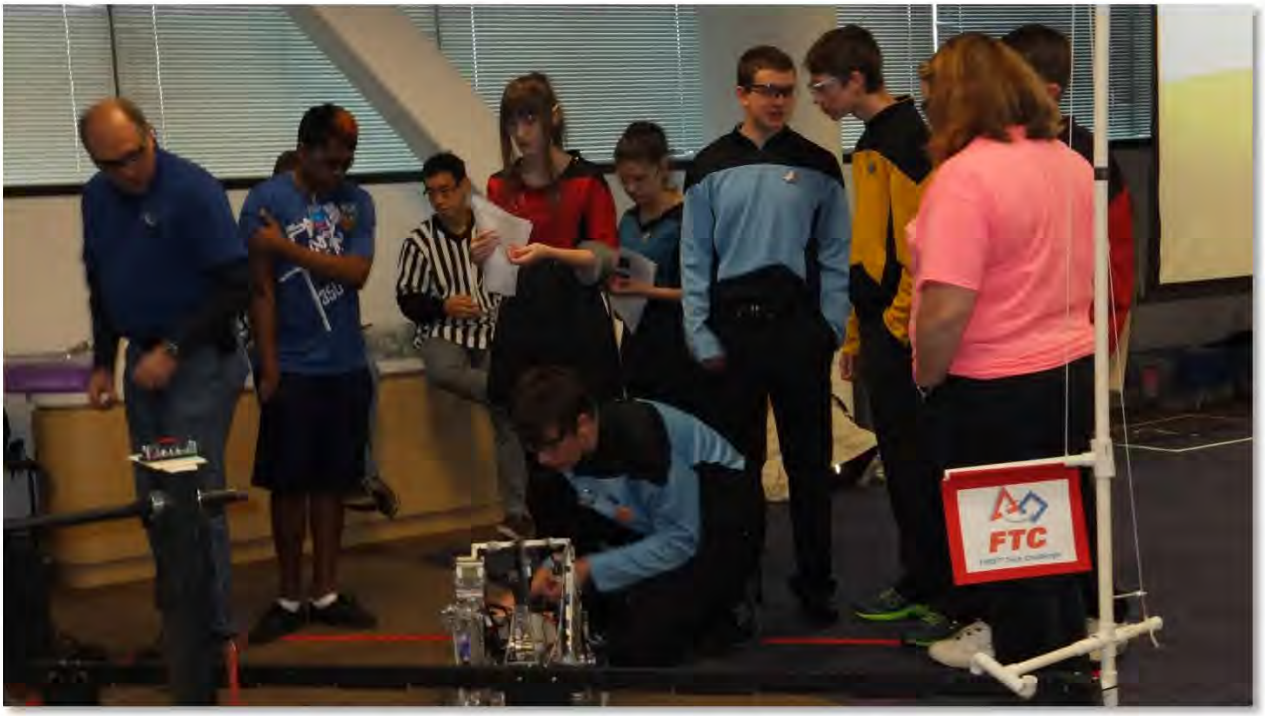
Attending: Nadya Dooley, Jamie Poston, Price Poston, Logan Peterson, Carter Peterson, Cole Kenny, Brandon Villar

Mentors: Ming Dooley, Patti Poston, Wade Peterson, Carol Villar

Tasks	Reflections
Attend the 2013-2014 Folsom Qualifier at Intel!	We did better than we thought we would, and won the 2nd Place Alliance Award, and the Inspire Award!

Tournament

In December, our team attended the 2013 NorCal Qualifying Tournament at Intel! Some team members arrived at the competition site the night before, while a few other members arrived the day of the tournament. After inspection, the team went to the pits to make any last minute modifications to the robot. We went to the practice field to warm up.



It was time for our first match! I was taking notes on other team's bots for strategy purposes, and Jamie and Carter were driving. After some intense competition and some equally intense cheering by the rest of the team, the scores came in. WE WON OUR FIRST MATCH!!

After the win, we returned to the pits. Batteries were swapped, and we went to the practice field to strategize and prepare for the second match. The entire day went great, and we finished 3rd. It was time to select an alliance partner for the final rounds.

We'd met some pretty amazing new teams, including Stark Industries, BOSS Bots, and Version 4.2. In first place was Stark. They chose BOSS, and when we were up, we decided that we had great chemistry with Ver. 4.2, and chose them as our alliance partner for the end. The finals were very close, with the opposing alliance winning the first match, then our's winning the second. After a restart due to the entire field losing connection, we were ready for the final round. Despite having an unknown problem throughout the day regarding wiring issues, it seemed like we were unaffected for the final round. We barely lost because of a communication issue between our drivers and the drivers of our alliance partner. IT WAS SO CLOSE! Everyone was cheering, and the event organizers put team songs on over the PA system in the room. The Star Trek TNG theme played, then Iron Man. Even though we lost the competition, I think the whole team had loads of fun!

The awards ceremonies came and we cheered for all the other teams as they won awards. Our pit-buddies won an award, and as they got their trophies, they gave us the live long and prosper sign! It seemed like we were nominated for nearly every award, but the trophy evaded us... To our surprise, WE WON THE INSPIRE AWARD!!!

We couldn't have been happier! Even though we didn't win first place performance, we were the only Nevada team in the finals, and we had won the Inspire Award! After the awards ceremony we took pictures with other teams, Jamie and Nadya held interviews for the radio show and we helped clean up. The tournament was great, and I'm sure the whole team can't wait to go back and win the championships!

Written by: Cole Kenny	**Checked by:** Logan Peterson

Friday, 12/22-24/13, 2:00 pm - 8:00 pm

Meeting #25: Fix it!

Build Team

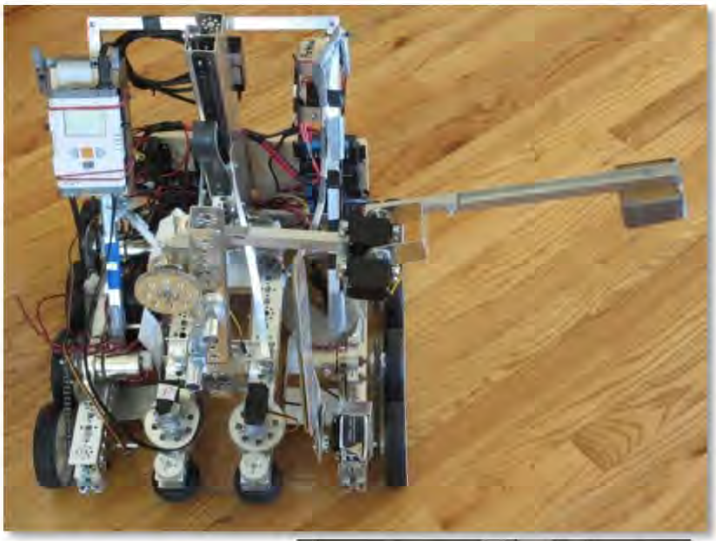
Attending: Logan Peterson, Carter Peterson **Coaches/ Mentors:** Wade Peterson

Goals:

- Make changes to the robot to improve it's performance
- Write an autonomous program that will place a block during the competitions

Tasks	Reflections
Write autonomous program	A scoring arm for autonomous period is needed to continue autonomous programming.
Add scoring arm for autonomous program	It is working really well!
Add larger gears to servos	Hopefully, this will speed up how quickly the robot will pick up blocks. Gears with a 1:2 ratio were added to double the rotation speed of the tires.
Swap out motor mounts	Replaced drivetrain motor mounts with newer model ones. This should allow for easier switching of motors during competitions.
Make new hook and attach	No more worries about the hook bending while hanging! We should be able to double hang without any worries.
Move Flag Turner for Flag Lift	The Flag Turner is much more accurate in the new location and will allow us to adjust the height of our Flag Turner. It is working great!
Mount IR sensor to robot	Mounted on right side of robot.
Replace motor mounts for drive train	This change allows for the motor mounts to be easily and quickly changed if we encounter problems during a competition.
Reverse the hook	This was needed so that the bar did not hit the new flag turner. The robot will need to be driven backwards to hang from the bar. We'll need to see if this works for the drivers.
Make a new Block Knife out of a L-channel aluminum	The Block Knife was lining up the cubes in a wrong position for the robot to pick up easily.
Remove and move the power switch	Moving the power switch to a new location was recommended at the Qualifier in Flagstaff, AZ. We still need to find a place to put the power switch permanently.

Add scoring arm for Autonomous



- Carter made the holder to hold the block out of cardboard and duct tape.
- ½" aluminum channel used for arm.
- Dual servos move the arm for speed and power.
- Had to figure out how to place on the robot so it would not interfere with the block knife.

Practice Autonomous

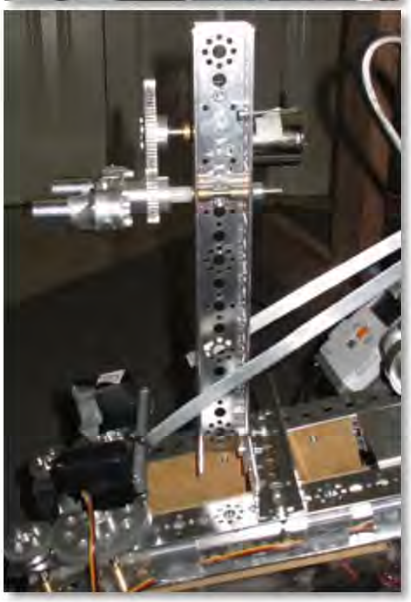
- The scoring arm works well with the autonomous program that was written.
- While the robot turns during the autonomous mode, some slippage is causing the robot not to make it fully up onto the ramp. More investigation into this problem is needed.

Scoring Arm for Autonomous

- 9 out of 10 times a block is placed correctly above the IR sensor.

Make *new* Hook

- New hook was made out of steel so it will not bend from the weight of the robot while hanging.
- Steel was cut in the workshop with a reciprocating saw.
- Holes were drilled using the drill press.
- Steel hook was bent using a vice and hammer.



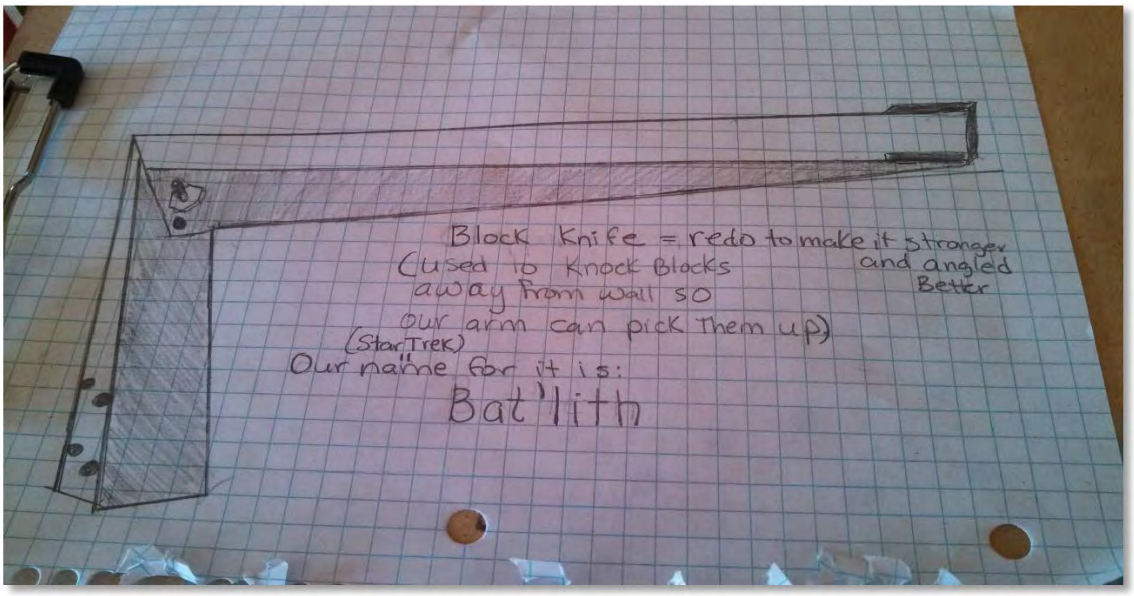
Move Flag Turner

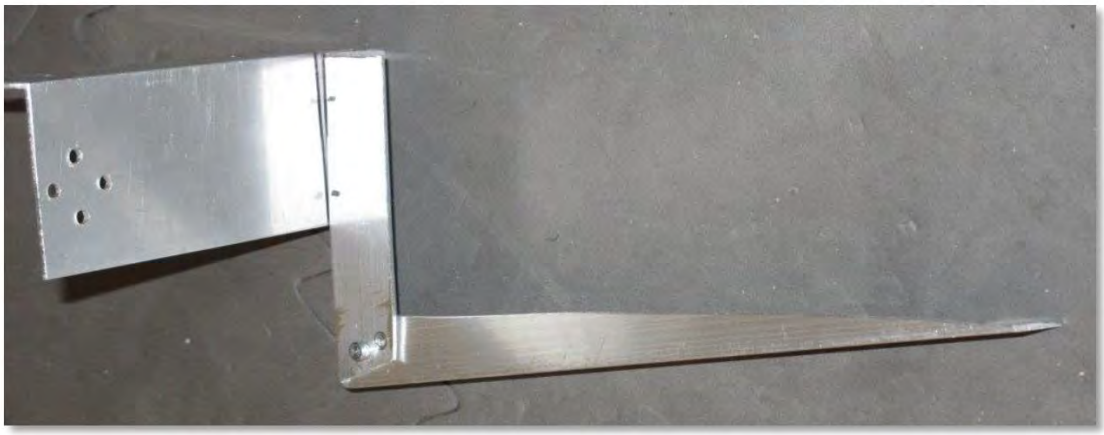
- The Flag Turner was moved onto the tractor beam and centered on the front of the robot.
- The Flag Turner was stabilized by moving and attaching a support.
- Because there can be a one inch variance on the competition field, this change will allow the flag turner to be adjusted to work well on any field's Flag Lift.

Make a *new* Block Knife out of a L-channel aluminum

- The old Block Knife was bending and lining the cubes up off to the side of the Tractor Beam making the drivers have to spend too much time backing up and realigning the robot. Picking up blocks was taking too long.
- The aluminum would allow us to form the Block Knife at an angle. The angle aligns the blocks so that the robot can pick them up without having to realign.
- Made the Block Knife out of aluminum and attached it to the robot closer to the center of the robot.
- The Block Knife is closer to the Tractor Beam and is bent at an angle. The robot can suck up the

blocks in the Tractor Beam without going backwards and forwards to align the blocks.





Written by: Logan Peterson	**Checked by:** Carter Peterson

Friday, 12/23/13, 3:00 pm - 5:00 pm

Meeting #26: Repo Meeting

Build Team

Attending: Jamie Poston, Matthew Nugent **Coaches/ Mentors:** Patti Poston, Angel Nugent

Goals:

- Take off Unnecessary Parts of Old Robot
- Discuss Cube Getter
- Teach Matthew RobotC
- Teach Matthew Engineering Journals

Tasks	Reflections
Take off ramp and the second section of the arm.	We couldn't do a lot, since we didn't have the right size of hex key, but once we get all our tools and parts, it'll be good to go!
Discuss Cube Getter	We decided that paddles on each side of the cube would be able to grab the cubes pretty well.
Teach Matthew RobotC	It was more complicated than NXT programming, but he kind of knows it now.
Teach Matthew Engineering Journals	Engineering journals are long

Take off ramp sections and the second section of the arm

- We got those sections off pretty quickly, even though we didn't have right size of hex key.
- The robot will be functional after we order and receive some necessary parts, like a motor encoder and motor mounts.

Discuss Cube Getter

- The current game element manipulation device was made for getting rings instead of cubes, so that will need to be totally overhauled.
- Matthew had an idea for the cube getter that was like two paddles on each side of the cube, and then pinching the cube to lift it.
- To lift it to the buckets, the arm will rotate to the right height, then drive into the low goal so the arm can reach the bucket horizontally.

Teach Matthew RobotC

- Jamie gave Matthew a kind of overview of how RobotC works, in relation to the Samantha field control.
- Matthew has already programmed a lot on the NXT program, so it was kind of logically similar.
- Jamie showed him how to program a simple autonomous program, and then showed him around the current autonomous and teleop programs.
- Matthew will probably need more help to program by himself, but for now it works.

Teach Matthew Engineering Journal

- Since we have a template for the engineering journals, they're definitely easier to understand than RobotC.
- It will harder for Matthew, since he doesn't type a lot, but he'll get the hang of it after a while.

Written by: Jamie Poston, Matthew Nugent	**Checked by:** Nadya Dooley

Friday, 12/26/13, 4:00 pm - 6:00 pm

Meeting #27: JR FTC #6024 - A New Frontier!

Build Team

Attending: Jamie Poston, Matthew Nugent, Cole Kenny, Noah Fletcher **Coaches/ Mentors:** Patti Poston, Angel Nugent

Goals:

- Add new parts
- Download Samantha Software
- Get the robot driveable!

Tasks	Reflections
Move and add parts	After the modifications we all made, everything fit great
Samantha Hook-up	It was more time consuming than expected, but it had to be done, and now Matthew knows how to do it too.
Drive the robot!	While driving on the wood floor isn't ideal, it was good for practice.

Parts modifications

- We had to move the power switch so that the motor mounts could fit.
- After we attached the mounts in a different place, we measured it and realized that it wouldn't fit in the 18x18x18 in size limitation, we stitched it to the inside of the robot body.
- As soon as we hook up the motors, the robot will be ready for tele-op testing.

Connecting the Samantha Module

- After some issues with the wifi network and delays with flashing the module, the Samantha was successfully connected and ready for use.
- As soon as we hook up the motors and finish installing the parts, the robot will be ready for tele-op testing.

Driving the robot

- We had to move the motor mounts and a few tetrix pieces to get everything to fit.
- Once everything was hooked up, we realized that the controls were programmed backwards. It was an easy fix, and was corrected quickly.
- It didn't work well on the carpet, but it glided over the wood floor as though it was glass.

Teach Matthew Engineering Journal

- Since we have a template for the engineering journals, they're definitely easier to understand than RobotC.
- It will harder for Matthew, since he doesn't type a lot, but he'll get the hang of it after a while.

Friday, 12/27/13, 2:00 pm - 6:00 pm

Meeting #28: JR FTC #6024 - A New Frontier!

Build Team

Attending: Jamie Poston, Price Poston, Carter Peterson, Logan Peterson, Cole Kenny

Coaches/ Mentors: Wade Peterson

Goals:

- Manage Wiring
- Practice Driving

Tasks	Reflections
Practice Autonomous	We practiced setting up the robot into the right position, and selecting the right options on the NXT.
Manage Wiring	We extended the wire for the flag turner and rerouted and re-taped anything that was looking loose.
Troubleshoot loose connections	We were dropping connection a bunch when we were trying to practice driving, so we spent some time going through and checking connections.
Practice driving	We managed to consistently get 4 loads before end game, but we kept losing connection near the end, so we weren't able to practice end game very much.

Practice Autonomous

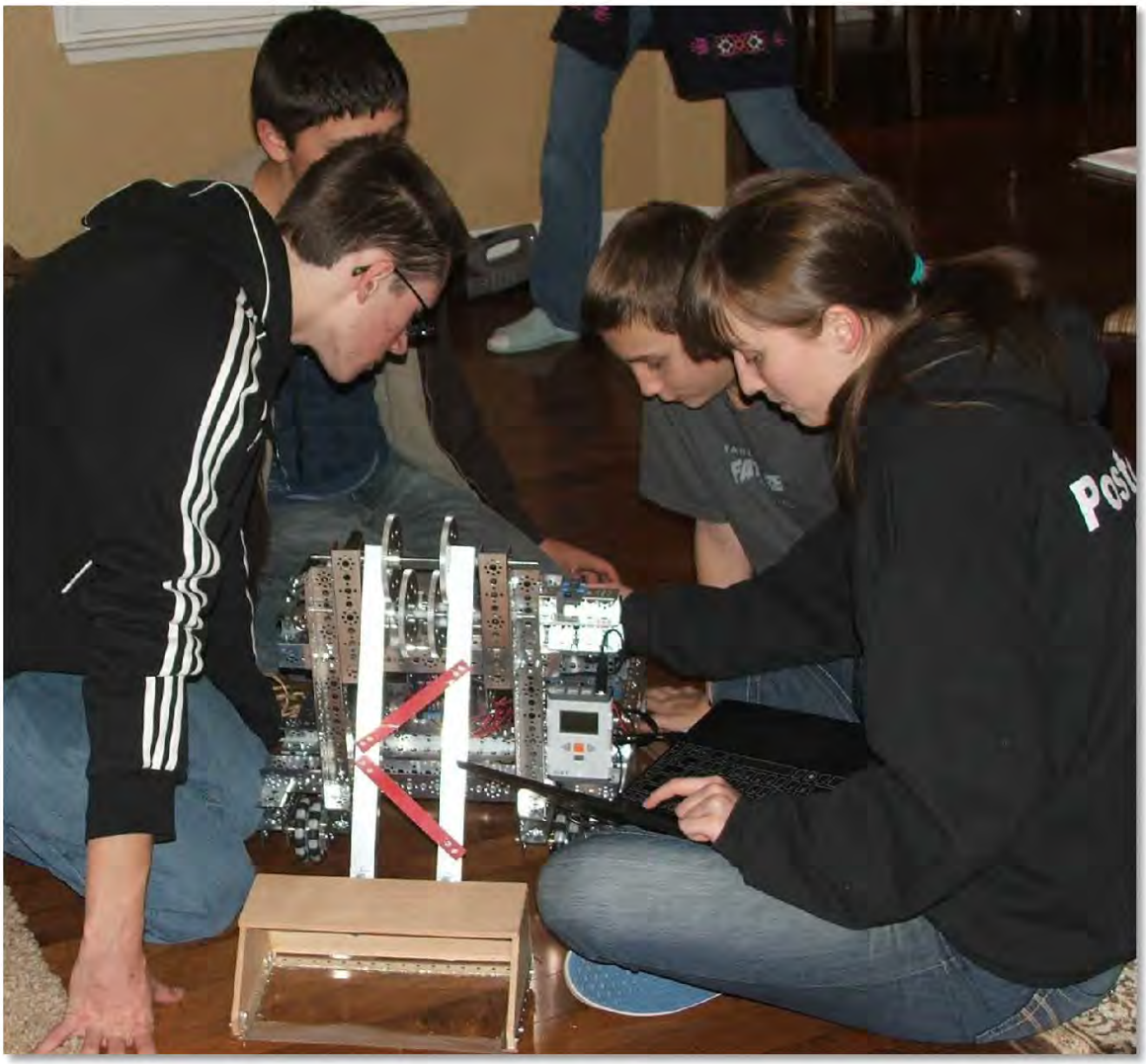
- The autonomous IR was working really well, it just depends on where you place it. Just like FLL!
- We have to remember not to have the tractor beam all the way down during autonomous, since it drags on the field and messes with the distances on the program.

Manage wiring

- We soldered an extension for the flag turner, since it was getting a little bit tight when we extended the linear slide to its full length. That soldered connection was also retaped and rerouted so it was out of the way.
- Some of the wires were loose from the competitions, so we basically overhauled the wiring system by rerouting wires along the sides and out of the way of moving parts, and retaping connections.

Troubleshoot lose connections

- We kept dropping connection from the Samantha Field Control when we were trying to drive, and the left servo controlled flywheel wasn't spinning.
- We managed to find the loose connection in one of the servo extensions, but we weren't able to find the problem with the Samantha.
- Right before everyone had to leave, we switched out the connecting wire between the computer and the router, and after that we had a perfect run!
- So the wireless connection problem might've been that faulty wire, but we can't be sure, since we didn't have time to test it.



Practice driving

- Most of the meeting, when we weren't dropping connection, we practiced driving.
- We got a couple new techniques figured out, like getting the bat'leth down immediately when teleop starts to scoop out blocks and driving backwards to the bucket pendulum and then rotating, instead of rotating at the block pile and then driving.
- Discovered that the drivers should not slow down when driving off of the ramp or the robot will tip over. Drivers should drive the robot at full speed.
- We also practiced having one coach calling out the time to help the drivers. The coach will definitely have more to do at an actual competition, like keeping an eye on when the opposite alliance is doing, and communicating with our alliance partner.
- We are getting 4 loads of blocks consistently, with about 8 seconds left after hanging. Our highest score was 217! And that is a pretty great score, but at an actual competition, we will have to deal with other robots playing defense and getting in the way so our average score on the field will probably be lower.

Written by: Jamie Poston	**Checked by:** Nadya Dooley

Saturday, 12/29/13, 2:00 pm - 6:00 pm

Meeting #29: Drive meeting!

Build Team

Attending:	Jamie Poston, Scott Dooley, Carter Peterson, Price Poston, Logan Peterson	**Coaches/ Mentors:**	Patti Poston, Wade Peterson

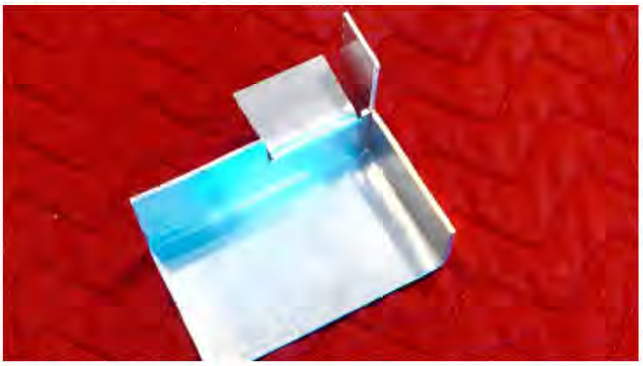
Goals:

- Practice Driving
- Identify any changes that need to be made to the robot

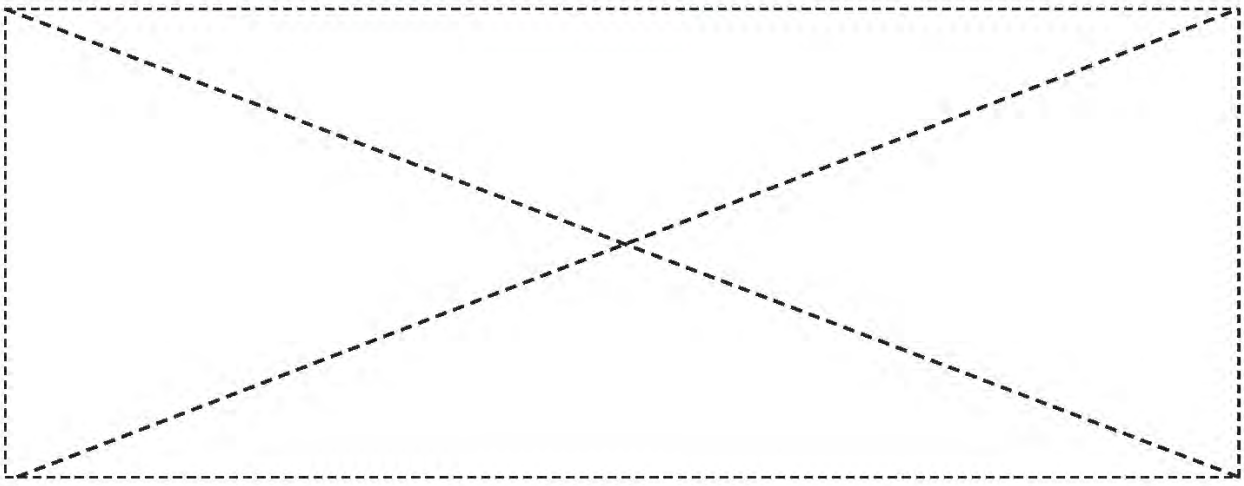
Tasks	Reflections
Practice driving	Team members took turns driving
Add sidewalls to robot	Only the right sidewall was added. It will be easy to add the remaining side walls.

Add sidewalls to the robot

- Scott created a bracket in the workshop that will be used to attach the sidewalls.
- The right sidewall was cut out of hardboard and was attached to the robot using the custom bracket and screws.



Custom Bracket



Written by: Jamie Poston	**Checked by:** Nadya Dooley

Saturday, 12/29/13, 2:00 pm - 6:00 pm

Meeting #30: The Arm - The Next Generation

Build Team

Attending: Jamie Poston, Scott Dooley, Carter Peterson, Price Poston, Logan Peterson

Coaches/ Mentors: Patti Poston, Wade Peterson

Goals:

- Practice Driving
- Identify any changes that need to be made to the robot

Tasks	Reflections
Fix the arm of the robot	The arm is operating smoothly. The grinding noise has stopped.
Replace the motor on the arm	There is a big difference in how quickly the arm is moving with the new motor.
Add Walls to the robot	We need to paint the walls.
Add a Double Lift Bar	After testing, this looks like it will work. We just need to test with another robot.
Test Double Lift Bar	Tested using the weight of 3 milk jugs.
Figure out a method to deploy Double Lift Bar	A servo motor that has a standoff that extends into the channel was used for the Double Lift Bar. When the servo motor rotates it extends the double lift bar. This is a one shot mechanism. Once the bar is lowered there is no bringing it back up.

Fix the Arm of the Robot

- Brainstormed ideas on how to fix the gap on the robot arm.
- A new slide brace was created to support the top joint as it moves up and down to reduce weight on the nylon rack and pinion slides.
- The parts were cut and drilled in the workshop.

Replace the motor on the arm

- A new motor was added to the arm.
- Four new motors were purchased in November leaving us with three motors for back up.

Add Walls to the robot

- Walls were made for the robot using particle board on the back and hardboard on the sides.
- The walls were cut in the workshop and attached to the robot with screws.

Add a Double Lift Bar

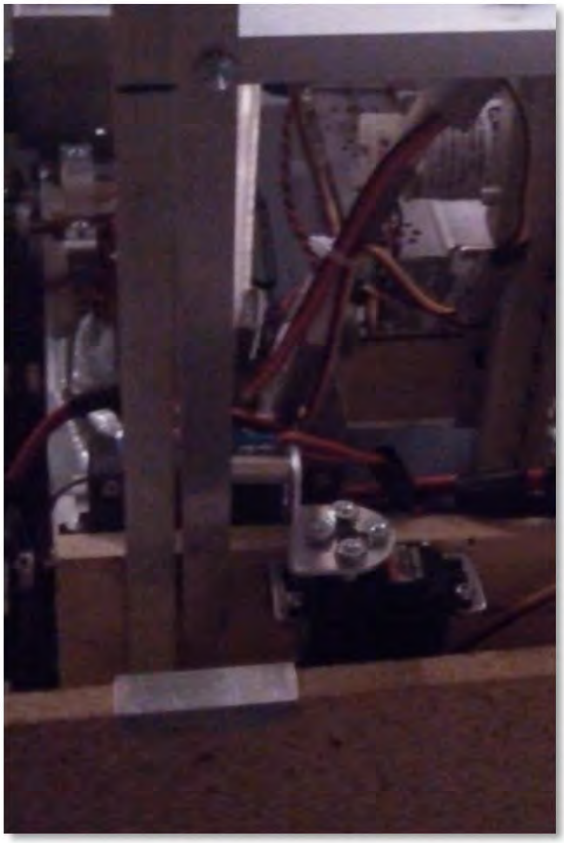
- We wanted to create a lift bar so that another robot could hang from us during a competition so that we could score the extra points.
- U-channel was used to create a Double Lift Bar.
- The pieces were cut in the workshop and connected with screws.
- The Double Lift Bar was loosely attached to the robot so it could pivot.

Test Double Lift Bar

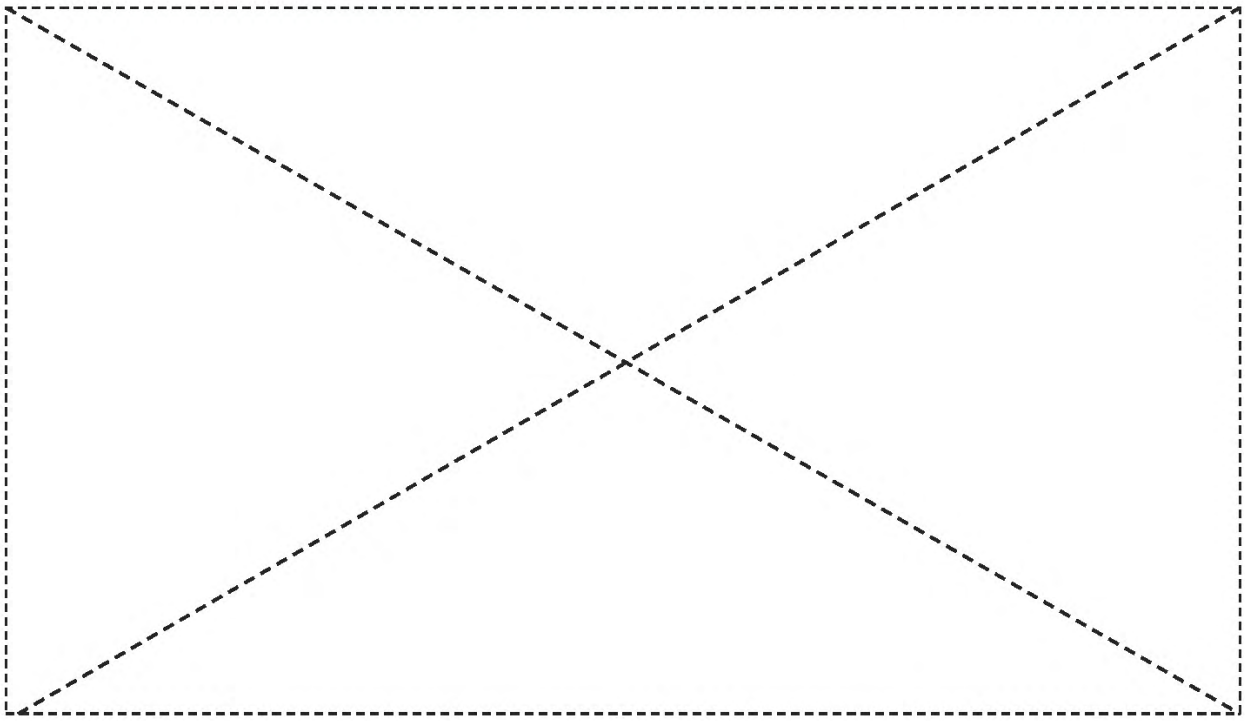
- The milk Jugs were filled with water, each gallon weighed 8 pounds.
- The milk jugs were hung by the Double Lift Bar to see if the lift bar could hold the weight.
- The Double Lift Bar easily lifted the 24 pounds of weight.

Figure out a method to deploy Double Lift Bar

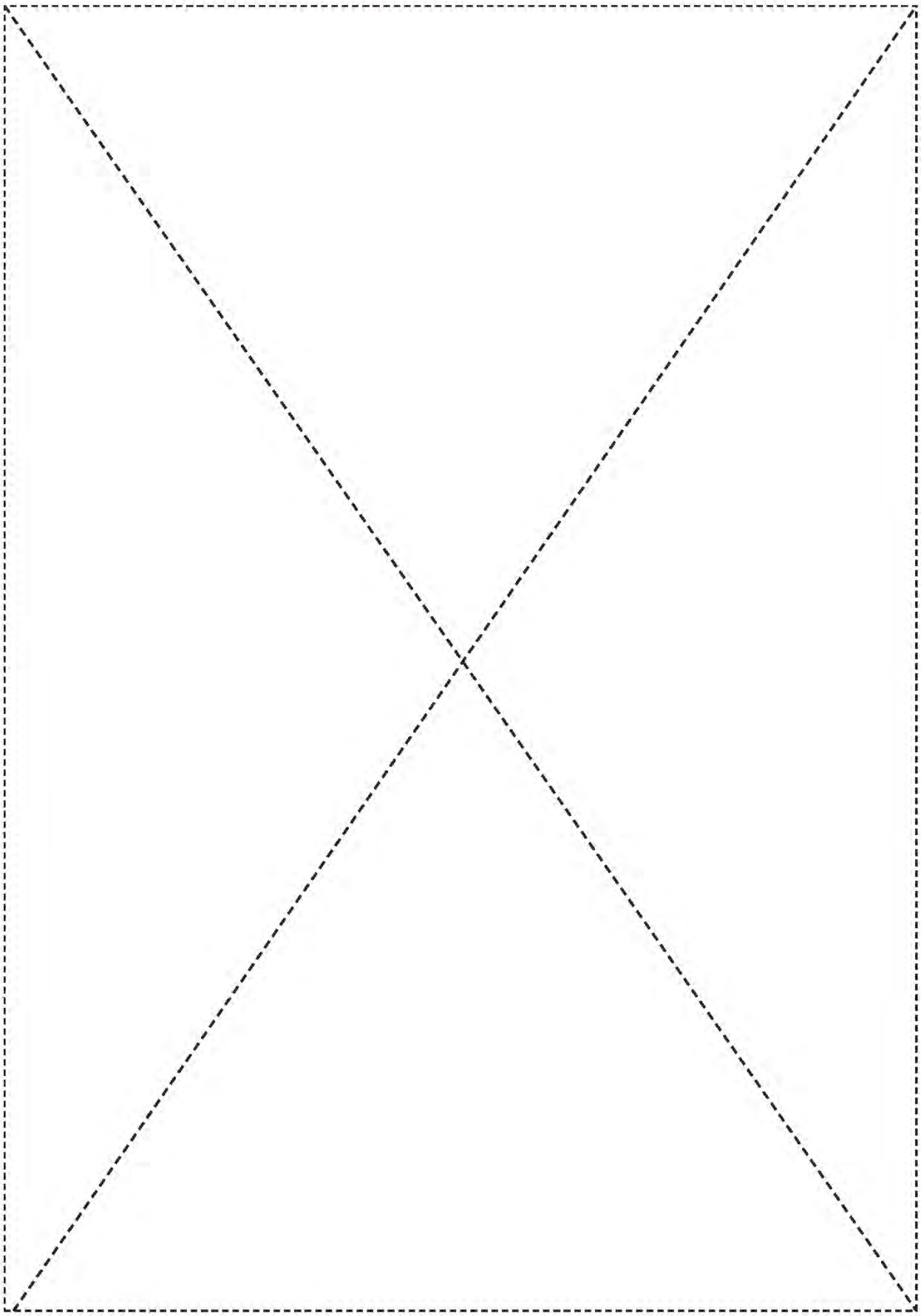
Undeployed



Deployed



Written by: Logan Peterson	**Checked by:** Nadya Dooley



Tuesday, 12/31/13, 7:30 am - 7:00 pm

Event Report: Mentoring in India!

Attending: Nadya Dooley **Mentors:** Ming Dooley

Tasks	Reflections
Hold three free Mindstorms Robotics camps for hostel and children's home girls and boys in India	They were all very unique experiences for all parties involved and a lot of fun- definitely a success!

Camps

With Nadya traveling to India, our team was presented with a very unique outreach opportunity. Between the 26th and 31st, we held three FLL camps in Jhalda and Ananda Nagar, for both hostel and children's home students between the ages of 5 and 17.

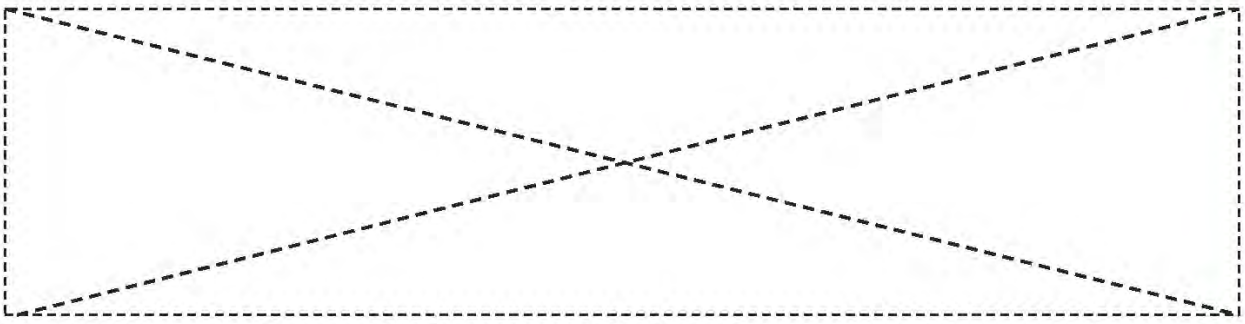
The first camp was presented to an all-girls hostel, with middle school aged students. We presented them with unsorted Mindstorms pieces and the instructions for building five minute bots, and without further prompting, they immediately began to build. Having divided them into three teams, they all completed a robot within an hour, which we were very impressed by since most of them had never touched Legos before. After the robots were complete, we sat down and did some simple programming in Robolab. The most difficult part of explaining how to program was because of the language barrier, as many of them only spoke a small amount of English. However, they were able to program the robots to go straight and turn, at which point they were delighted to race against the other teams numerous times! We then handed out candy canes and chocolate to everyone.

The second camp was given to a hostel for disabled boys, who were between 14 and 17. Once again, after showing them

the robots, disassembling them and handing out the instructions, everyone didn't need to be told to start building! They completed three robots in about the same time as the girls from the first camp had, but since we had more time left this time, we drew a more complex racecourse for them to program the robots to complete. It was wide enough for three robots to run at the same time, and they had to go forward, turn 90 degrees left, go forward, go right, and go right again to the finish line. These students spoke less English than the last group, so pointing out the three motor slots on the NXT and the corresponding ones in Robolab was the easiest way to explain how the programming worked. All the movements were run using time, as opposed to rotations or by using sensors. Although the programming took several hours, all three teams successfully completed a program for the racecourse at about the same time, and a thrilling sequence of race and crashes followed! We once again finished by handing out candy canes and chocolate, and everyone was very thrilled.

Our final camp was for the Jhalda children's home, which had a large age range, the youngest being 5 and the oldest 17. These bright minds finished their robots faster than anyone else had! Surprisingly, the 5 year old ended up spearheading one of the teams and was the one that figured out how to attach the motors to the NXT. As we didn't' want programming to take up such a long time this time, we made the racecourse a little simpler, with only two turns. However, once again this group of students worked much faster than the other two. The programming was completed quickly, and once again hilarity ensued when they raced, although it was slightly more organized than last time. After we were finished, we all made a gingerbread house together and passed out more candy.

All three of the camps were definitely a huge success, and were experiences that we're sure the students aren't going to forget anytime soon.



Written by: Jamie Poston	**Checked by:** Nadya Dooley

Thursday, 01/09/14, 5:00 pm - 7:00 pm

Meeting #31: Extension Team FTC #6024 - A New Frontier!

Build Team

Attending: Jamie Poston, Matthew Nugent, Cole Kenny, Christian Perez

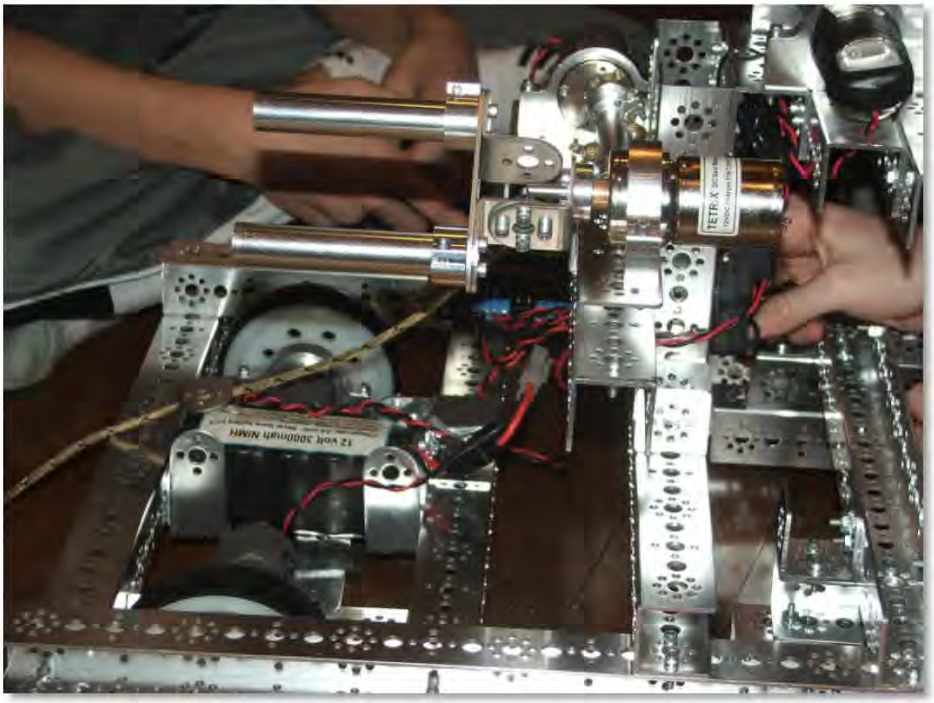
Coaches/ Mentors: Patti Poston, Angel Nugent

Goals:

- Add new parts
- Work on Winch/Hanging Mechanism
- Drive the Robot

Tasks	Reflections
Add new parts	We added a flag turner but we still need to test it.
Thread the rope on the winch	The rope is threaded, but is sliding around a lot.
Drive the robot!	The robot is driving around, and picked up a mock cube!

Add new parts



- The new parts that we ordered came in, so a lot of this meeting was switching out placeholders for the real deal.
- On the winch/hanging mechanism we added on a motor, and re-attached the winch axle to the motor axle.
- We also added on a motor and motor mount for the flag turner, and added on the spinning part to the motor.
- Then we added the second DC motor controller, and wired all the new motors and the motors for the arm/cube scooper

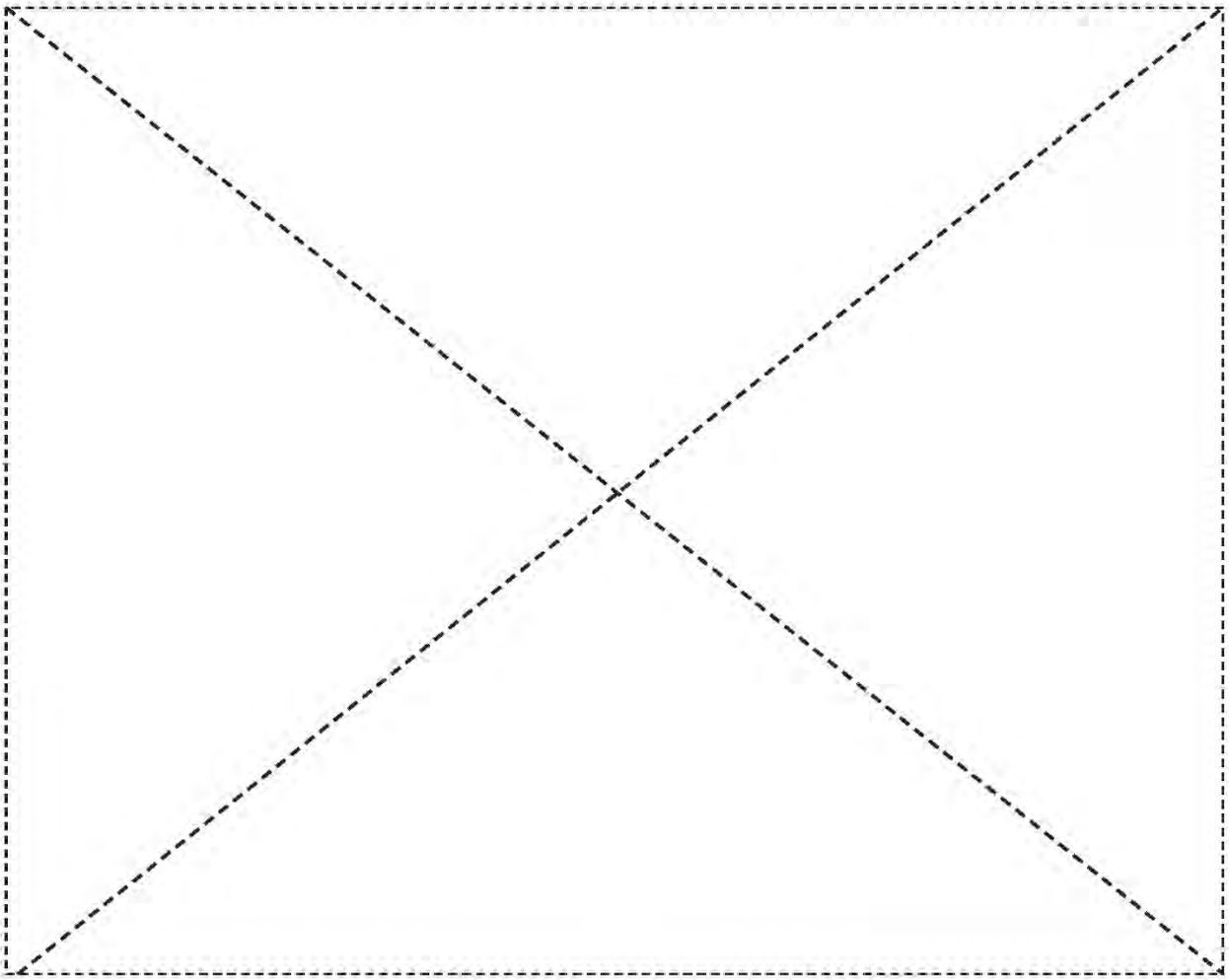
Winch

- We had already drilled a hole for the winch, so all we had to do was cut out an appropriate length of rope, and thread it through the hole so it would stay put when we were winching ourselves up.

- After a long time trying to stick a large rope through a small hole, we found that it was better to expand the hole instead of trying to squeeze the rope through.
- As soon as we did that, it was a breeze!
- We tied a knot through the rope, and melted the ends so they wouldn't fray.
- We actually tried to hang on a pull-up bar, but the rope slid to the side, and the robot did too.
- We will probably need some guides on the side to help it not slip so much.

Driving the robot

- So, with about a half hour left in the meeting, it was time to practice driving!
- We got the Samantha field control setup and the robot was connected and apparently running, but it was moving really slowly? Like barely an inch at a time, like the battery was low.
- After switching out the main battery and the NXT battery with fresh ones, we found that one of the negative power wires wasn't wired into the first DC controller. It was amazing that the robot could move at all!
- Once we connected that wire, the robot was driving around perfectly!
- We even made a mock cube out of Legos, which we picked up and dumped pretty well!



Written by: Jamie Poston, Matthew Nugent	**Checked by:** Nadya Dooley

Saturday, 01/11/14, 3:30 pm - 6:30 pm

Meeting #32: More driving! Preparing for the Flagstaff Championship

Build Team

Attending: Jamie Poston, Price Poston, Logan Peterson, Carter Peterson, Brandon Villar, Cole Kenny, Scott Dooley, and Jr. FTC member, Matthew Nugent

Coaches/ Mentors: Patti Poston, Wade Peterson, Angel Nugent, Carol Villar

Goals:

- Practice Driving
- Work on Autonomous
- Practice Presentation
- Practice blocking strategies with Jr. FTC extension team

Tasks	Reflections
Drive Practice	During practice we learned that if the rack and pinion were lifted too high up it will strip the rack. Some teeth of the rack were stripped off at the top and the bottom of the rack. The addition of a touch sensor will keep this from happening again on the bottom rack and pinion which could have caused major problems for us if this happened during a competition.
Drive Practice	We also learned that the robot will get stuck if it drives over a block that is on the ramp. We will need to make sure that all blocks are off of the ramp before the end game.
Drive Practice	During practice a block fell out of the Tractor Beam and landed on the robot. So far, this has only happened one time. We don't thik this is a major problem.
Practice Presentation	Get ready for the Flagstaff Championship!
Driving Practice with FTC #6024 Extension team	Practiced against a blocking robot. FTC# 6024 is practicing for Flagstaff Championship and the Extension FTC team is practicing for the Northern Nevada Qualifier.
Discuss the NEW Control Award	Logan discussed all of the control our robot has and this information is outlined on the next page.

Rack and Pinion

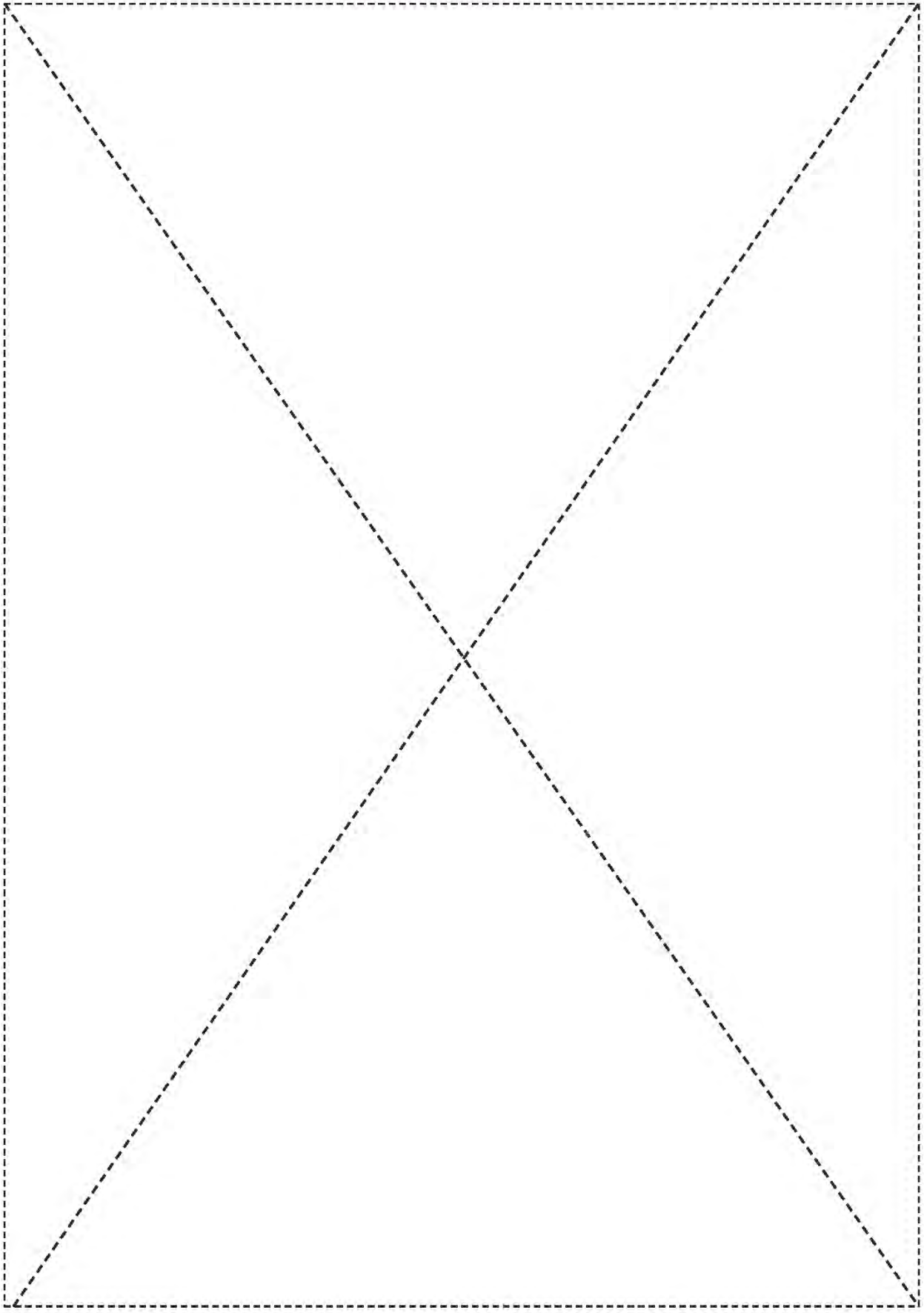
- We learned that if the rack and pinion were lifted too high up it will strip the rack. Some teeth of the rack were stripped off at the top and the bottom of the rack.
- Possible solution - add a touch sensor at the bottom of the second rack (top rack) so that the teeth of the rack cannot be broken off.
- The addition of the touch sensor is working well to stop the rack and pinion from lowering too far and stripping teeth.

The addition of the Touch Sensor

Control Award Criteria Discussion

Component	Reflection
Robot	• Programmed in Robot C to allow for more programming options and more control. • Programmed to shut down, stop motors and retract block knife when connection to the field is lost to prevent damage to the robot and its components.
Autonomous Mode	• Programmed in Robot C using advanced levels of code. • There is only one autonomous program but it can be customized at the beginning of each match. • The autonomous program allows the team to select for different start locations. • The autonomous program has 6 different delays to accommodate for an Alliance Partner that also plans to participate. • Multiple methods were programmed so that user can input the desired end location on the ramp during the autonomous period. • The speed of the robot during the autonomous mode can be controlled at

	the beginning of each match. • The code has enumerators programmed into it to help with code comprehension. An enumerator is an efficient way to define a set of constants that may be assigned to a variable. This allows the code to make more sense to the team members.
IR Sensor	• IR Sensor was placed on robot to detect IR Beacon on playing field during the autonomous period. • IR sensor can determine which basket to place the scoring element with an extremely high rate of accuracy. • To reduce anomalies, the IR sensor is programmed to read the IR Beacon in the correct zone for 1/10th of a second before triggering a response from the robot.
Touch Sensor	• A touch sensor was added to shut off the motor when a certain point is reached on the rack and pinion system to protect it. • The touch sensor keeps the rack and pinion systems from binding, reducing wear and tear on the rack and pinion.
Block Knife or "Bat' leth"	• The Block Knife is controlled by a servo motor that the driver toggles (by button) up or down. • The Block Knife lines up the cubes at an angle for extremely fast pick up by the "Tractor Beam".
Block Grabber or "Tractor Beam"	• Two continuous rotation servo motors control the gears that control two wheels to suck up and spit out cubes quickly and with precision. • The Tractor Beam has enough control to release one cube at a time, if balancing of the pendulum goal is necessary to score the 50% bonus.
Controllers	• Three modes (Tank, Arcade, and Top Hat) were programmed for the controllers so that team members can perform their best. • The driver can select which mode to use at any point in each match since we had drivers that have different preferences.
Wheel base	• Encoders were placed on the motors for the wheels for precise movement.
Flag Turner	• Flag Turner was moved to the center "Tractor Beam" to allow for it to be moved up or down. • The drivers can control the height of the flag turner and make adjustments to allow for the 1 inch variance allowed on the playing fields.
Double Lift Bar	• The robot is able to use a servo to deploy a double lift bar during the end game. • The double lift bar increases the chance that our alliance will be able to hang two robots from the pull-up bar at the end game for a possible 50 extra points!
The Hang	• The hook used for the "end game hang" is attached to the rack and pinion system which is controlled by a motor from the joystick controller. • The robot is able to hang above the bridge and use its wheels to pull forward enough that an alliance partner's robot can hang from the same bar if the Double Lift Bar will not work with an alliance partner. This doubles the chances to score the extra 50 points during the end game!



Saturday, 01/18/14, 8:00 am - 7:00 pm

Event Report: Nevada Qualifier Tournament

Attending: Matthew Nugent, Christian Perez **Mentors:** Angel Nugent

Tasks	Reflections
Attend the 2013-2014 Nevada Qualifier at Western Nevada College	We could have done better. There were a number of technical problems that prevented our robot from doing what it was supposed to do. Lessons were learned about being patient when things aren't going as planned.

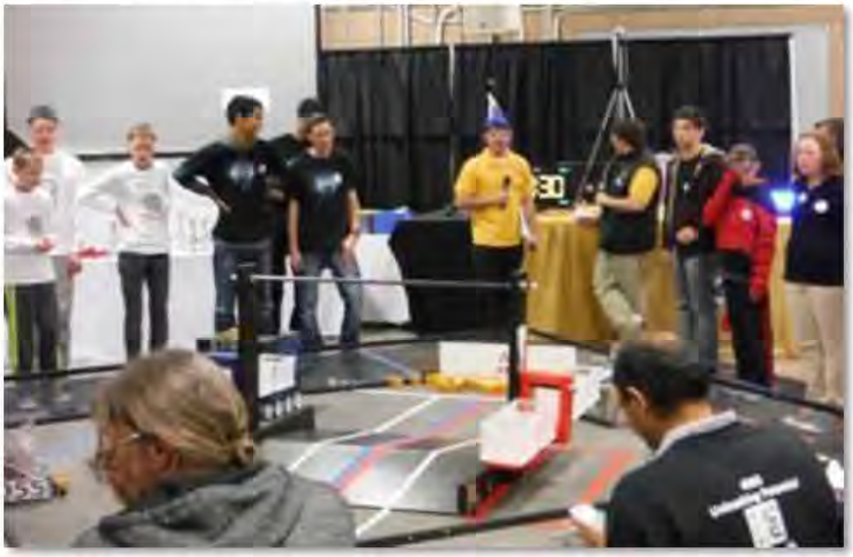
Tournament

In January, our team was scheduled to attend a championship tournament in Flagstaff, Arizona, the same day as the Nevada Qualifier Tournament. Matthew and Christian were added to the team as junior members to represent the team in Nevada while Jamie, Price, Cole, Nadya, Logan, Carter, Brandon, and Scott attended the tournament in Arizona.

Matthew and Christian went to Western Nevada College the night before the tournament for the inspection and to practice on the field. The inspection could only be partially completed because the software inspector had not arrived yet. We planned to finish that in the morning. After inspection and practice, we attended a tour of GE in Minden, Nevada that was held for FIRST since GE was one of the tournament sponsors.

The morning of the tournament, we went to the pits to set up our poster, computer, and robot. We finished our inspection and learned that our robot was still programmed with an old number. We enlisted the help of the coach for Bolts on the Brain to help us reprogram the number. After that we rehearsed our presentation.

It was time for the presentation. We presented our materials to a panel of four judges. After that we headed back to the practice room for additional practice. While there, we met with teams that we were paired with in the upcoming matches in order to strategize. It was during this time that we began to experience technical difficulties. When we were practicing the arm and flag-spinner suddenly stopped working! We then started to troubleshoot. First we tested our connections, and then we made certain that the brick wasn't low battery. Everything looked good so we took out all of the DC Motor-controller wires then put them back in, it still didn't work.



It was time for our first match! We were excited even though we weren't sure if our arm would work--sometimes it did, and sometimes it did not. We went into the match hoping for the best. Shortly after the match started, our arm locked in place so we had to quickly change our strategy. We planned to block while our alliance partner picked up blocks. We did a great gob blocking and did fairly well. Our arm worked for the first 5 seconds of the second round then stopped. We had two rounds back to back so we didn't have time to fix it. This happened in the third round too. We thought that the problem might be a short in the motor-controller. Another team, Silver State offered to give us a new one they brought as a spare. We were so grateful! After we switched it out, it still didn't work!

Then Christian found that when he hit the flag-spinner button it deactivated the arm. We decided we should not use the flag-spinner if it would disable the arm. We felt ready for the fourth round, but the team before us had switched the controllers. We didn't know what was wrong until our robot didn't work. Our alliance partner didn't know what was wrong either. Their robot lost connection so they set their controllers down on the floor. Afterwards we knew what happened but they wouldn't have a redo because it was technically our fault for not checking the equipment ahead of time. A hard lesson to learn, but a valuable one we will never forget!

On the fifth round our arm wasn't set right and was locked down, but on the last round everything but the flag-spinner worked. We scooped lots of blocks and hung on the bar while our alliance partner raised the flag. We won that round! Even though we had many technical difficulties, frustrations, and didn't win any awards, we still had a happy ending.

Written by: Matthew Nugent	**Checked by:** Jamie Poston

Saturday, 01/18/14, 7:30 am - 7:00 pm

Event Report: Flagstaff Tournament

Attending: Nadya Dooley, Jamie Poston, Price Poston

Mentors: Ming Dooley, Patti Poston, Wade Peterson, Carol Villar

Tasks	Reflections
Attend the 2014 Arizona and New Mexico championship at Coconino High School!	It was definitely a level up from the qualifiers, and everyone had a great time. We were given the Promote Award, the Control Award, and were a part of the 1st place alliance!

Tournament

So today we went to the Flagstaff Championship tournament at Coconico High School. We all were able to attend and the night before we got there in time to check in and get inspected which went well. We went around and met some teams, made new friends, and were able to check out or competition. After the inspection and check-in, we went back to the hotel to scrub-up on our presentation.

We got there early in the morning and were practicing in the field and all went well. Our presentation was great and we were ready to compete. When we got to the match, our autonomous had a problem reflecting off the other robot's metal sides and not being able to score correctly. We managed to come up with a temporary solution to the problem with the reflections by putting a cover over our IR sensor. Other than that, out matches went fine and we won some, we lost some. Our secret plan was to be able to double hang but the other teams had problems trying to grab onto our bar.

Sadly, we were not able to be one of the winning alliances but we were lucky enough to be picked by the Mustangs (7613). All went well and we were good to go. Our alliance won! We helped by mostly blocking which we weren't able to do last year. In the end, we got a medal for being in the winning alliance, the new Control Award, and the Promote Award.

Written by: Matthew Nugent	**Checked by:** Jamie Poston

Saturday, 01/25/14, 11:00 pm - 3:00 pm

Meeting #33: Flagstaff, AZ Championship to Las Vegas, NV Championship!

Build Team

Attending:	Scott Dooley, Cole Kenny, Carter Peterson, Logan Peterson, Jamie Poston, Price Poston, and Brandon Villar	**Coaches/ Mentors:**	Wade Peterson, Patti Poston, and Carol Villar

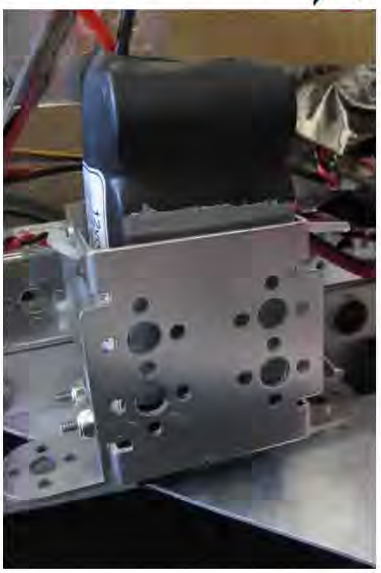
Goals:

- Discuss Flagstaff, AZ Championship
- Discuss Carson City, NV Qualifier - FTC# 6024 Extension Team
- Discuss the Intelli-gents PTC Contest - Do we want to do one?
- Fix the IR sensor
- Create a new battery holder on the robot
- Check all connections on the robot. Look for loose connections and fix
- Discuss Johnson Power Pole connectors?
- Discuss University of Nevada, Mechanical Engineering Department demonstration
- Discuss improvements for Pit area for Las Vegas, NV Championship
- Drive Practice

Tasks	Reflections
Flagstaff, AZ Championship	Discussed what we can do better and what we need to do to get ready for the Las Vegas, NV Championship.
Carson City, NV Qualifier	The extension team experienced some problems during the competition but they remain excited about FTC!
Intelli-gents PTC Contest in AZ	Carter participated in this challenge and would like to have our team conduct a similar challenge in LAs Vegas, NV. Carter will contact Nathan via email.
Fix the IR sensor	The FTC forum revealed some solutions to the problems that our robot experienced during the competition. We think the changes that were made today will work.
Check connections on robot	Brandon and Scott went over all connections and tightened them to make sure that they were all secure.
Create a new battery holder	Cole and Jamie fabricated and installed a new battery holder on the robot.

Flagstaff, AZ Review

- We need to fix some of the issues with our robot that were discovered in Flagstaff, AZ.
- We need to improve our pit area decorations. We discussed new display boards, sell sheets and table top decorations. More buttons and Starbursts are needed.
- Reviewed judging feedback from the Flagstaff, AZ Championship.



- We discussed the need to rework PowerPoint slides for presentation.
- Team scheduled a meeting for Thursday, January 30th to meet in the afternoon to practice the presentation.
- The issue that the flag turner did not work as well as a result of the wooden sides being installed. It was hard to align the robot close enough for the flag turner to work and raise the flag.

Fix the IR Sensor

- The IR sensor was picking up wrong IR sensors at the Flagstaff, AZ Championship.
- We reviewed the FTC forum to see if this was a common problem.
- Applied Duct Tape over the IR Sensor and attached a sheath around the sensor to reduce interference as suggested in the FTC Forum.

Check Connections on robot

- Kep nuts were checked and replaced with Nylocks when possible.

Create a New Battery Holder

- During the Flagstaff, AZ Championship, the battery disconnected during the last match.
- A new and more secure battery holder was fabricated and installed using Tetrix parts.

Discuss improvements in the Pit Area

- New display boards and a holder for the boards were discussed.
- We will bring along the FTC Extension's teams board and robot to display.
- Discussed making centerpieces for each table that will hold our robot's sell sheet.
- Base plates for the centerpieces were cut in the workshop and holes drilled in them for the plastic balloon holders.
- Team information was printed out for the centerpieces and glued onto the base plates.
- The robot sell sheet was reviewed and suggested changes will be made prior to the Las Vegas, NV Championship.
- Team needs to purchase more Starburst candies and balloons.
- Buttons

Saturday, 01/26/14, 3:00 pm - 6:00 pm

Meeting #34: Last Minute Change! It's Vegas Baby!

Build Team

Attending:	Cole Kenny, Brandon Villar, Jamie Poston, Price Poston	**Coaches/ Mentors:**	Patti Poston, Jim Poston, Carol Villar, Carolyn Kenny

Goals:

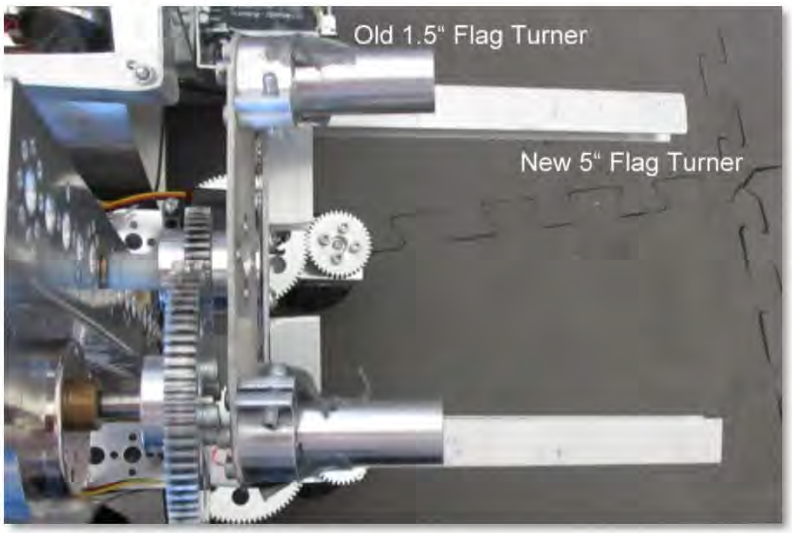
- Make the new Flag Turner
- Install the new Flag Turner
- Test the new Flag Turner
- Send an email to Nathan of FTC Team# 7713 (Intelli-gents) regarding the PTC Challenge
- Email UNR to finalize a date for demonstration for the UNR ME Department

Tasks	Reflections
Make the new Flag Turner	At last night's meeting, problems with the flag turner were discussed. The addition of the wooden sides to the robot has made it difficult to get the robot close enough to turn the flag with the 1.5" prongs.
Install the new Flag Turner	Installation went smoothly.
Test the new Flag Turner	We discovered the the new flag turner will fold up if it is turned the wrong way. The new Flag Turner must be turned clock-wise.
Send email to Intelli-gents	Carter participated in the PTC Challenge conducted by FTC Team #7713 (Intelli-gents) at the Flagstaff, AZ Championship. He received a 2nd Place award for Team# 6024. Carter would like to run a similar contest at the Las Vegas, NV Championship so he will ask Nathan from Team# 7713 for permission.
Email UNR ME Department	Dr. Haris Doumanidis is the chair for ME and he has graciously opened an invitation for FTC teams to come and demonstrate FTC in the near future for the ME Department. We are excited to be given this opportunity!
Sell Sheet	The sell sheet was finalized. Now we need to print 40 for the Las Vegas Championship!

Make the new Flag Turner

- At last night's meeting, the team discussed the difficulties they encountered with the flag turner during the Flagstaff, AZ Championship. Since the sides have been added to the robot, it is difficult to position the robot close enough to the flag pole. The prongs on the Flag Turner now are too short.
- Possible solutions were discussed; however, many were not possible given that the robot must fit within an 18x18 space.
- We discussed reducing the wooden sides that were added to the robot. We didn't want to do this so we decided to come up with a better design for the flag turner.

- We came up with the idea of a spring loaded flag turner that could be deployed so that longer prongs could be used to turn the flag.
- We decided to use the springs from toggle bolts available from Home Depot.
- We constructed a prototype using aluminum channel in the workshop and it worked so we made a customized Flag Turner that now has 5" long prongs. The old Flag Turner had 1.5" prongs.



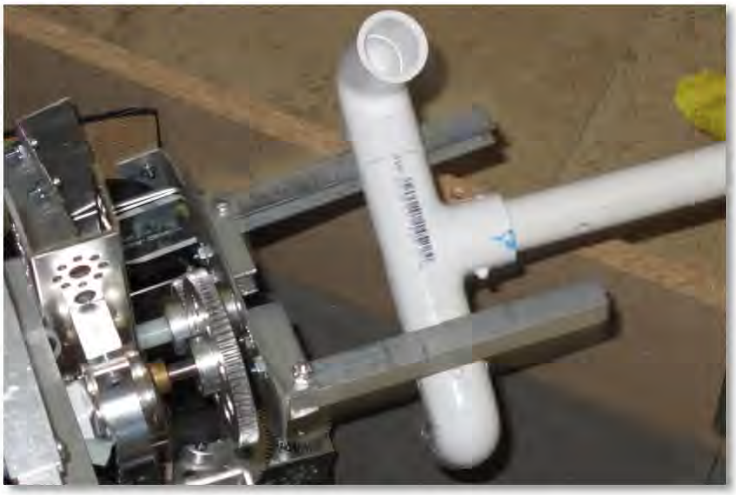
Install the new Flag Turner

- Installation went smoothly.
- The new prongs of the new Flag Turner will be folded and held in place by a rubber band until deployed.
- The rubber band is tied to the robot so that it will not come loose.
- Rotation of the gears releases the rubber band and deploys the prongs.

Test the new Flag Turner

- The Flag Turner deployed as expected. We will need to keep a few rubber bands on hand in case of breakage.
- Team members will need to be shown how to set the Flag Turner prior to each match.
- The Flag Turner did fold up on rotation during a few of the test sessions. It will need to be rotated clock-wise during matches to work properly. If it does fold up, it is easy to fix by pulling the robot back and rotating the prongs back into place.
- We may need double up on the springs used on the prongs of the flag turner. Logan plans to test this to see if it makes sense.
- Video of the new Flag Turner was emailed to team members! http://www.youtube.com/watch?v=w7p5vARdDIc

Folded



Deployed

Written by: Logan Peterson	**Checked by: Jamie Poston**

Tuesday, 01/28/14, 5:15 pm - 6:30 pm

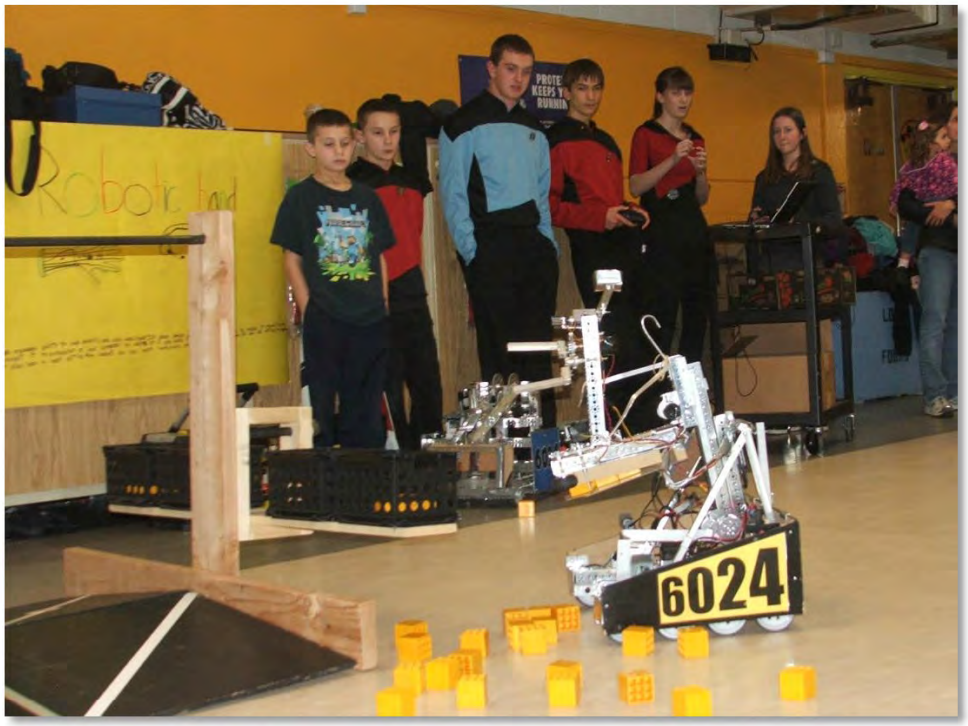
Event Report: Outreach at Grace Warner Elementary at Risk School

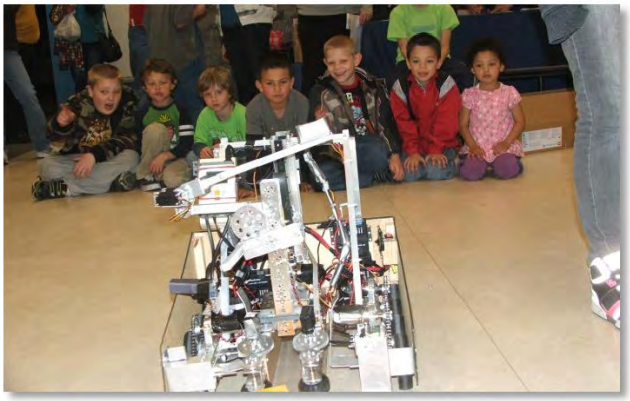
Attending:	Price Poston, Jamie Poston, Carter Peterson, Brandon Villar, Matt Nugent (6024 JV)	**Mentors:**	Patti Poston, Suzanne Peterson, Carol Villar

Tasks	Reflections
Present our robots and FIRST to hopefully spark kids interest in engineering.	We successfully sparked at least one kids interest in FIRST robotics.

After a speech about FIRST we first demonstrated the FLL robots. We then drove around our FTC robots, both our JV team's and ours. Then we showed kids how to drive to drive our robot. The kids were able to drive our robot successfully and were able to hang the robot and do the flag turner. All the kids and parents seemed like they had a lot of fun and learned a lot.

Our Team with some of the kids





Written by: Price Poston	**Checked by:** Nadya Dooley

Wednesday, 01/30/14, 3:00 am - 5:00 pm

Meeting #35: Practice for Vegas!

Discussion Team

Attending:	Logan Peterson, Brandon Villar, Jamie Poston, Carter Peterson, Cole Kenny	**Coaches/ Mentors:**	Patti Poston, Carol Villar, Carolyn Kenny

Goals:

- Practice Presentation

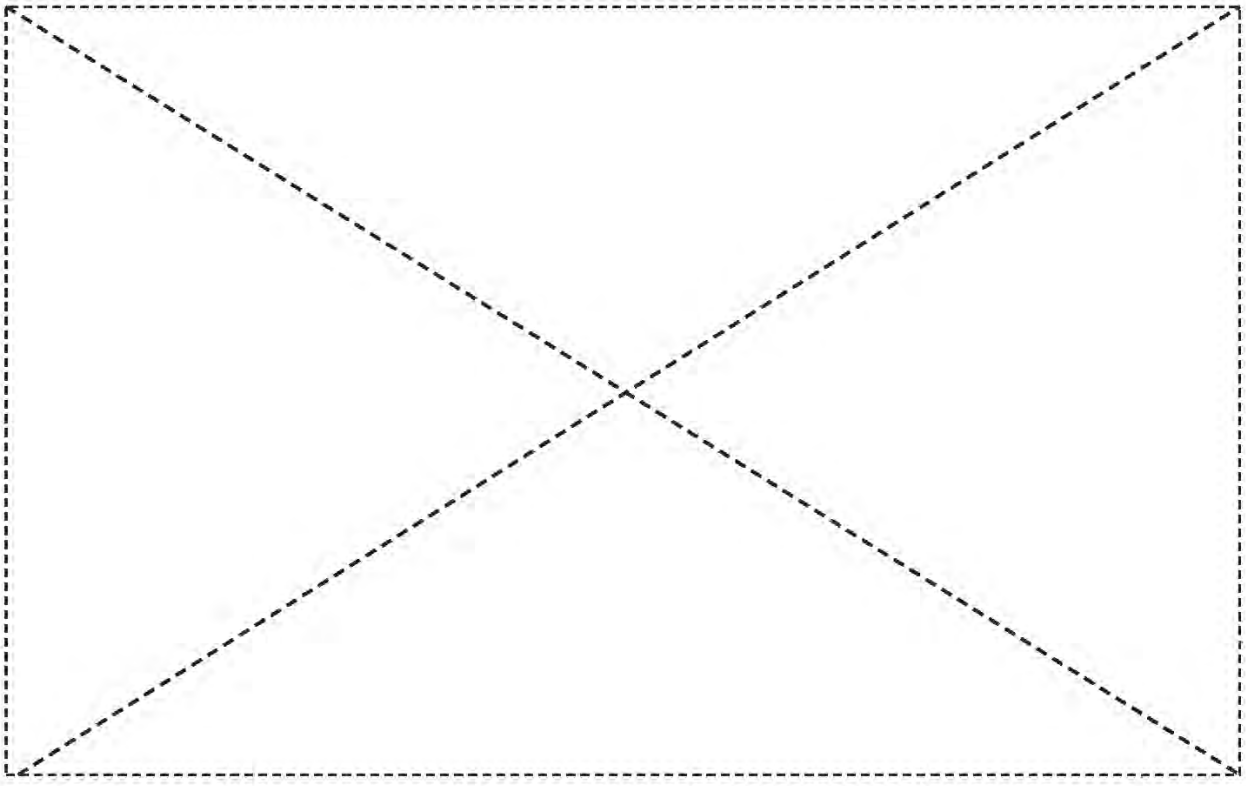
Tasks	Reflections
Practice Presentation	We had a team meeting to practice our presentation
Board	Our team felt our presentation board needed to be changed

Presentation

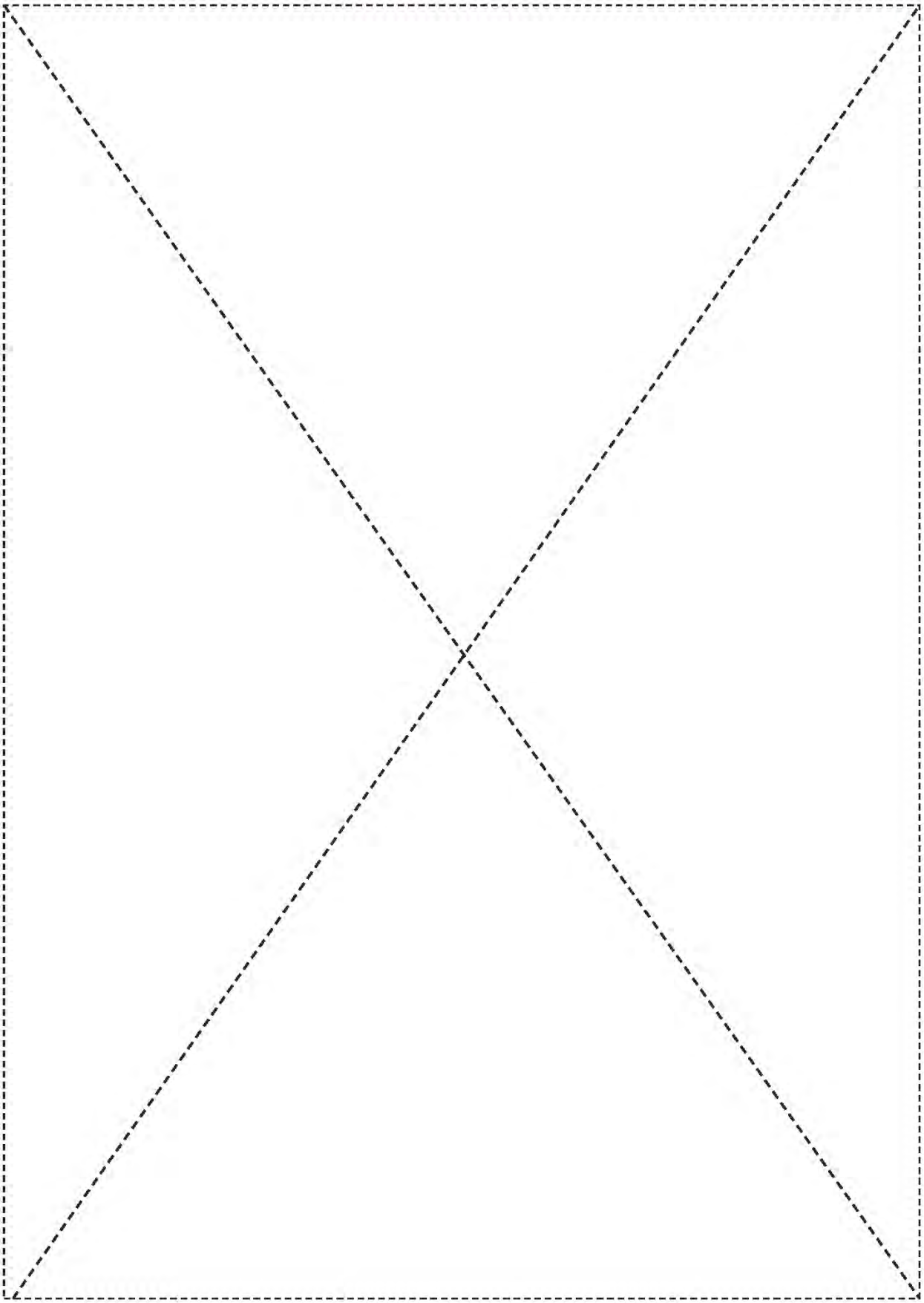
- Our team felt we needed to get together before the Las Vegas Tournament to practice the presentation.
- We met at Learning Express in Reno and we worked on our presentation

Board

- We also got to see our new presentation board
- We got to look at the new star trek balloon!



Written by: Carter Peterson	**Checked by:** Cole Kenny



Saturday, 02/01/14, 7:30 am - 7:00 pm

Event Report: Nevada Championship Tournament

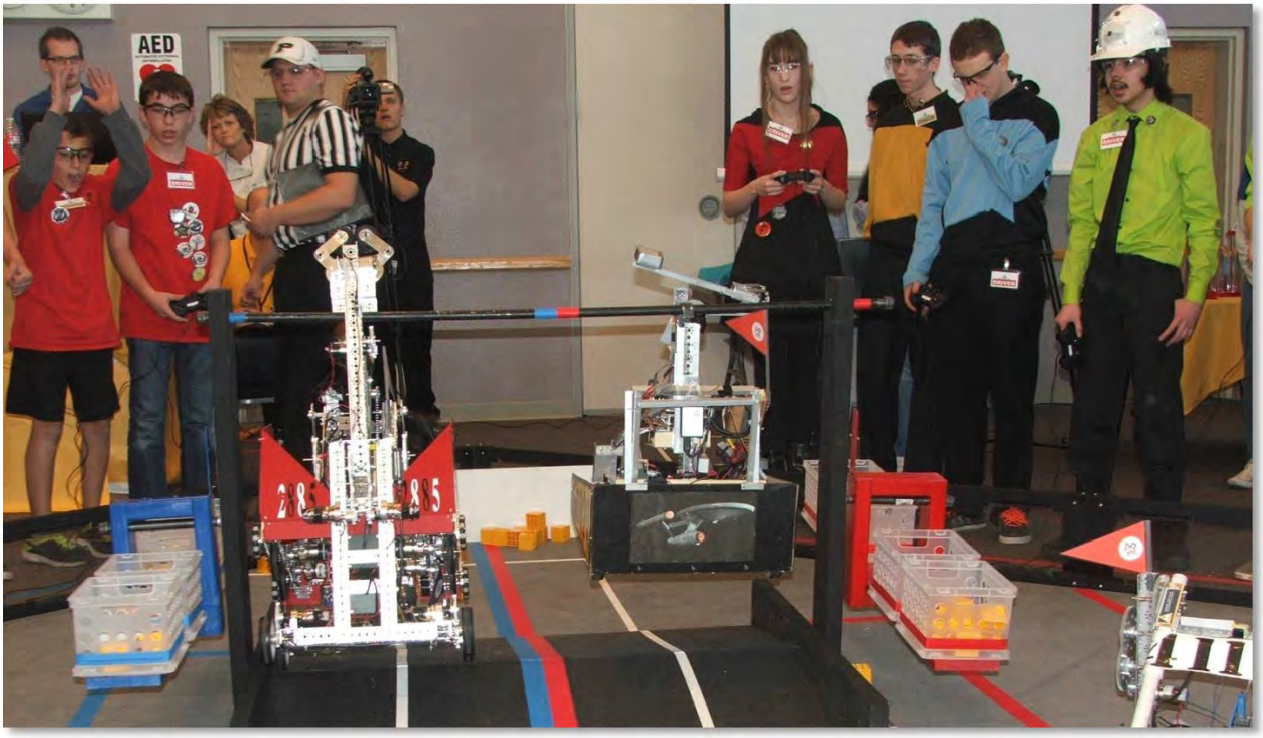
Attending:	Carter Peterson, Logan Peterson, Cole Kenny, Brandon Villar, Jamie Poston, Price Poston	**Coaches/ Mentors:**	Patti Poston, Wade Peterson, Carol Villar, Carolyn Kenny, Suzanne Peterson

Tasks	Reflections
Attend the 2013-2014 Nevada Qualifier at Western Nevada College	It was definitely a level up from the qualifiers. Everyone had a great time. We were given the Motivate Award, and were a part of the 1st place alliance!

Tournament

So today we went to the Las Vegas Championship tournament at North Valleys Technological College. Six of us were able to attend. We were not able to check in the night before but we did all our inspections the morning of the tournament. Our team member that is responsible for the Engineering Notebook could not attend so our team pulled together the night before and printed out the notebook. It took until 3am but we finished.

We started off pretty good with a win in our first round but the team noticed a short in the wiring system and they went to the pits to troubleshoot. We found out that one of the servos had been used so much it burned out and was the cause of the short. No problem we changed the servo out. We won the next round but we noticed a burning smell on the robot and back at the pits we found 2 motors were dead and 2 more were almost gone. We were able to replace those. We found out why they died and it was because the NXT locked up and the NXT was unable to run the stop motor program so our motors were continually running and they burned out. We are not sure why the NXT locked upt but we reset it.



Rounds 3 and 4 we also won however, our IR sensor is not working properly so we went with a backup program to drive onto the ramp and score 20 points. Round 5 unfortunately we did not win but we still ended up in 5th place.

In the alliance selection we were picked as the 2nd team with the Area 52 team and we made it into the finals and ended up taking second place.

Written by: Carter Peterson	**Checked by:** Price Poston

Wednesday, 02/5/14, 3:30 am - 6:00 pm

Meeting #36: Planning for NorCal

Discussion Team

Attending:	Logan Peterson, Brandon Villar, Jamie Poston, Carter Peterson, Cole Kenny	**Coaches/ Mentors:**	Patti Poston, Carol Villar, Carolyn Kenny

Goals:

- Overhaul the robot
- Revise the Presentation
- Create a plan for our next few meetings

Tasks	Reflections
Robot	We created a spreadsheet listing all of the problems for the robot
Revise the Presentation	We created a general rebuild outline for the presentation, and talked about key points that we had to talk about in the different sections.
Create a plan for our next few meetings	We decided to create a plan for our next few meetings

Robot

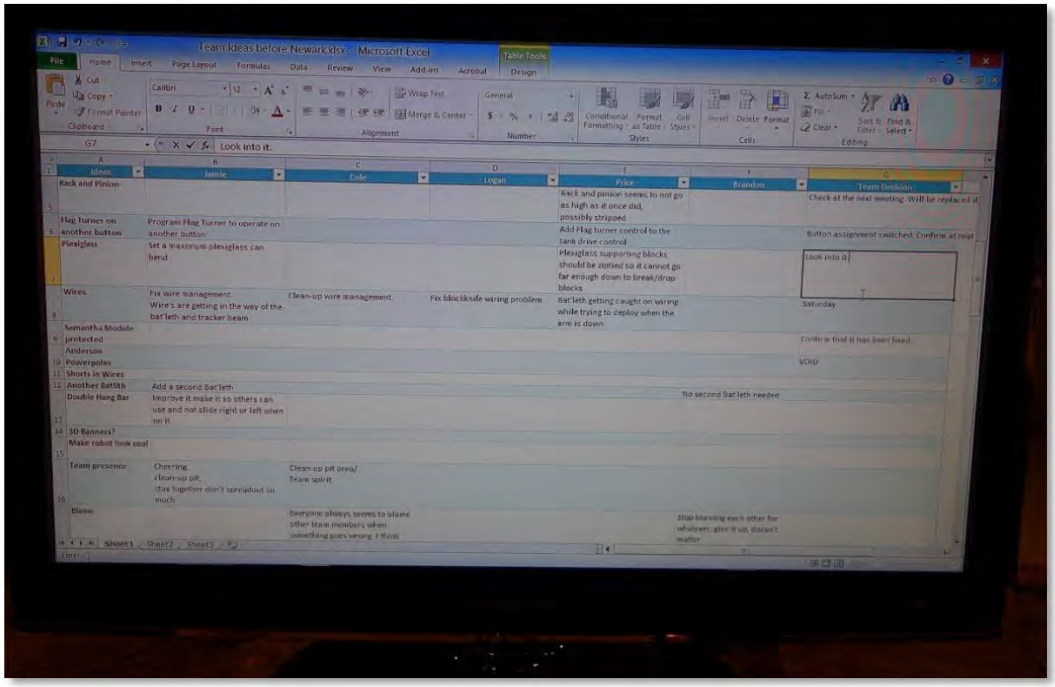
Each team member submitted a list of changes they felt the robot needed., here is our list

- Rewrite the autonomous program so we can score 60 points and have a backup autonomous without IR sensor used.
- Paint the robots sides black and add sponsor logos
- Overhaul all wiring and change out motors as needed
- Fix Engineering Notebook so it is easier to read and fix formatting problems
- Use PTC to design Tractor Beam
- Wire Management

Rev the Presentation

- We started by talking about the four main things that we have to have in our presentation: the robot, our outreach, the business plan, and gracious professionalism/teamwork.
- Also we want to present our presentation in under 5 minutes to give the judges plenty of time to ask questions, so it's not going to be as 'in depth' as the last presentation.
- For the robot section, we're going to stress our compatibility with many teams, as in our ability to play offense or defense, or our abilities to either raise the flag or hang. And also an important thing to stress in the robot section is that we tested and rebuilt things, like how the flag turner is on its 4th iteration, and the Bat'leth is on its 3rd iteration
- For the outreach section, we're going to stress that we tried to introduce FIRST to the local Reno/Carson City community, and really inspire those students to create teams or just pursue engineering opportunities or careers.

- The business plan is going to be covered by Cole, and it won't be allotted as much time as the robot and outreach section, but we will have to stress that we are a school team, so we don't receive funding as a school class/activity.
- The gracious professionalism/teamwork section is similar in the business plan section in that it won't be as long as the other sections, but it is still important.



Pizza

- We had a whole bunch of pizza, and really had a good time!

Written by: Jamie Poston	**Checked by:** Bandon Villar

Wednesday, 02/8/14, 3:00 am - 6:00 pm

Meeting #37: Overhaul Time

Discussion Team

Attending:	Cole Kenny, Brandon Villar, Jamie Poston, Price Poston, Logan Peterson, Scott Dooley	**Coaches/ Mentors:**	Patti Poston, Jim Poston, Carol Villar, Carolyn Kenny

Goals:

- Overhaul the robot
- Autonomous back-up program
- Paint robot boards
- Wire Management
- Fix plexiglass on tractor

Tasks	Reflections
Took Robot apart	The team took apart the robot to see if there were any loose connections or problems
Changed motors	We changed out 2 motors that we felt were not working probably and also checked them to see if we could be used in the future
Fixed battery connectors	Some of the connectors were bad on the batteries so we replaced them. We also charged all batteries and we are now tracking charge on the batteries to see if they hold charge
Painted boards	Took boards off robot and repainted them both sides black and added logos and numbers
Wire management	Made all wires secured and cleaned up the look of them
Fixed plexiglass	We added zip ties to plexiglass so it won't bend so far down
Wrote autonomous back-up program	The team felt we needed a back-up autonomous incase our ir doesn't work
Working on IR autonomous program	The programmers are working on the IR autonomous to see why it hasn't been working

Overhauling of Robot

- The team took apart the robot to look for loose connections, bad motors and any loose nuts and bolts.
- When we took apart the robot, we changed out 2 motors because we felt they were not performing well.
- We also fixed the main wires that kept getting caught on our bat'leth.
- We talked about moving the IR sensor but have decided not to move it yet.

Battery Issues

- We have had problems with our batteries connectors so we checked all our batteries and fixed a few that had bad connectors.
- We also charged all the batteries and are now keeping track of how fast they lose charge to see if they are still any good.

Plexiglass

- Our plexiglass on the tractor beam would bend down too far and cubes would get flung out before we wanted them to. So we decided to restrict how far the plexiglass bends with zip ties and it seems to be working.

Making our Robot Look Good

- The team decided our robot looks kind of sloppy and dull. So we decided to make our robot look good by painting the side boards and adding cool logos.
- We used spray paint to paint the boards and we retouched them by hand after.
- We replaced the silver duct tape with black duct tape.
- Fixed the wires to make them look more professional.

Autonomous Programs for the Win

- Our IR Autonomous has not been working at the last few tournaments so the team decided to make a backup program and also try to find out why it has not been working.
- Our programmers wrote a backup program by just having the robot put a block in the basket and then drive backwards on the ramp

- Then our programmers started working the IR autonomous program to try to figure out why it hasn't been working.
    - We have made some adjustments by taking out some old code.
    - Instead of using sensor on or off we are using sensor value and comparing it to a threshold.
    - We will calibrate the threshold at the competition site.

Wednesday, 02/12/2014, 4:30 pm to 7:00 pm

Event Report: Team Bonding at a Movie!

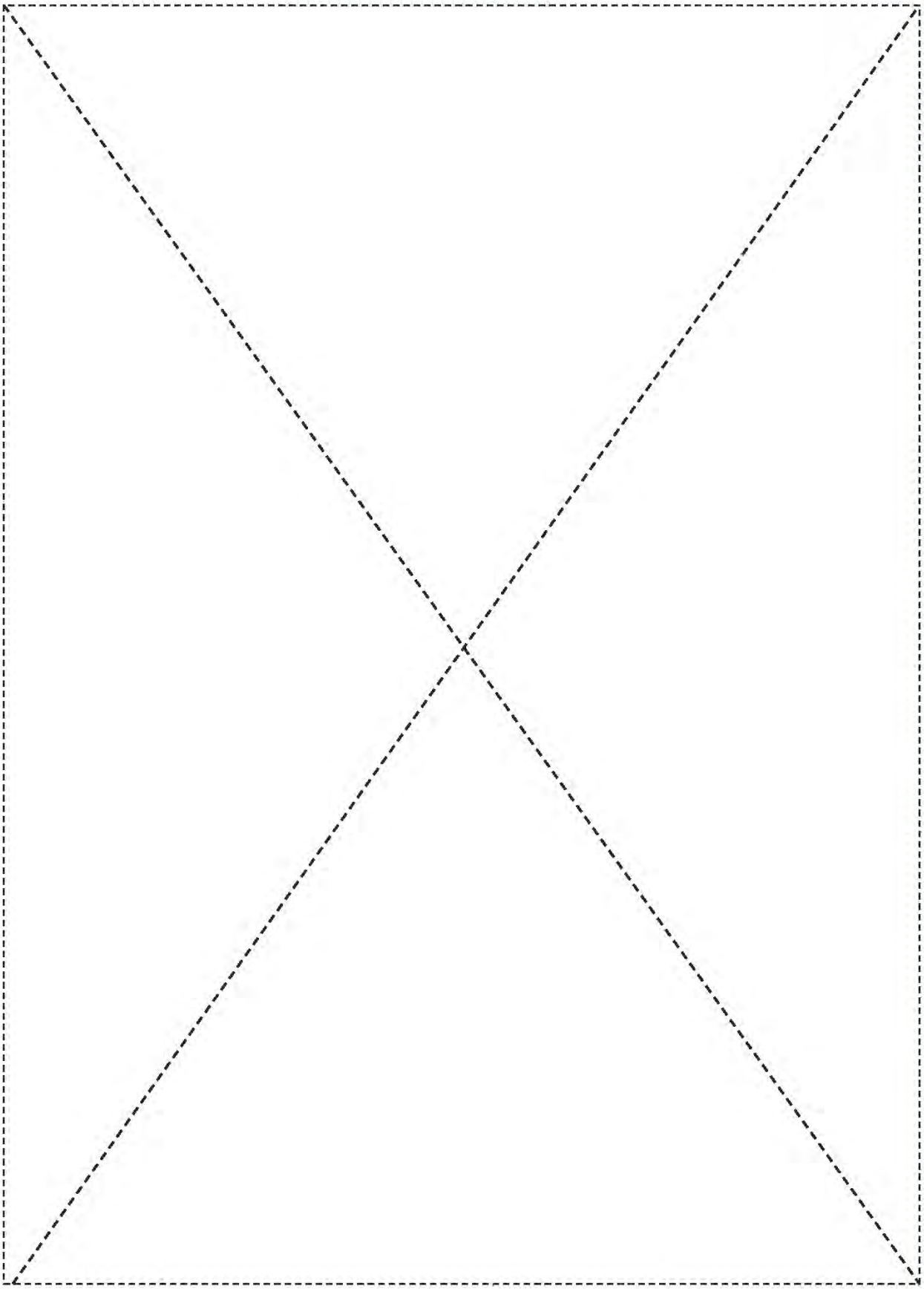
Attending:	Brandon Villar, Jamie Poston, Price Poston, Logan Peterson, Carter Peterson, Cole Kenny	**Coaches/ Mentors:**	Patti Poston, Carol Villar

Tasks	Reflections
Go to the movies	Lots of action, popcorn, soda and Icees

Team Bonding

Robocop was promoted at the Las Vegas Championship via rubber band bracelets, posters and raffle prizes (we didn't win any ☹). We also had been working very very hard to get ready for the NorCal Championship and decided that this would be a great teambuilding event. So we went to the movies to see Robocop on Wednesday. We all loved the movie, it was action packed and the CGI effects were great. Why do cars still have hubcaps in the future? It was very fun, we ate popcorn and took a picture with the Robocop sign. It was a welcome break for all.

Written by: Brandon Villar	**Checked by:** Cole Kenny



Sunday, 02/16/14, 3:00 am - 6:00 pm

Meeting #38: Let's Pretty it Up!

Build Team

Attending:	Cole Kenny, Brandon Villar, Jamie Poston, Price Poston, Logan Peterson, Carter Peterson	**Coaches/ Mentors:**	Patti Poston, Jim Poston, Carol Villar, Carolyn Kenny

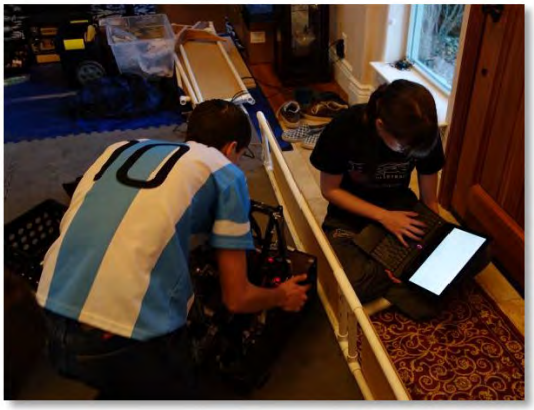
Goals:

- Practice Presentation
- Work on Autonomous
- Reattach the side walls

Tasks	Reflections
Practice Presentation	We had a team meeting to further practice our presentation
Autonomous	After moving the IR sensor, we needed to edit the autonomous program
Side Walls	We finished painting the walls, and it was finally time to reattach them

Autonomous

- We moved the IR sensor so it was at an angle, that way we wouldn't pick up as much interference.
- The programmers changed the code to reflect the changes.

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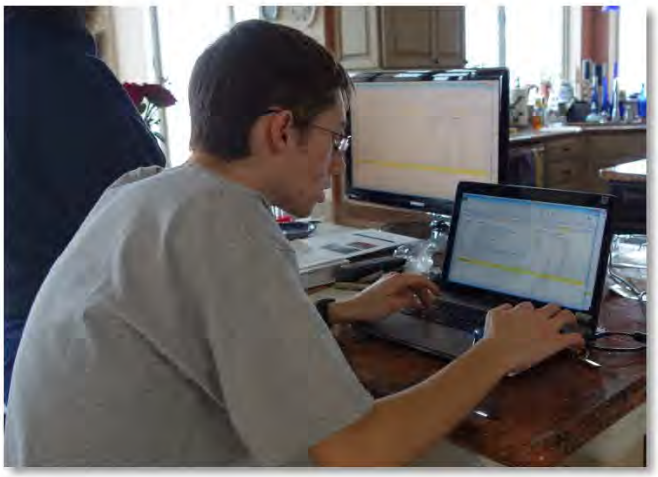
Side Walls

- We painted the walls black at a previous meeting. We discussed how they looked and decided to make a few changes.
- We are going to put our team number on paper and then attach it to the wall of the robot. This way, we can use Star Trek fonts!
- The back wall was painted upside down, so we either have to repaint it or use paper and stickers.
- We decided to laminate and it turned really nice

Finances

- We reviewed our finances spreadsheet to make it ready for out notebook.
- We created pie graphs for our expenses and deposits and expenses to show the proportions of each and determine the trends. It looks like the majority of our deposits came from our fundraisers and the majority of our expenses are from registration fees (39.36%) and robot parts (38.81%).



Presentation

- Our team felt we needed to get together before the NorCal Tournament to practice the presentation more.
- We videotaped ourselves and will review our performances so we can improve.
- We all had homework to write down what we wanted to say and bring it to the meeting to practice with the whole team.

Tuesday, 02/18/2014

PTC Progress Report 2
Personal Progress Report

Attending: Price Poston **Mentors:** Patti Poston

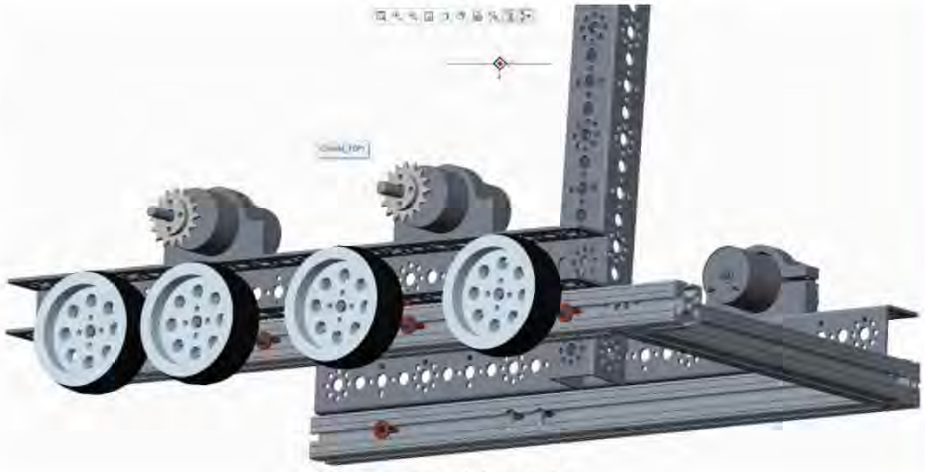
Tasks	Reflections
Learn PTC	Watched 3 Webinars of how to build a robot with Tetrix parts Webinar
Robot Chassis	I was able to complete the robot chassis by putting on the motors, wheels with all screws and axles. Some parts I was not able to make.
Build the Tractor Beam	I started to build the robots tractor beam or the robot that grabs the blocks.
Learn PTC	Watched 3 Webinars of how to build a robot with Tetrix parts Webinar

Learn PTC

- Watched the PTC Webinar 4, 5, and 6
- Learned how to rotate and view parts quicker
- Tried to learn how to build special parts
- Still learning how to build parts

Robot Chassis

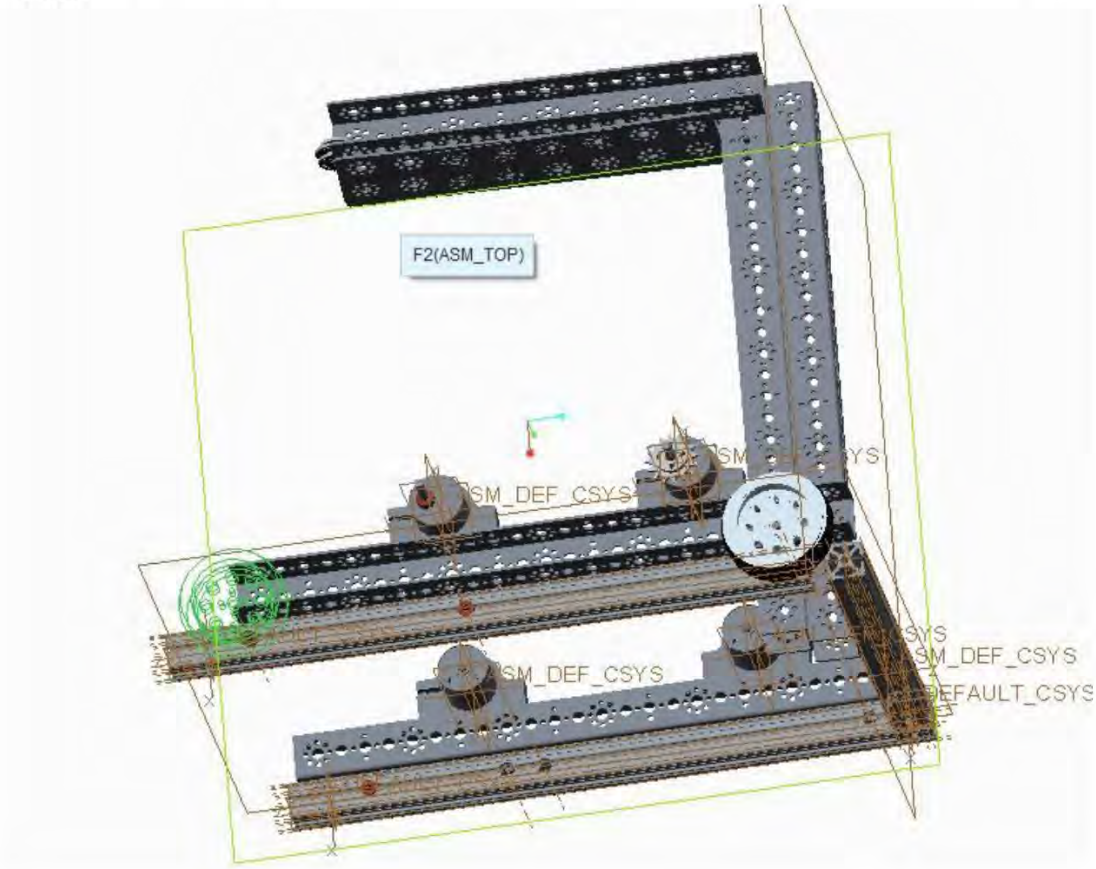
- Added 4 total motors
- Added 4 wheels
- 6 Gears added
- All Bearings added
- Axles added for all wheels
- Axle collars added
- Added Screws and bolts to hold pieces



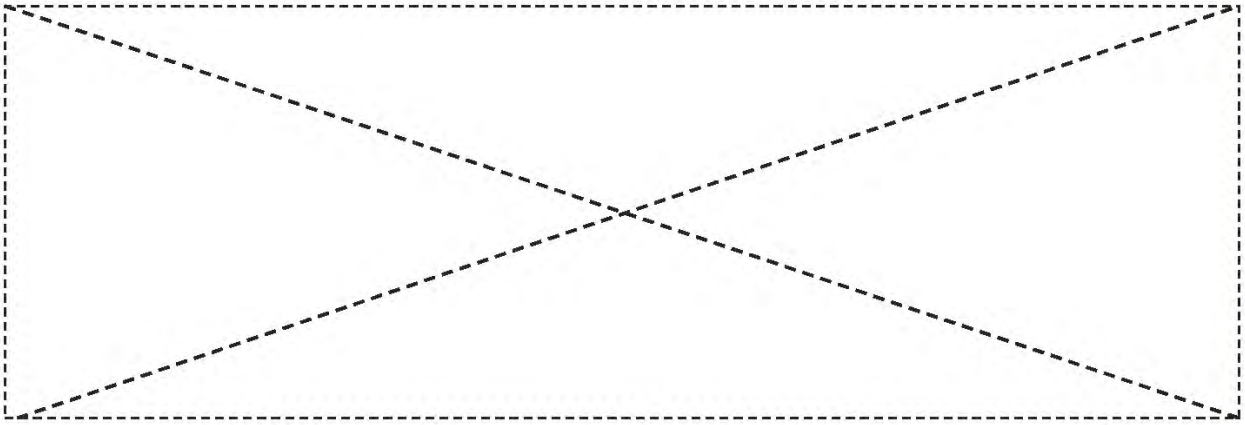
Close-up of drivetrain

Tractor Beam

- Added 2 channels for the base
- Added 2 channels to the top
- Added flat tetrix beam for bottom
- I am able to build the wheels yet. I will need to learn how to build parts in PTC to be able to add more.



Note: Above and to the right is the tractor beam close up and below is the full tractor beam. Some parts of the main robot are hidden so you can see the main



Written by: Price Poston	**Checked by:** Brandon Villar

Saturday, 02/23/14, 7:30 am - 7:00 pm

Event Report: NorCal Championship Tournament

Attending:	Carter Peterson, Logan Peterson, Cole Kenny, Brandon Villar, Jamie Poston, Price Poston	**Coaches/ Mentors:**	Patti Poston, Wade Peterson, Carol Villar, Carolyn Kenny, Suzanne Peterson

Tasks	Reflections
Attend the 2013-2014 NorCal Championship at Newark Memorial High School	After lots of hard work, we won the tournament and we are going to Super Regionals!

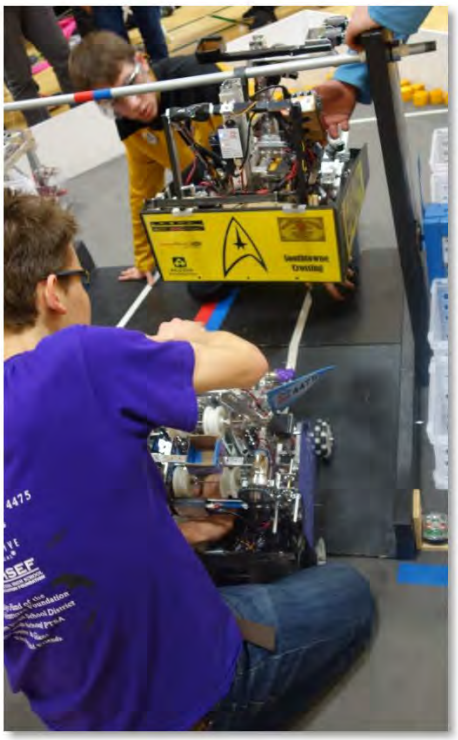
Tournament

After a long drive, we arrived at the event and helped set up the pits while we waited for inspections to start. Set-up had a few bumps but the pits turned out nice. Our time for inspection was here, and after a few problems and a looking the rules, everything got cleared up. There was confusion about our presentation time, but the problem was solved and our presentation was going to be the next day. Time to practice!

Competition day was upon us, and after performing our presentation perfectly, we were ready to start scouting alliance partners. The day consisted of five matches, since one was canceled. By the end of the day, we were in fifteenth place. We were worried that our day was over, but to our pleasant surprise, Scotbotics picked us as their first alliance partner! Their second choice was Stark Industries, so our alliance was made up of teams from the Folsom Qualifier; we all knew each other's robots and we had all played together before at Folsom. After an intense finals and some fine-tuning of the autonomous code, we won the competition.

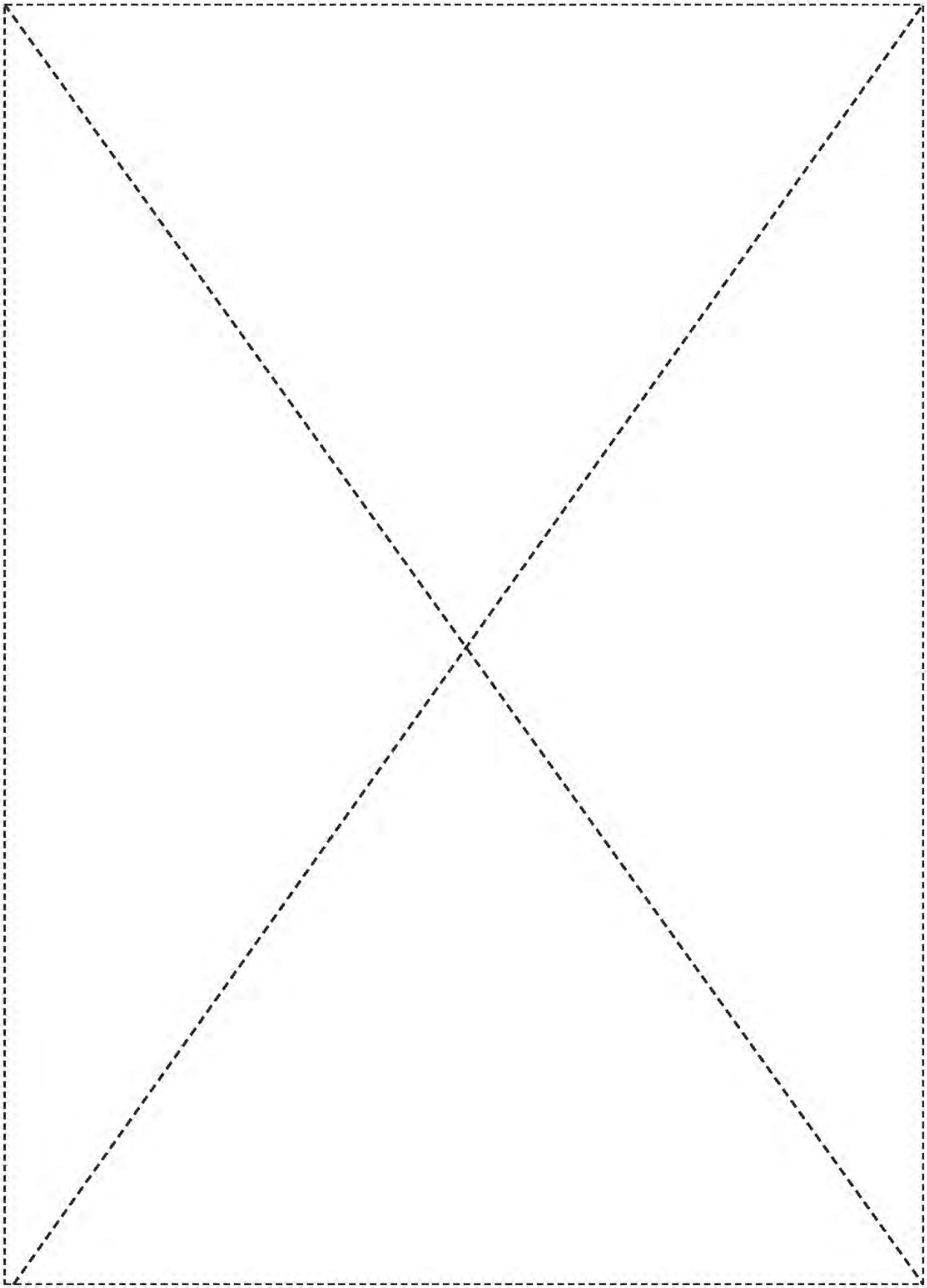
We also won the PTC Award and were nominated for Think (Notebook) and Motivate.

M	US	A	O_1	O_2
Red 5		3873 (scotbotics)	524 (Boss)	7175 (wallbots)
Blue 13		4963 (NOVA)	7591	6165
Red 21		6148	6052	3791
Blue 32		5157	4950	7641
Blue 44		4475	7390	4422
Blue 49		5773	4238	6038



We all had fun and we are preparing to go to Super Regionals!

Written by:	Checked by:



Tuesday, 02/25/14, 5:30 am - 7:30 pm

Meeting #39: Driver's Meeting and Reviewing Tapes

Discussion Team

Attending:	Jamie Poston, Price Poston, Brandon Villar, Cole Kenny	**Coaches/ Mentors:**	Carol Villar, Patti Poston, Carolyn Kenny, Jim Poston

Goals:

- Drivers Meeting
- Watch Video Tapes
- Robot Ideas

Tasks	Reflections
Driver's Meeting	We're glad we talked about the past tournaments so we can improve for Super-Regionals.
Watch Video Tapes	After moving the IR sensor, we needed to edit the autonomous program, this was not very difficult
New Robot Idea	After watching the tapes, we thought we needed to add a new Bat'lef/Hook

Driver's Meeting

- Our team felt we needed to get together to talk about what happened at the last tournament and to make sure no one's feelings were hurt.
- Everyone said they were fine with the last tournament.
- We then talked about future tournaments and we decided the driver's would strategize together and talk to alliance partners.
- The driver's would then decide which driver was more compatible to drive in each round.

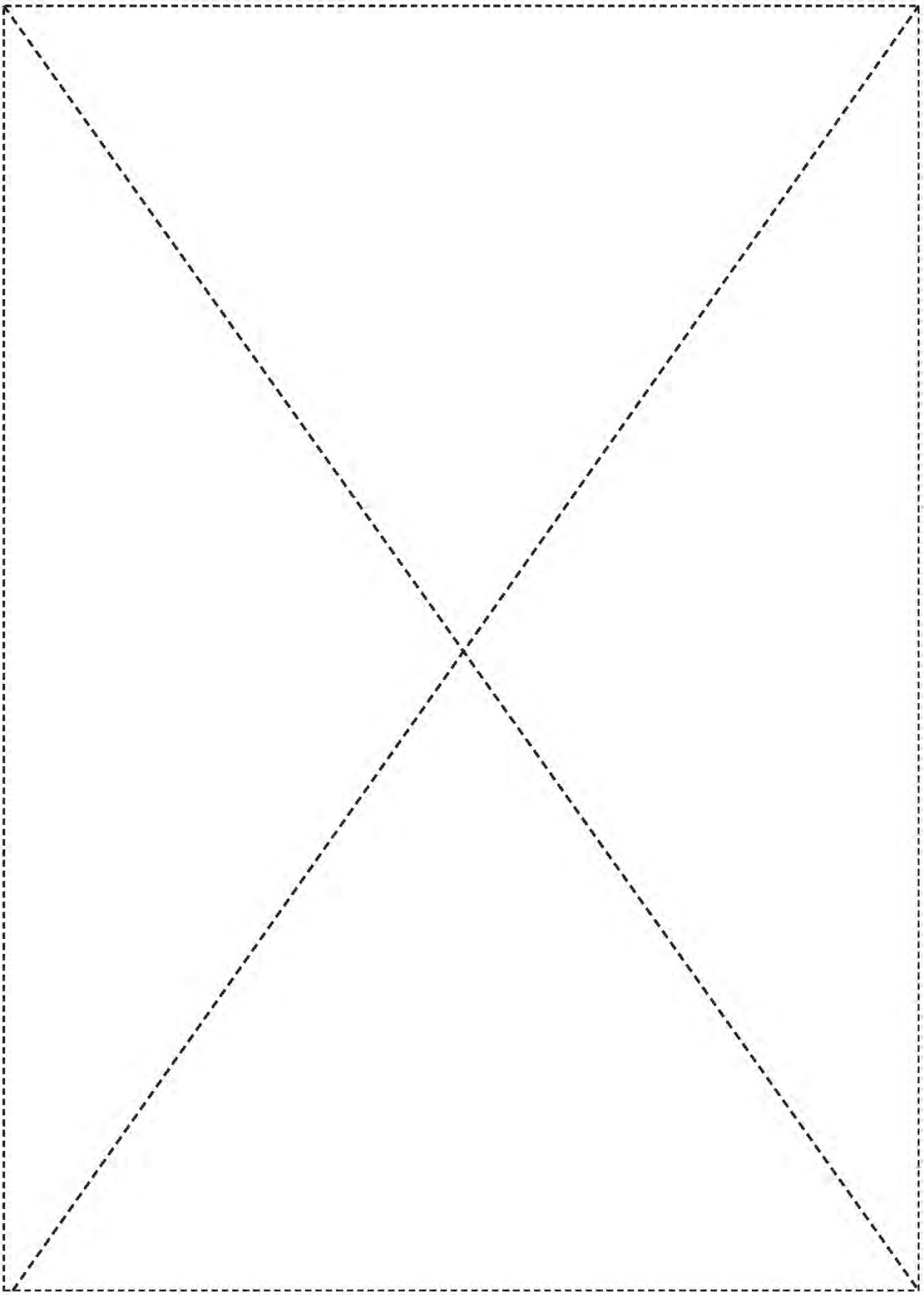
Watching Video's

- The driver's and coaches along with mentors watched two Championship tournaments to evaluate the strategy and driving.
- We talked about changing strategy to have the coaches stand together and possibly make strategy changes during the match so driver's will need to listen very carefully to the coaches during the matches for changes.
- We painted the walls black at a previous meeting. We discussed how they looked and decided to make a few changes.

Robot Ideas

- At our next build meeting we are going to look into putting on a second bat'leth arm so we can be more effective in sweeping out blocks from the corner.

Written by: Price Poston, Brandon Villar, Jamie Poston, Cole Kenny	**Checked by:** Brandon Villar



Saturday, 03/01/14, 12:00 pm - 4:00 pm

Meeting #40: Let's get Batty

Discussion Team

Attending:	Brandon Villar, Cole Kenny, Logan Peterson, Carter Peterson	**Coaches/ Mentors:**	Carol Villar, Wade Peterson

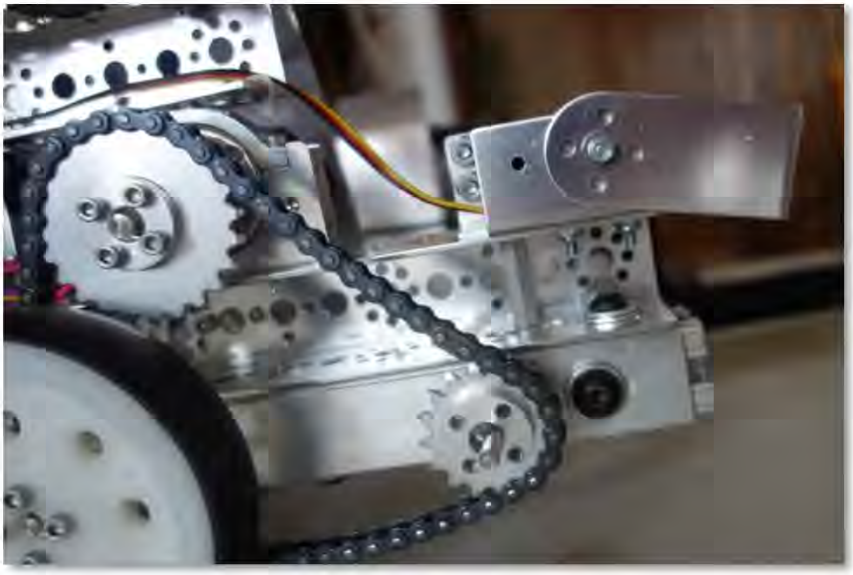
Goals:

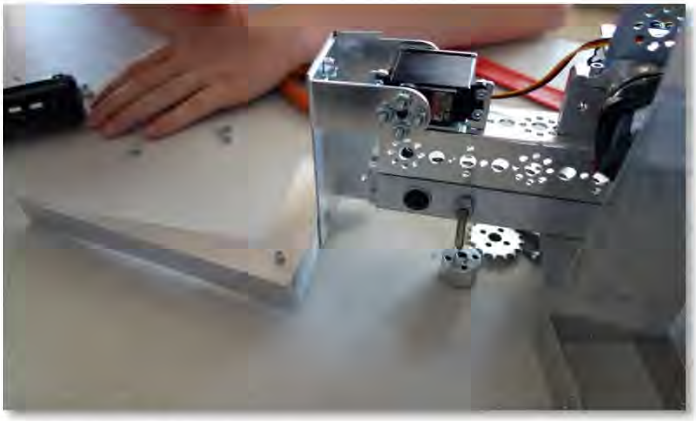
- To add the second block knife to the robot
- To get the robot ready for the Super Regionals

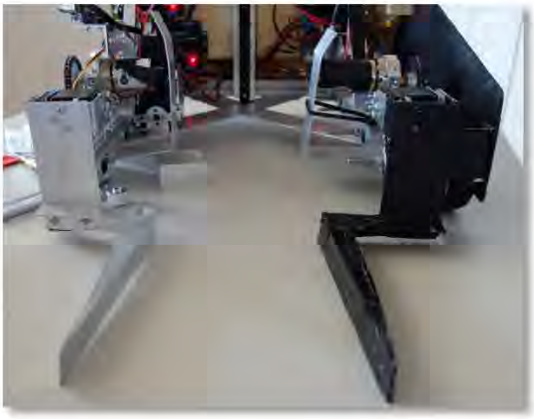
Tasks	Reflections
The team had been talking about what we should improve on the robot and we came to our decision to add a second block knife on the right side of the robot. We wanted to add it to the right side of the robot because the drivers wanted to be able to turn the robot either way to straighten up and pick up blocks quickly during competitions.	Add the second block knife to the robot
Logan had to rewrite the code for the second block knife. He also had to look at and revise the code for the flag turner.	Rewrite the code for the second block knife
We had to fix the flag turner code for the tank drive because there was a control that was interfering with the turning for the robot. When the robot turned the flag turner turned. Logan went into the code so that he could fix the defect with the tank drive and the flag turner.	Fix flag turner for tank drive mode

Add the second block knife to the robot

- Take the robot apart
- Fabricate the new aluminum block knife in the workshop
- Create a new bracket to attach the siding on the right side of the robot
- Attach the block knife to the right side of the robot
- Reassemble the robot

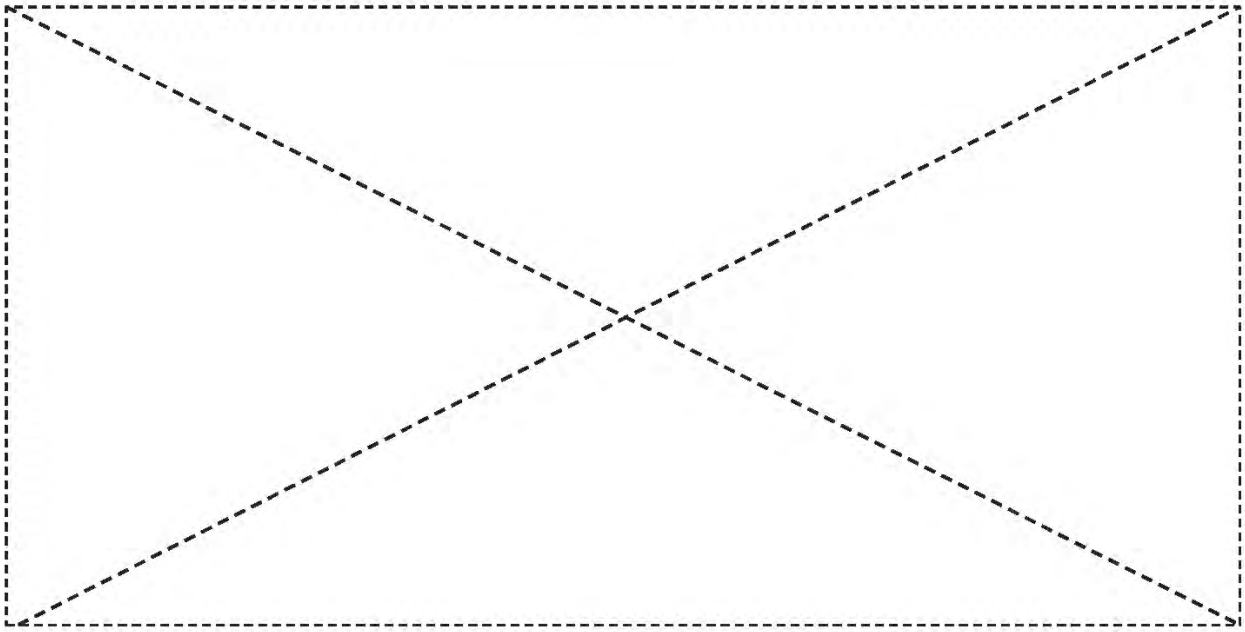






Program Changes

- Code was changed so that driver can no longer suck in cubes. We needed the extra button to control the second block knife. Now, the arm driver will now suck in cubes.
- Code was written so that the default position of the block knives is in an upright position.
- A "flag raising position" was coded to retract the block knives completely back when raising the flag at end game.
- Each block knife can be controlled separately in either tank mode or arcade mode.
- Code was written to allow each of the block knives to be operated at the same time if needed.
- The raising position is required to raise the flag, meaning that the flag raiser cannot be accidentally deployed.
- At the beginning of the matches, the arm is programmed to raise up a bit to allow the block knives to extend in front of the robot.
- The ability to raise the flag in tank drive mode was added.
- Notations in coding were made.



Written by: Carter Peterson	**Checked by:** Logan Peterson

Sunday, 03/02/14, 3:00 am - 6:00 pm

Meeting #41: Chaos Ensues

Build Team

Attending:	Brandon Villar, Cole Kenny, Logan Peterson, Carter Peterson, Jamie Poston,	**Coaches/ Mentors:**	Carol Villar, Wade Peterson, Patti Poston, Carolyn Kenny, Suzanne Peterson, Jim Poston

Goals:

- Thank you cards
- Lay out Super-Regionals Booth
- Robot updates:
  - fix motor mount,
  - double hang ideas and redesign,
  - overhaul robot

Tasks	Reflections
Thank You Cards	Where would be without our sponsors?
Design Booth	Great looking on a budget
Robot Updates: • Reattach motor mount to frame • Work on solutions for a better double hang system/redesign • Fix all other small parts	• Was not too hard to fix • We have a good idea • Some were difficult to get to • Great ideas, need to prototype

Thank You Cards

Getting to Super-Regionals was a long hard road and we wanted to thank our sponsors for their contribution. So we got in to costume and took a group picture with all our trophies outside in front of the waterfall. It was cold out there so we had to take them quickly but it seems they came out nice. Then we each signed thank you cards. Hopefully, we may get more contributions.

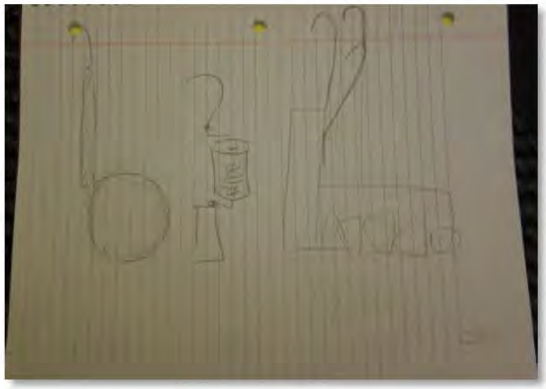
Divide and Conquer!

We split into different groups to work on the different things/goals. One team, the build team, went to work on fixing therobot. Another group worked on redesigning the double hang process and the third group worked on the designing booth and making tribbles.

Build Team

The build team went to work on fixing the robot and helping Jamie come up with tribble names for our adopt a tribble givaway. We had to fix the motor mount because a screw had fallen out, which was not difficult, we just needed to find the right allen wrench as the ones we had were too long to reach the bolt. We removed the second block knife we made yesterday entirely to screw down another bolt that came loose, this was a tedious process. We also put up the rest of the field. So now we have a full field and will be able to practice with our extension team robot!

Double Hang Design



The double hang group came up with a great idea on how it will work and we all agreed it would need some tweaking for the final product to be ready. We will prototype/build this at our next meeting on Wednesday.

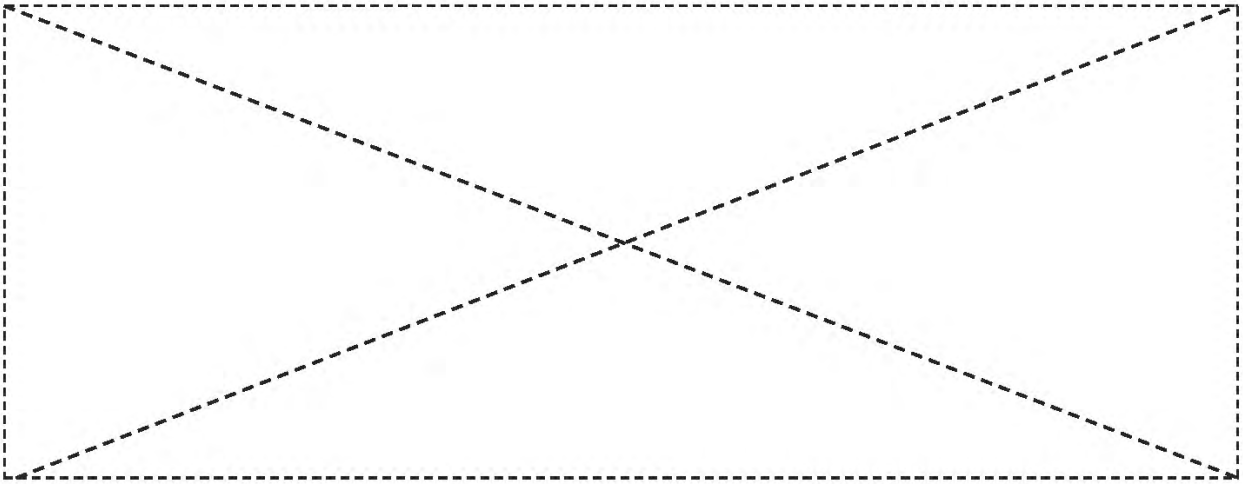
Booth on a Budget

The last group tried to design/set up the booth as if we would be at Super-Regionals so we will know what we need there. We are borrowing craft 6 panels that are about 3' wide (see picture on right). We thought about covering them with black table cloths. Our idea was to reproduce the TNG Bridge as shown below:

We started looking online and found some of the computer (LCARS) screens so we decided we would print them out and put them on the panels. Here are the three we chose that we will place on the back panel and two side panels

Too bad we only have a 9' x 9' area as it would have been cool to bring in some captain's chairs!
Here is our initial design:

The tirbble making went well and we made about 4-6 tribbles.



Written by: Brandon Villar	**Checked by:**

Wednesday, 03/05/14, 3:00 pm - 6:00 pm

Meeting #42: We Think We Can

Build Team

Attending:	Brandon Villar, Cole Kenny, Logan Peterson, Carter Peterson	**Coaches/ Mentors:**	Carol Villar, Wade Peterson, Suzanne Peterson

Goals:

- Build new double hang option
- Guard rails to stabilize the tractor beam
- Refine the second bat'leth

Tasks	Reflections
Cut part off old hook	The hook was cut in the workshop with a reciprocating saw
Make the second hook – the double hang hook	Simple as we made the first hook already
Extend the guard rails upward/make new ones	A lot of work for nothing – didn't work
Cut off end of bat'leth so it doesn't hit autonomous arm	Ran out of time, next time

Build New Double Hang Options

- Used a piece of a wire coat hanger and 80x20s to model the hook.
- First we took the original hook and cut it shorter so that the second hook we made could fit above the normal hook.
- We made a holding bracket for the Double Hang hook in an upside down T shape out of 80x20. In our model, the white coat hanger will slide in an out of the 80x20 and pull out as the robot pulls away from the hang bar. A wire will connect to the double hang hook and will retract and lift the robot.
- We attached the holding bracket the rack and pinion in front of the old hook.
- Made a double hang hook out of steel using our original tried and true as a model.

Guard Rails to Stabilize Tractor

- When the tractor beam raised and the robot is moving it tends to wiggle and hit the bat'leth.
- The design was basically to extend the guard rails we already had to be higher but they were not high enough to be useful.
- We also made a second battery holder to attach on the other side for attaching the guard rails as that's how the guard rail was attached on the other side.
- Didn't work, totally useless waste of time and materials, so we removed them from the robot.
- We are going to explore other options.

Refine the Second Bat'leth

- We did not get to this as we ran out of time... next meeting.

Written by: Brandon Villar	**Checked by:** Cole Kenny

Saturday, 03/08/14, 2:30 pm - 5:30 pm

Meeting #43: More Super-Regional Prep!

Build Team

Attending:	Brandon Villar, Cole Kenny, Logan Peterson, Carter Peterson	**Coaches/ Mentors:**	Carol Villar, Wade Peterson, Suzanne Peterson

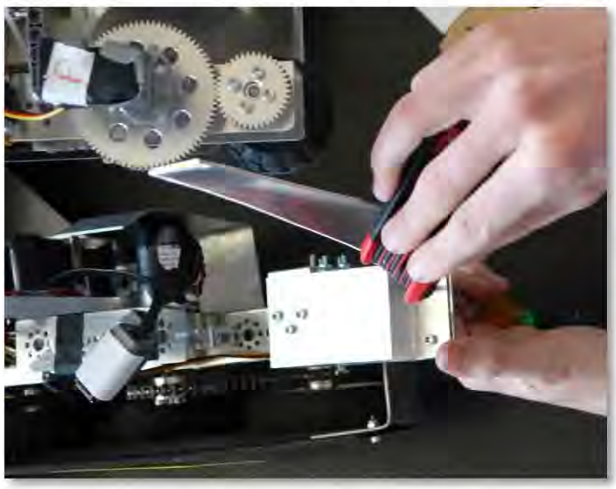
Goals:

- Double hang alternative
- Refine the second bat'leth
- Discuss our plan for the Super Regionals

Tasks	Reflections
Refine the bat'leths	We gained a lot of space by moving them and just had to cut one a little
Double hang part 1 – center hanging	Not as bad as we thought
Double hang part 2 – hanging outside the center	This is one to think about

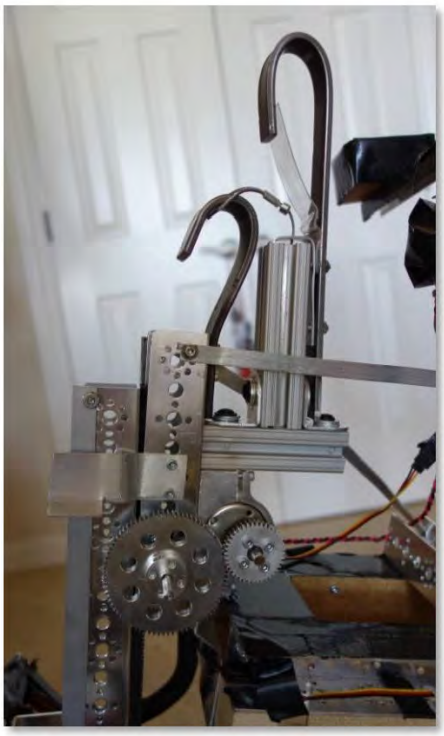
Refine second bat'leth

- The second bat'leth was hitting the autonomous arm, we first moved it over and then cut off about a ¼" as marked below
- We also moved the first bat'leth as well because it sometimes hits with the tractor beam.

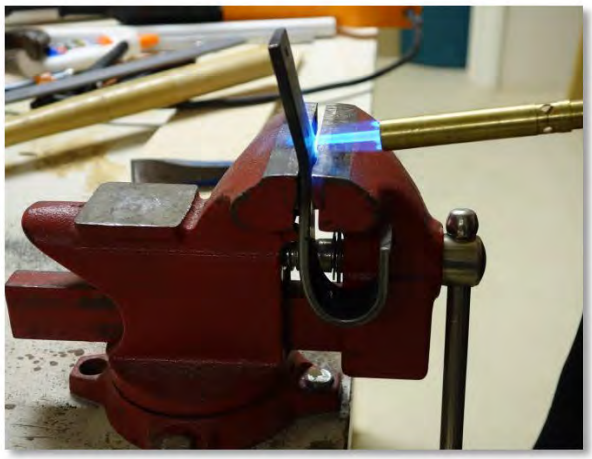


Double Hang Alternative

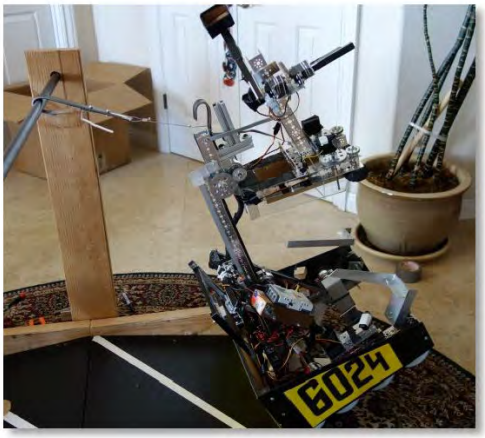
- We created a double metal loop cable out of cable and 1/16" Ferrule and stop and completed our first solution to the double hang is with robots that can hang with hooks on both sides.
- Our solution is composed of a detachable piece that fits into the 80x20 upside down T that we built Wednesday and was attached to the rack and pinion.

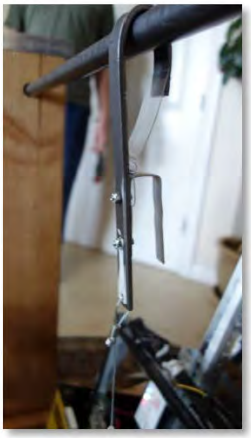
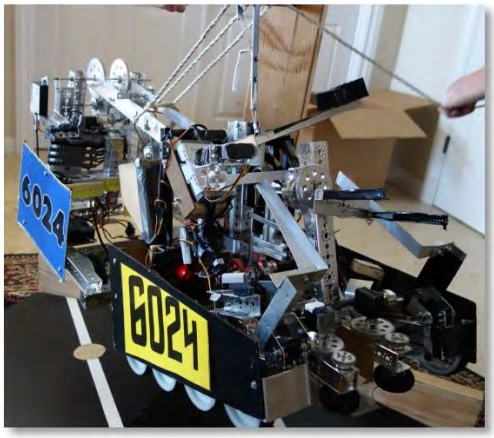




- We had to bend the hook to our detachable so that it wouldn't hit the rack and pinion. So we fired up the torch and hammered the hook.



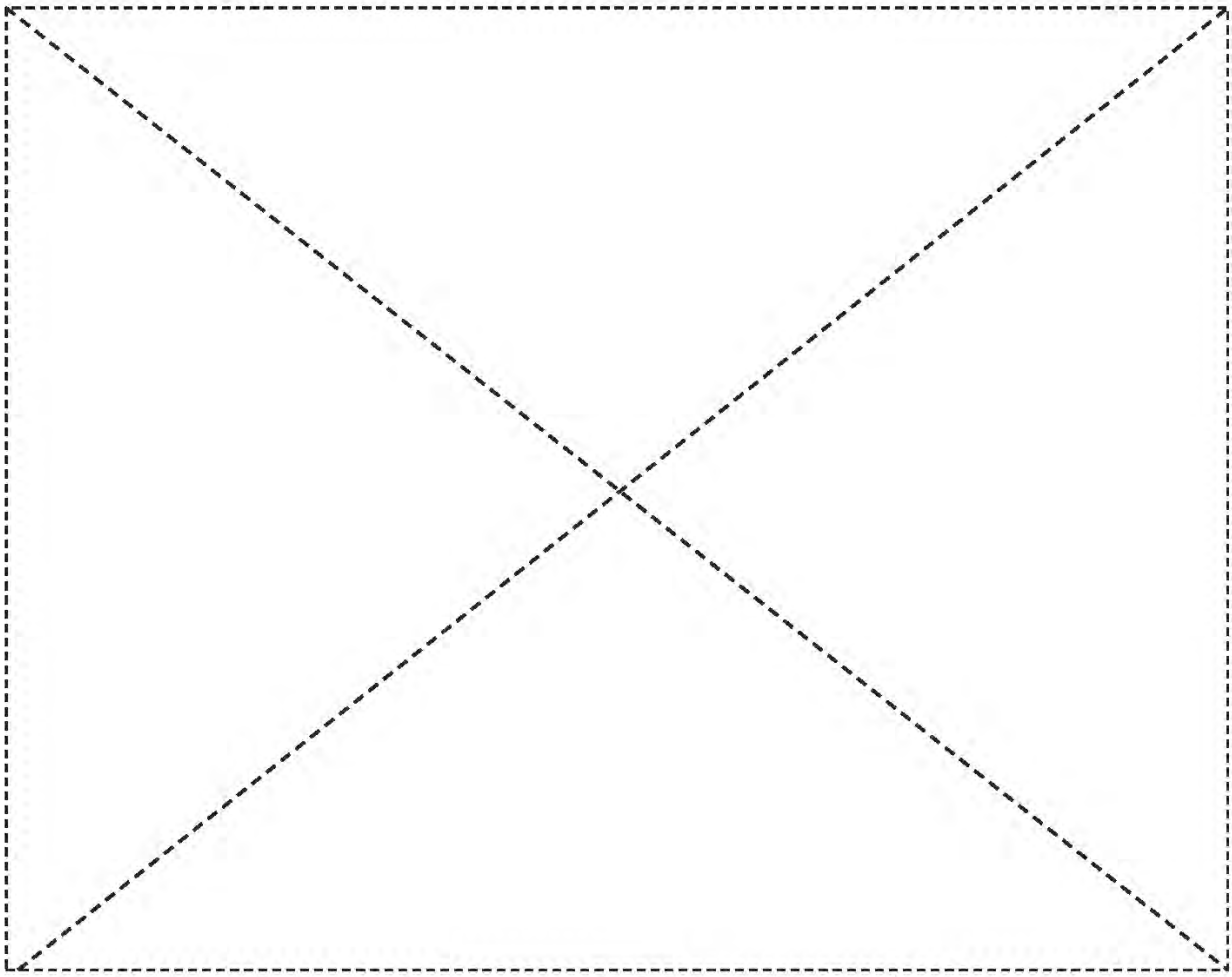

- We tested it out and it worked fairly well. With this solution we hang first, move out of the way and then when the other robot is hanging we pull ourselves up.



- Our next challenge is to create a double hang alternative for robots that use the center and we have to hang around them. This seems harder and would have to move some things around.
- We detached the old double hang bar, moved the tractor beam brace down a little and detached the NXT in preparation for the second double hang bar alternative.

- We are thinking of creating two more hooks just like the ones we have, then placing them at each end of a metal bar that hooks on to the 80x20 upside down T just like our first solution. We will have to see how much room we have inside. Good thing the bat'leths were moved out some!
- Another idea was that was creating a hook that can fit over the Tetrix piece that many robot use to hang. Right now our hook is too thick.
- We are also going to research the teams going to Super-Regionals that have won finalist alliance and see if they have any videos on YouTube to determine how they hang so we can be competitive.



Written by: Carter and Logan Peterson	**Checked by:** Brandon Villar

Sunday, 03/09/14, 2:30 pm - 5:30 pm

Meeting #44: Trouble with Tribbles

Build Team

Attending:	Brandon Villar, Cole Kenny, Logan Peterson, Carter Peterson , Jamie Poston, Price Poston	**Coaches/ Mentors:**	Carol Villar, Wade Peterson, Suzanne Peterson, Patti Poston, Jim Poston, Carolyn Kenny

Goals:

- Booth set up
- Adopt a Tribble
- Bling up safety glasses
- Drive practice with new double hang
- Autonomous

Tasks	Reflections
Our Booth	We worked on how our booth would look for Super-Regionals
Adopt a Tribble	Our team decided to have people adopt Tribbles
Safety glasses	We wanted to make our safety glasses look more Star Trekkie
Drive Practice	The team wanted to practice driving and see if the double hang hook works
Autonomous Check	Check Autonomous to see if we need to tweak it

Booth Layout

We setup the booth close to how we would like it for the competition with the walls, table, monitor and posters just held up to see how it would work. We have decided to try a smaller table and we need to put the posters on a back board. We will finish all this on Sunday.

Adopt a Tribble

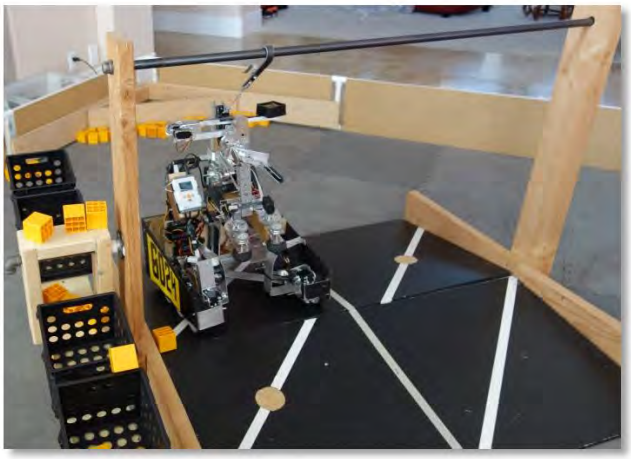
Our team purchased small Tribbles so we can give these away at the competition so teams might remember us. But instead of just giving them away we are making adoption forms so people can come to our table fill out the adoption form and then we give them a Tribble. We also created a website page so teams can email us for a link to the website where they can upload a picture of their Tribble. The website will have their Tribbles name, team name and information about their Tribble.

Bling up the Safety Glasses

We put Star Trek stickers on all our safety glasses so we can look like a team and we can find the glasses at the end of the competition.

Double Hang

We did some driving practice mostly so we can see if the new double hang hook will work. The double hang hook worked but now we need to test it with another robot. We also worked on driver arm and driver synergy.



Autonomous

We wanted to check the autonomous to make sure it worked and it is a good thing we did as we found the arm for the autonomous not working. One of the wires for the autonomous was disconnected. We still need to work on this again.

Written by: Price Poston	Checked by: Cole Kenny

Tuesday, 03/11/14, 4:30 pm - 7:00 pm

Meeting #45: Tribbles and Driving

Build Team

Attending:	Brandon Villar, Cole Kenny, Jamie Poston, Price Poston	**Coaches:**	Carol Villar, Patti Poston, Carolyn
		Mentors:	Kenny

Goals:

- Cutout Tribble cards and forms
- Fix extension robot
- Practice driving

Tasks	Reflections
Tribbles	Tribble cards and necklaces were made.
Extension Robot	Fix extension team robot.
Practice driving	The drivers practiced driving mostly with trying to double hang.

Adopt a Tribble Cards and Forms

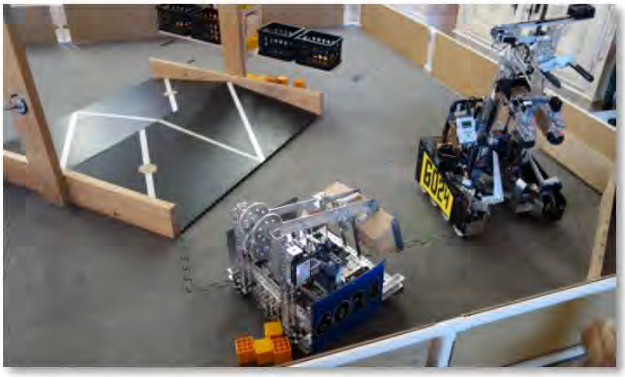
We cutout the Tribble cards and the adoption forms, made some more Tribbles and made Star Trek necklaces all for give-aways.

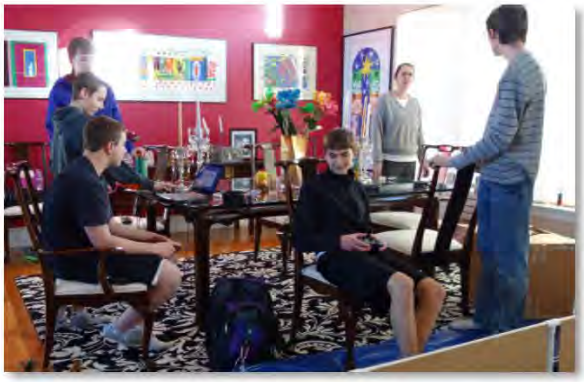
Extension Robot

We wanted to fix the extension team's robot so we could practice double hanging with it and use it for blocking. However, we were unable to fix the arm we think one of the motors may be bad.

Driving

The drivers needed to practice driving mostly practice with double hanging and working together so they can be quicker.





Written by: Cole Kenny | **Checked by:** Jamie Poston

Friday, 03/14/14, 3:30 pm - 6:00 pm

Meeting #46: It's all about the double hang

Build Team

Attending: Logan Peterson, Carter Peterson **Coaches/ Mentors:** Wade Peterson

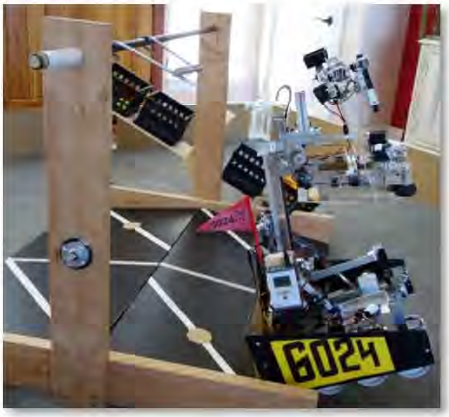
Goals:

- Make a double hook double hang hook [$(DH)^2$ Hook] attachment

Tasks	Reflections
Move the NXT brick and re-route wires	We realized we had to move the flag holder as well.
Make 2 hooks out of steel and 1 crossbar of aluminum	We successfully made the $(DH)^2$ Hook assembly.
Make mounting point for hook wires	We cut a tetrix part to make slots for the steel cable.
Get hook to mount on robot	We added a U-shaped piece of aluminum that slides into a piece of 80/20 bar.

Make Double Hook Double Hang Hook

- Make a double hook double hang hook [$(DH)^2$ Hook] attachment to make us compatible with more robots. We need to make this new hook interchangeable with the other hook, and not have it interfere with our original hook.
- The NXT Brick was moved to the side of the frame instead of on top of it to make room for the (DH) 2 Hook.
- The hooks were constructed from steel and the crossbar was made from aluminum U-channel. The U-shaped hook was made from an edge that was cut off from the U-channel.



Written by: Logan Peterson	Checked by:

Saturday 03/15/14, 1:00 pm - 5:00 pm

Meeting #47: Putting it all together

Build Team

Attending:	Cole Kenny, Brandon Villar, Jamie Poston, Logan Peterson	**Coaches/ Mentors:**	Patti Poston, Carol Villar, Carolyn Kenny

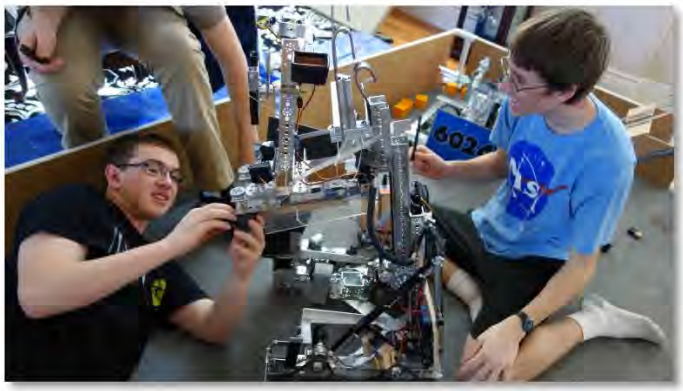
Goals:

- Repair Linear Slide
- Create Checklists
- Practice Driving
- Tribbles
- Booth

Tasks	Reflections
Repair Linear Slides	Access was difficult, but after some fiddling, we were able to replace the racks without removing the arm.
Create Checklists	We wanted checklists so we wouldn't forget to check anything after a match.
Driving Practice	Since the double hang hook was finished, we practiced driving with it. In doing so, we also discovered some other problems that we need to fix.
Finish Adopt a Tribble giveaways	Finally finished our tribble giveaways, Jamie posted on the Super-Regional site so hopefully everyone will want a tribble!
Booth Setup	We set up the booth so we could see what it's going to look like; it's going to be pretty cool.

Linear Slides

Replaced bottom racks because they were stripped and worn down.



Checklist

We made checklists for both pre-game and post-game. This way, we would be able to check to be sure everything was working and we weren't forgetting anything.

Driving

We were able to drive for a few rounds before we noticed that out ties that held the tractor beam were broken. This put a hamper on our driving, as we couldn't pick up blocks. We are getting a new one, and were still able to practice hanging.

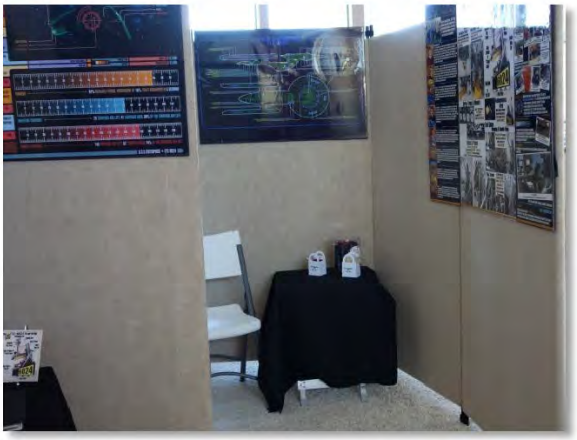
Tribbles

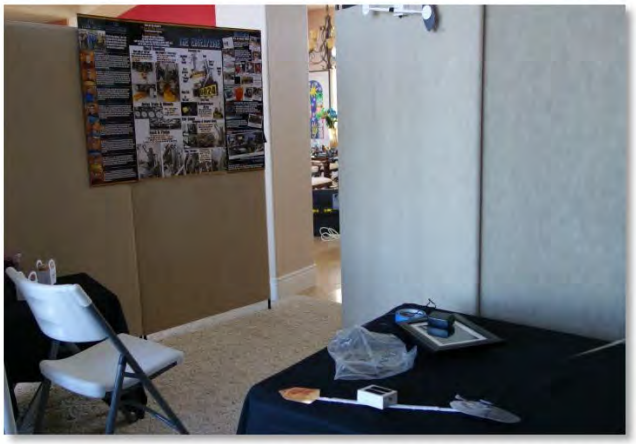
Assembled the tribbles to get them ready for Super – Regionals. We place labels on the boxes and put together the adoption card along with the adoption form they will have to fill out. This information is on our web site. The adoption card contains a link and a QR code to update the tribble information. The adoptive parent will be able to upload a picture of their tribble, add a short story about their tribble or make a comment about their tribble.

Booth

We designed out 10x10x10 booth. We have the front area where we will run our video and have the touch screen laptop to show the robot's features and capabilities. We designed it because we wanted to have an area to work on the robot that is not in directly in the front.

So behind the TV is the area where we can work on the robot. The small table will be our Adopt a Tribble area.





Written by: Cole Kenny, Brandon Villar	**Checked by:** Logan Peterson

Sunday 03/16/14, 3:00 pm - 6:00 pm

Meeting #48:
Build Team

Attending:	Cole Kenny, Brandon Villar, Logan Peterson, Carter Peterson, Jamie Poston, Price Poston	**Coaches/ Mentors:**	**Carol Villar, Patti Poston, Jim Poston**

Goals:

- Finalize Booth
- Drive practice
- Finish and finalize our presentation

Tasks	Reflections
Finalize Booth	Finishing touches and it looks great
Drive practice	Although we didn't drive as much as we should've, there was a lot of practice for the drivers.
Practice double hanging	There was a large learning curve for the drivers.
Fix the robot	We encountered many different problems while trying to drive, and a lot of this meeting was taken up by fixing them.
Practice the presentation	We practiced a few times and worked on making it a bit longer, since the time
Drive practice	Although we didn't drive as much as we should've, there was a lot of practice for the drivers.

Finalize Booth

- Used PVC to extend the top and create a bar to hang our banner over the entrance. Painted it black. Used PVC to create flag pole to hang on the booth when we are not waving it in a match.
- Finishing touches on the booth. Filling in some empty areas with an LCARS-type poster to go above the TV with the team name and number.
- Need and "Adopt a Tribble" sign.
- Figured out logistics for taking all the stuff.

Drive Practice

- We practiced full rounds, with the autonomous included.
- We practiced many times, and we will be able to drive a bit more on Thursday of the Super-Regional competition also.
- We used the extension team's robot to play defense.

Practice Double Hanging

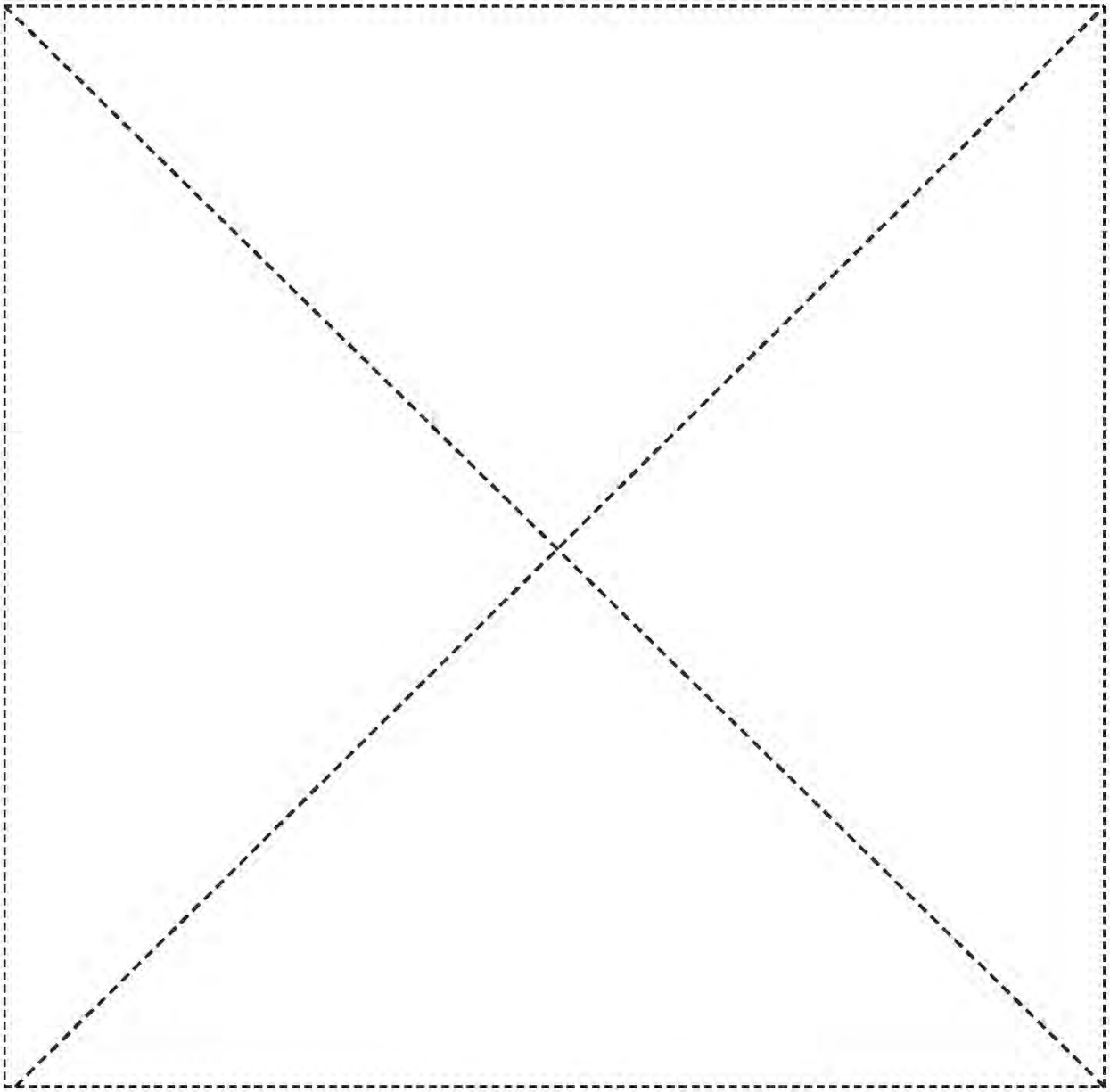
- We currently have 3 hooks: one standard hook, one double hang hook, and one pair of double hang hooks that we call the double double.
- Since they were made recently, the drivers have not had much time to practice hanging with them.
- We practiced as much as we could without hanging with another robot. This practice is definitely going to help us during the competition.
- We found that we could barely raise the flag and double double hang, so we will have to communicate with our alliance partner if we plan on double hanging, so they can raise the flag and we have enough time to hang.

Fix the Robot

- When we first tried to run the autonomous, the autonomous block arm wasn't deploying. We had this problem before on Tuesday's meeting, and it ended up that just a servo connection was loose. We went through all the wiring and re-taped most of everything with electrical tape instead of duct tape, and in the process we found the loose connection and fixed it.
- After we fixed that problem, we found that the second, taller rack and pinion wasn't rising. When the motor tried to move upwards, it was just shaking and making a grinding noise. We troubleshooted by testing the program that raised the arm, and then testing the motor. We couldn't find anything wrong with either, but decided to switch out the motor anyways. For whatever reason, that ended up being the problem.
- Near the end of the meeting, we were trying to practice double hanging and hit the autonomous arm instead of the double double hang hook. That violently pushed the autonomous arm back, and snapped the little screw inside of the servo motor. Since there are two servo motors operating the autonomous arm, we decided to leave that screw outside of the servo that broke. If that happens again, and the servo gets pushed back like that, the pressure won't be on the screw in the servo, but the servo will still be able to help lift the autonomous block.

Practice the presentation

- One new thing for Super Regionals is that the judging portion is going to be 20 minutes long instead of 15.
- This means that we now have more time to talk to the judges without cutting into any question and answer time.
- Before we cut our presentation to 5 minutes, but now we're pushing that time to nearly 8 minutes. That time should be easy to fill too, since we have two new ways to double hang and our outreach is practically endless.
- This meeting everyone practiced their sections a lot and worked on adding more information and talking longer than normal.



Written by: Jamie Poston	**Checked by:** Brandon Villar

Thursday-Saturday, 03/20-22/14, 7:30 am - 7:00 pm

Event Report: Super-Regionals Tournament

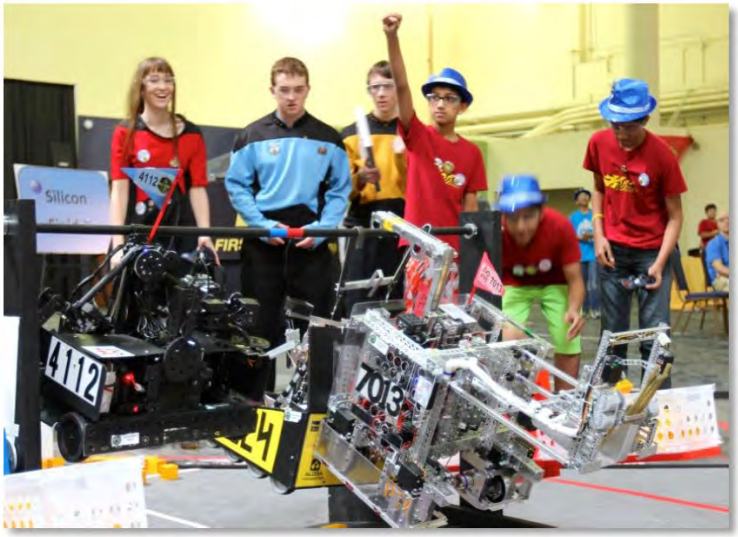
Attending: Brandon Villar, Carter Peterson, Cole Kenny, , Jamie Poston, Logan Peterson, Price Poston, Scott Dooley

Coaches/ Mentors: Patti Poston, Wade Peterson, Carol Villar, Carolyn Kenny, Suzanne Peterson

Tasks	Reflections
Attend the **2013-2014 West Super-Regionals @** McClellan Park, Sacramento, CA	**Brandon**: The tournament was very fun and exciting, we won and going to World's! It was great being there with my team and we met a lot of people. Overall I liked the whole thing.
	Carter: This competition was the first time that I dressed up as a Klingon as a mascot for the team and I was burning hot! I nearly passed out. There was a group of mascots that got together and we had fun together walking around the pit area. I discovered that people like Klingons and I had a fun time meeting people. I made many new friends! I also got to help out with the Tribble raffle. Next time I dress up as a Klingon, I will wear a different costume so I will not get as hot. I will also drink plenty of water!
	Cole: After a long drive down to the event, we finally got there and waited in line with all the other teams to get our judging schedule. We presented later that evening, so in the meantime, we set up the pit, which looked great! When it was time for our presentation, we went in and did great. We told the judges everything we wanted to and more. The extended presentation time was nice to have. The actual competition was a little frustrating since we lost control of our robot in four out of the eight matches, but we were able to double hang with team Hot Wired. Because of this and the spot-on autonomous, we were picked by Team AFOOFA and Team Hot Wired when it was time for final alliance selection. The finals went great, as we double hung with Hot Wired every time we were with them except for the final round where we lost connection. Luckily, we won by one point and were headed to the World Competition in St. Louis!!!
	Logan: It was exciting to be a part of the Winning Alliance! The Double Hang Bar worked and our robot was able to double hang during the competitions. Our robot was part of the alliance that scored the highest score in the event.
	Scott: After a long 2 hour drive we arrived in Sacramento, CA for the tournament. We set up our booth really quick and did not acquire any problems. Our team passed all inspections with no problems. Plus our presentation was excellent. During our presentation we were able to cover all of our topics in the given amount of time plus we were able to answer all of the judges' questions. We made lots of friends with other teams. On Friday we did our matches. We had a couple problems. One of the problems was that our robot's NXT kept on freezing. So we checked the wires and we also checked the connections on the batteries. On Sunday our robot froze again so we triple checked the wires. When it was time to see who would be alliances we were alliance with teams Hot Wired and AFOOFA. With that we all were able to

	double hang with both alliances. During the finals we only froze once in the final match but we were still able to win by 1 point! Overall it was a great tournament with lots of gracious professionalism. I am glad that our team did so well.

Tournament



FTC West Super-Regional Championship
Division: Silicon
Match Results

Match	Result	Red	Blue
Q-2	216-177 R	5532	5555
		6024	4963
Q-14	126-115 R	5667	6585
		4512	6024
Q-20	149-163 B	6024	5939
		5250	4625
Q-30	112-107 R	6024	6559
		3746	5024
Q-44	96-325 B	724	6024
		6471	7013
Q-51	251-162 R	8056	6978
		6741	6024
Q-60	261-161 R	6024	267
		5826	4953
Q-65	79-258 B	4112	3208
		6024	6935

FTC West Super-Regional Championship
Division: Silicon
Elimination Ladder

Winner is the RED Alliance 1: 5939,7013,6024

			F	RED - Winner SF 1: Alliance 1: 5939,7013,6024		
				BLUE - Winner SF 2: Alliance 3: 7907,4112,2844		
	SF1	RED - Alliance 1: 5939,7013,6024			SF2	RED - Alliance 2: 5604,5555,4625
		BLUE - Alliance 4: 4287,6935,5826				BLUE - Alliance 3: 7907,4112,2844

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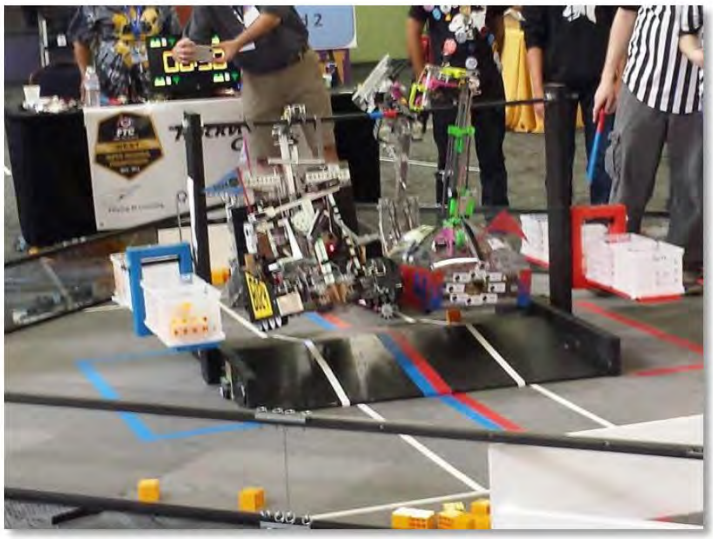
Elimination Ladder generated at 03/23/14 04:40:10 PM



Logan

I know that our team placed 18th in the tournament due to some problems that were plaguing us and that concerns me. The main problem was that our robot kept dropping and dying on the field. The NXT kept freezing up on us which was frustrating.

Possible reasons for this:

1. The main battery is disconnecting, causing a voltage spike to go through the Samantha module and through the USB cable and then into the NXT brick.

2. Static build-up in the robot is collecting in the motor controller Daisy Chain which is causing an I^2C error.
3. Static. Our robot is dragging Plexiglas on the field.

I talked to the head ref about this problem and asked for suggestions to help us. I suspected that our problem was a static issue and the head ref said that it probably was. I asked if there were any ways to ground our robot and I was told that we could not use a drag chain. Spraying the field with water was discussed. He also told me that an I^2C error in the NXT cables could freeze the NXT brick. He explained that an I^2C error could be caused by static. Upon further research, it was found that Ferrite chokes could possibly reduce the chance of I^2C errors.

Proposed Solutions:

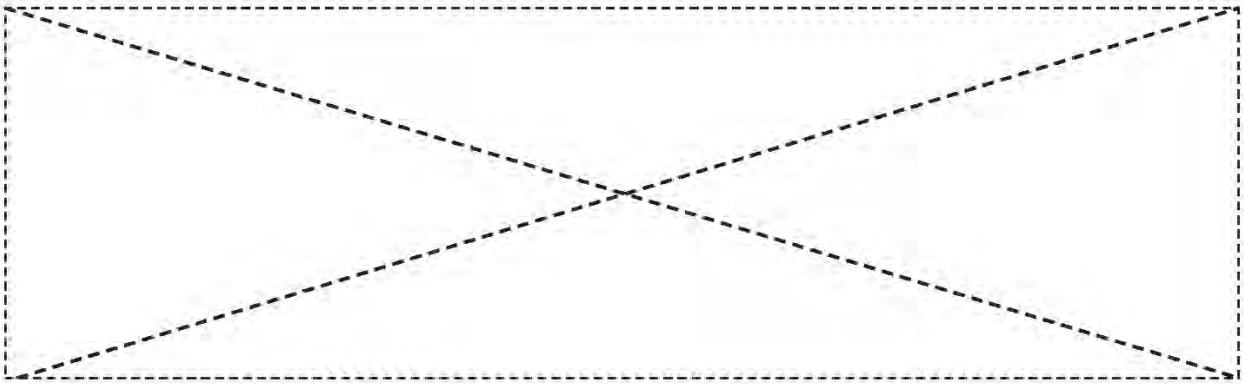
Search the internet for similar problems and look for solutions

1. We ruled out a problem with the NXT brick by using 2 different NXT bricks during the competition.
2. Split up the motor controller daisy chain so it is no longer 4 controllers on one port. Possibly use 2 sets of 2 motor controllers?
3. Review footage of the competition to determine what was happening before the robot shut down.
4. Replace the Plexiglas on the robot?
5. Drive the robot on the field and try to create the problem by trying these things:
   *Run robot for more than 2 minutes.
   *Bump and crash the robot into things.
   *Drive robot up and down ramp.
   * Robot bumping into other robot, metal to metal
   *Robot bumping into other robot with static charge on other robot.
   *Robot control in arcade mode, hitting buttons at the same time.
   *Robot control in tank mode, hitting buttons at the same time.

Other things to think about:

1. A To-Do list
2. Our robot is not able to pick up cubes as fast as some of the other teams that we saw at this championship. We saw some robots that could make double the amount of trips that our robot could make to deposit blocks.

We have our work cut out for us in preparing to leave for the World Championship Tournament!



Written by: Brandon Villar, Carter Peterson, Cole Kenny, , Jamie Poston, Logan Peterson, Price Poston, Scott Dooley	**Checked by:** Brandon Villar

Thursday, 03/27/14, 4:00 pm - 6:00 pm

Event Report: Boys & Girls Club Event

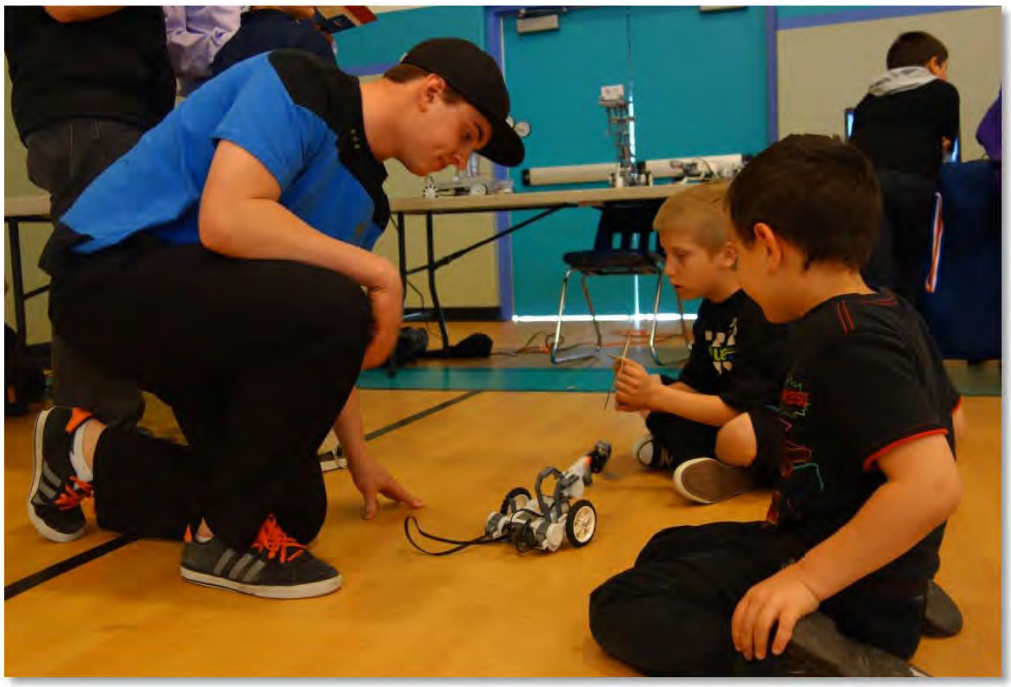
Attending: Brandon Villar **Mentors:** Carol Villar

Goals:

- Attend BATTLE OF THE BRAINS CYBER SPACE at the Boys & Girls Club of Reno (see flyer below).

Tasks	Reflections
Represent FIRST and spread FIRST programs	Had fun teaching the little kids about robotics

We were asked by Justin Majors, Senior Mentor FIRST NV, to come down to the Boys and Girls club to help out by showing off our robot and spreading FIRST to the kids. I was the only member available to go, so I represented my team and had fun teaching the little kids about robotics. There were tons of interested kids and we think a Jr. FLL team has spawned from our time there! It was great fun and it looked like all the kids had a blast with the robots and programming them.



Boys & Girls Club Week

March 24-28, 2014

Monday, March 24: HEALTHY CLUB, HEALTHY KIDS DAY

We'll kick off Boys & Girls Club Week with a fun-filled day of physical activities, fun competition and healthy treats. Members will participate in various Triple Play Challenges to win prizes. Games and activities will be endless with parachutes, hula hoops, dodge balls, and much more. We will end the day with a surprise healthy snack. (Activity runs from 4:00 to 6:00 p.m. at all participating Clubs.)

Tuesday, March 25: PAINT IT & EAT

We will explore the world of art with taste buds and stomachs. Members will create edible works of art from jewelry to portraits, and fruit bugs to homemade face paints. Everything members create will be a tasty masterpiece complete with a commemorative recipe book to take home and continue on with fun projects. (Activity runs from 4:00 to 6:00 p.m. at all participating Clubs.)

Wednesday, March 26: BOYS & GIRLS NITE OUT

Bring out the big tent – the circus is in town! During this annual highlight of Boys & Girls Club Week, the Club transforms into a carnival with food and games like "Chicken in the Pot" and "Ring Toss" where hundreds of kids (and the adult volunteers they're paired with) can win prizes! Performers from Circus Circus will join in the fun with their world-famous stage show. We'll also have a great FREE dinner! (The event runs 4:30 - 7:30 p.m. at the Donald W. Reynolds site, with all Clubs invited – ask about transportation).

Thursday, March 27: BATTLE OF THE BRAINS - CYBER SPACE

Come test your tech savvy-ness on Cyber Space Day. The event will focus on education, teamwork and communication. Members will enjoy Dance Dance Revolution, the Race to Space, and internet café, a Techmobile and much more. Come and get your tech on! (Activity runs from 4:00 to 6:00 p.m. at all participating Clubs.)

Friday, March 28: FAMILY NIGHT AT THE MOVIES

Wrap up Boys & Girls Club Week with Family Night at Century Sparks Movie Theater (space is limited). Members who show their Club membership card will get their immediate family in for a FREE showing of a family movie (TBD). This is an exclusive event for Club members only. The Club will provide a picnic on the grass before the movie with delicious finger foods and drinks. Shuttles will run from the Club's Donald W. Reynolds Facility on East Ninth Street and the Neil Road site. (Picnic from 4:30 - 6:00 p.m. with movie to follow).

ALL ACTIVITIES ARE FREE TO BOYS & GIRLS CLUB MEMBERS

BOYS & GIRLS CLUB OF TRUCKEE MEADOWS

DONALD W. REYNOLDS FACILITY • 2680 EAST NINTH STREET • RENO, NV 89512 • WWW.BGCTM.ORG

Written by: Brandon Villar	**Checked by:** Cole Kenny

Saturday, 03/29/14, 6:00 pm - 9:00 pm

Event Report: Boys & Girls Club Event

Attending: Brandon Villar **Mentors:** Carol Villar

Goals:

- Attend Optimist International Awards dinner to accept donation and demonstrate the robot.

Tasks	Reflections
Represent FIRST and spread FIRST programs	Had fun teaching the little kids about robotics

We were asked by Dee Freewart from FIRST NV to come to the Optimist International Awards dinner at the National Automobile Museum to accept their donation and demonstrate the robot. When we first got there we were greeted by many interested people and even let a little girl drive the robot which seemed to excite her greatly.

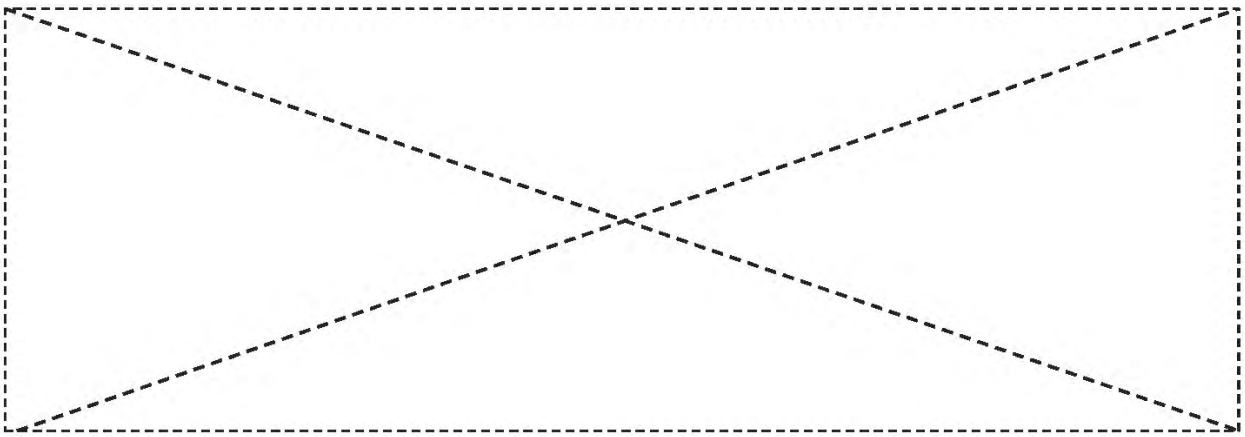
There were many different cars that I loved such as the red rocket car show below and the rock crawlers in another section.

The dinner was great and afterward we had the awards ceremony. The awards ceremony was very nice; it started with the boy scouts presenting the flag and went onto the actual awards. I accepted our check from the very nice president of the club, and thanked her greatly. Afterward a mayoral candidate, Ray Pezonella, talked on stage and had a funny show put on with the other club members.

In the end, some of the boy scouts drove the robot and learned more about robots and looked very interested, and maybe they will start a team of their own! We recited the Optimist Creed and I posed for a picture with the mayoral candidate and gave him a fundraising letter to share with the Lion's Club (perhaps more sponsorship?).

Overall it was a fun place to be and we are very grateful for their generous donation to our team.

Written by: Brandon Villar	**Checked by:** Cole Kenny



Friday 04/04/14, 1:00 pm - 7:00 pm

Meeting #49: Tackling the "Robot To Do"

Build Team

Attending:	Logan Peterson, Carter Peterson, Scott Dooley, Brandon Villar	**Coaches/ Mentors:**	Carol Villar, Wade Peterson, Suzanne Peterson

Goals:

- Drive robot to recreate drops at competition
- Work on Robot To-Do list
  - Move Samantha and NXT closer to each other
  - Fix braces on tractor beam
  - "Andersonize" the robot - add Anderson Powerpoles, connectors and crimpers
  - Revise wire management (review/revise)
  - Check all connector wires
  - Hit all the power connections to check for glitches

Tasks	Reflections
Drive till it drops	Drove, drove, drove but it did not drop
Move Samantha and NXT closer to each other	Took longer than we thought it would
"Andersonize" the Robot (A new verb we made up)	Slow and steady wins the race. We had some reading to do! We found many resources on the internet.
Servo Extension Wires	We found a nicked wire that we replaced. Hopefully, we can avoid this from happening again
Tractor Beam Stabilizer	The tractor beam stabilizer that broke had an extra hole drilled in it that made it weaker. The new tractor beam does not have a hole in it so it should not break again.

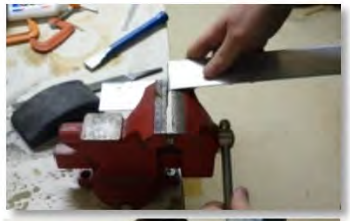
Driving to recreate robot drop

Prior to this meeting, we rigorously tested the robot to try to recreate the drops and/or static problems. The robot did not drop during any of these tests. We were unable to recreate the scenario. Things that were tested include:

- Robot running for more than 2 minutes
- Robot bumping into things
- Robot going up and down ramp – since it has dropped as it comes off of the ramp and hits the mat
- Robot bumping into other robot, metal to metal
- Robot bumping into other robot with static charge on other robot (not sure we created static on the other robot.
- Robot control in arcade mode, hitting buttons at the same time
- Robot control in tank mode, hitting buttons at the same time

Move Samantha & NXT Closer to Each Other

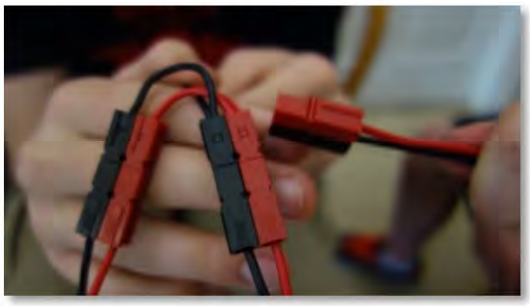
- Fabricated a bracket in the workshop to remount the NXT on the back of the robot
- Successfully mounted the NXT





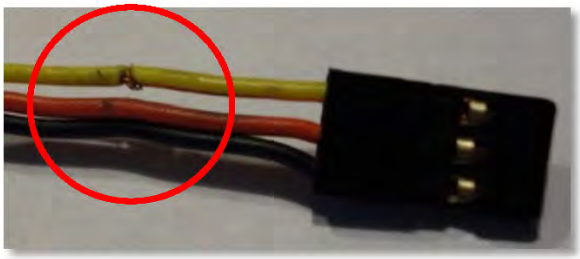
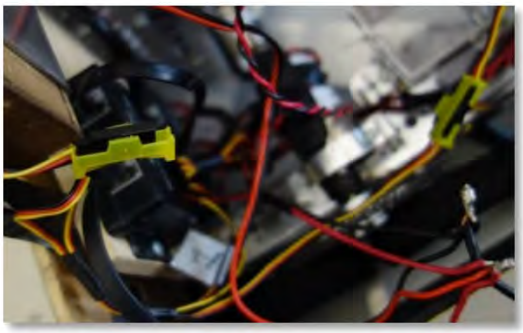
"Andersonization"

- Built 4 power pole connectors for the 4 motor controllers
- Built 2 power poles for the main power to the motor controls
- Successfully converted one battery to Anderson Powerpoles
- Re-soldered the Anderson Power Pole connectors to the main power



Servo Extension Wires

- Replaced servo extension wires for the right tractor beam servo
- Found a nicked wire which may have caused the intermitted tractor beam outage, need to see what caused it so it can be prevented
- Added servo clips to keeps connectors from coming apart


Tractor Beam Stabilizer

- Fabricated a new tractor beam stabilizer out of aluminum to replace the one that broke during the last competition. The tractor beam that was on the right side of the robot had an extra hole drilled in it by mistake. This hole caused the right side to be weaker and break. We should not have any trouble with the new tractor beam.

Updated Robot To Do List

Status	Suggested Tasks	Who wants to do?	Parts Needed
Completed	Moved Samantha & NXT closer together	Logan, Brandon, Scott	
Completed	Install new shorter and shielded USB cable for Samantha/NXT connection	Logan, Brandon, Scott	Shielded USB Cable for Samantha to NXT
In Progress	Add/Convert Anderson Power Poles aka "Andersonize"	Logan, Brandon, Scott	Anderson Power Poles, connectors, crimpers
In Progress	Rewire motor/servo controllers so they are not daisy chained. This will require only a small code change, which has already been done.	Logan, Brandon, Scott	
In Progress	Reroute wiring and provide shielding for all wires, particularly servo control wires	Logan, Brandon, Scott	
In Progress	Rework servo connectors & wires to make sure there is no stress on them and add servo clips to ensure they stay connected.	Logan, Brandon, Scott	

References:

Robot Power Management Using Anderson Powerpoles (http://www3.usfirst.org/sites/default/files/Anderson-Powerpole-Guide.pdf)

2013-2014 FTC Season Kick-Off Middleton Robotics "Stopping Robot Failures" – Hans Wolf (http://middletonrobotics.com/wp-contents/uploads/2013/09/Stopping_Robot_Failures.pdf)

Written by: Brandon Villar	**Checked by:** Logan Peterson

Saturday 04/05/14, 1:00 pm - 6:30 pm

Meeting #50: More Tackling the "Robot To Do"

Build Team

Attending:	Logan Peterson, Carter Peterson, Scott Dooley, Brandon Villar	**Coaches/ Mentors:**	Carol Villar, Wade Peterson, Suzanne Peterson

Goals:

- Continue Work on Robot To-Do list
  - Continue "Andersonization"
  - Revise wire management (review/revise)
- Modify block knife

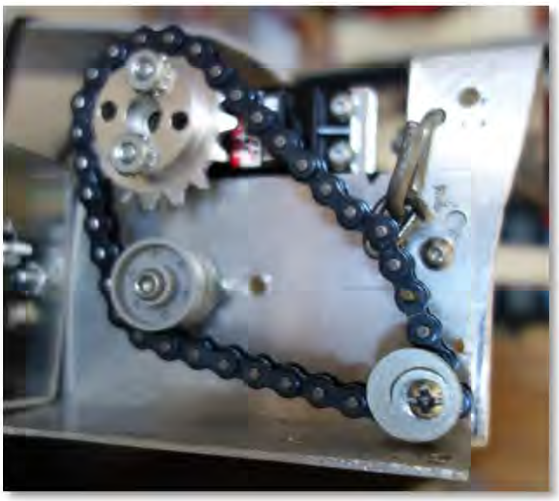
Tasks	Reflections
"Andersonize" the robot	So many connections! Carter learned how to solder.
Modify Block Knife	We tried so many different ways to make this work. I think we have decided on a way!
Address Static Issues	It was cool see the robot twitch from the charged balloon! However, we had to figure out why the servo motors on the robot were twitching. This was not good. We had to reconsider how the daisy chain was configured.
Wire Management to Motor	Brandon tackled this today.
Wire Management to Servo	Scott tackled this today. Divide and conquer!

"Andersonize" the Robot and more

- Cut motor controller wires to length then tinned them
- Attached Anderson Powerpoles to the motor controllers
- Rewired motor/servo controllers so they are not daisy chained (see diagram at the end)
- Reworked servo connectors & wires to make sure there is no stress on them
- Added servo clips to ensure that the wires stay connected
- Converted battery charger to Anderson Powerpole (also converted the other two batteries)
- Checked all NXT connection wires and replace if necessary.

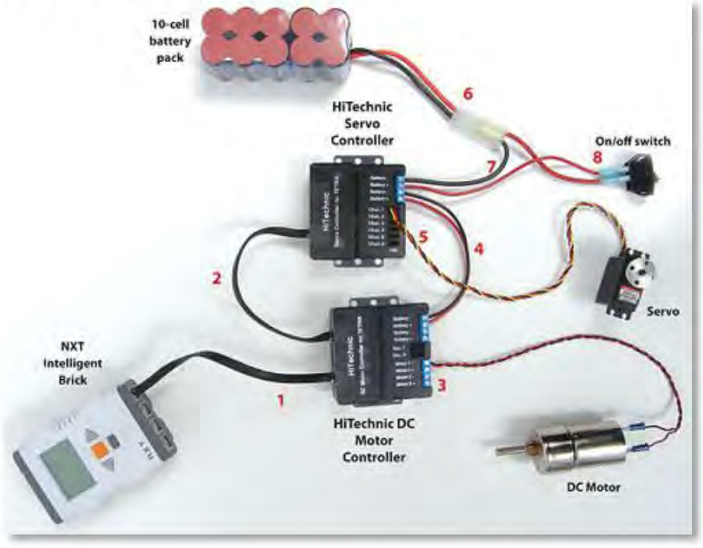
Modify Block Knife

- We wanted to add an extension to the front of block knife to allow us to contain the cubes and drive backwards especially in tight situations – we decided to call it the **"Kling-On"**
- We figured out how to attach servo to block knife and turn a metal rod 90 degrees
- It took six iterations to get it right: went from a lever arm mechanism to a string and rubber band mechanism back to a lever and rubber band mechanism and finally arrived at a chain and sprocket mechanism
- We tweaked the amount the servos would move and the position of the components until it would turn 90 degrees without putting excessive amount of strain on the servo
- Lost 2 servos testing, which were replaced, the issue was that the servo was being physically stopped before they reach their set position so they burned out



Static

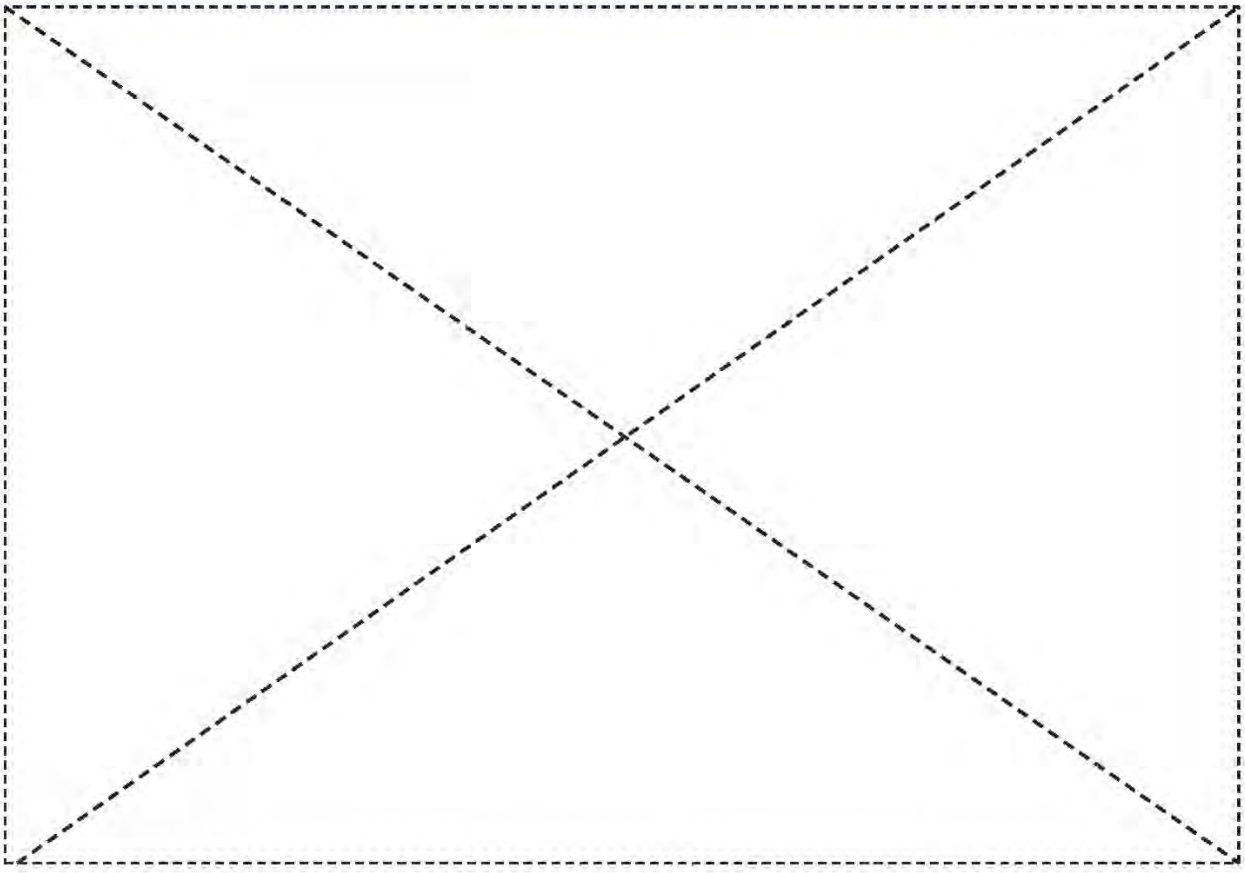
- Static Electricity: Discovered that if a balloon was rubbed on our hair and placed close to the robot that the servos would twitch (we got a cool video) from the static electricity. This raised a red flag.
- So, if the servos were acting up and the servo controller is first in the chain this could cause it to affect the other motor controllers. We decided to reconfigure the daisy chain based upon the diagram below that we found on the Green Army Robotics website. Our set up is a little different. See reference below.



Status	Suggested Tasks	Who wants to do?	Parts Needed
In Progress	Add/Convert Anderson Power Poles	Logan, Brandon, Scott	Anderson Power Poles, connectors, crimpers
In Progress	Rewire motor/servo controllers so they are not daisy chained. This will require only a small code change, which has already been done.	Logan, Brandon, Scott	
In Progress	Reroute wiring and provide shielding for all wires, particularly servo control wires	Logan, Brandon, Scott	
In Progress	Rework servo connectors & wires to make sure there is no stress on them and add servo clips to ensure they stay connected.	Logan, Brandon, Scott	
	Add ferrite chokes to all cables going into NXT to help reduce voltage spikes.	Logan	Ferrite Chokes 10?
Completed	Check all NXT connection wires and replace if necessary.	Jamie and Cole	
In Progress	Modify Block Knives	Logan & Scott	
	Hit power connections to check for glitches	Logan	
	Fix the dropping connection	Everyone	

References:

Motor and Sensor Setup in ROBOTC
(http://greenarmyrobotics.org/robotc/motor-and-sensor-setup-in-robotc/print/)



Written by: Logan Peterson | **Checked by:** Brandon Villar

Sunday 04/06/14, 1:00 pm - 4:00 pm

Meeting #51: Even More Tackling the "Robot To Do"

Build Team

Attending:	Logan Peterson, Carter Peterson, Scott Dooley, Brandon Villar	**Coaches/ Mentors:**	Carol Villar, Wade Peterson, Suzanne Peterson

Goals:

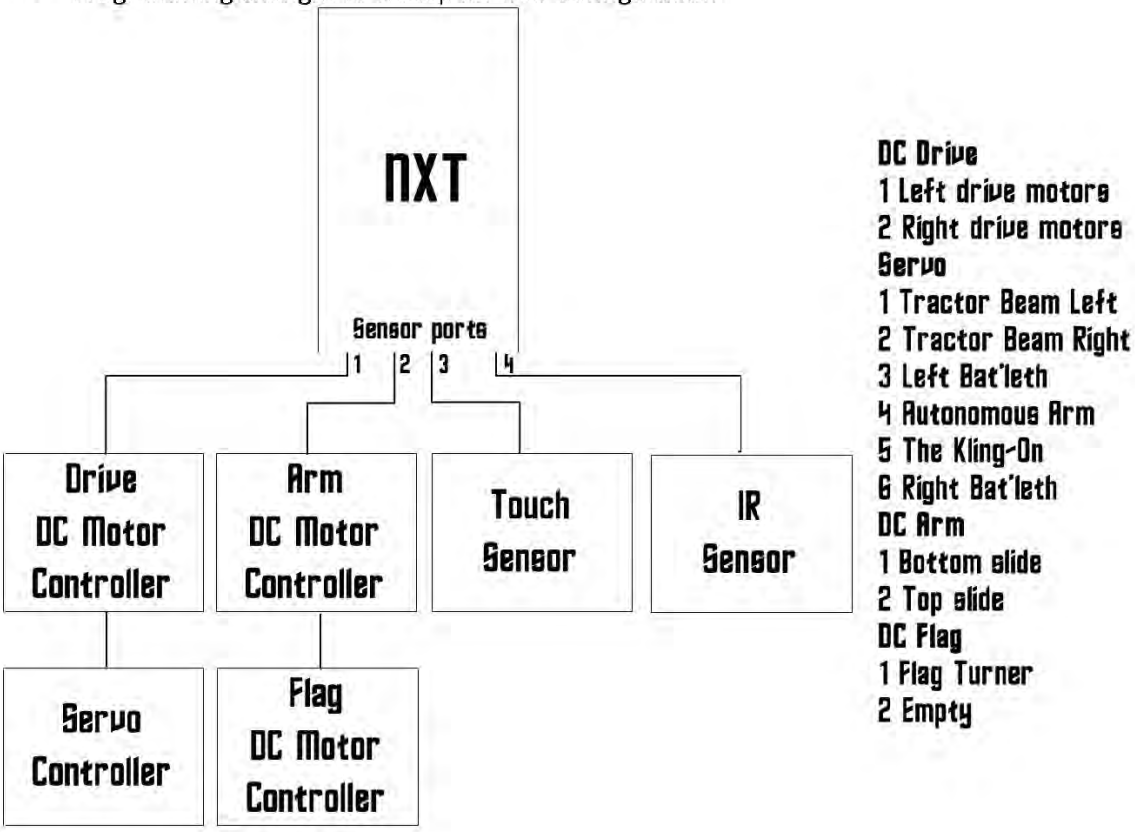
Continue Work on Robot To-Do list

- Finish "Andersonization"
- Revise wire management (review/revise) and check all connector wires
- Update Teleop with new schematic
- Hit all the power connections to check for glitches

Tasks	Reflections
Finish "Andersonizing" the robot	Finally, we finished.
Revise wire management and check all connector wires	Finally, we finished.
Update Teleop with new schematic	We have finished it but Jamie has to update the autonomous.

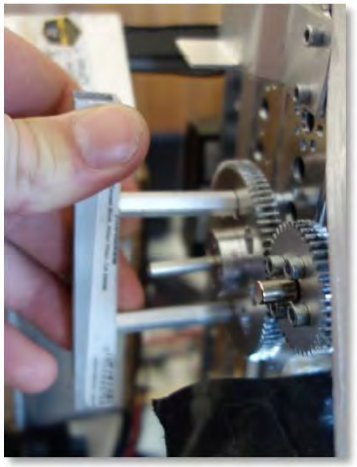
Un-Daisy Chained Wiring

- New schematic drawing
- Programming changes to teleop for new configuration



Finish "Andersonizing" the Robot

- Finally finished!

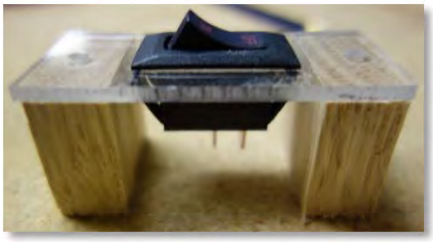


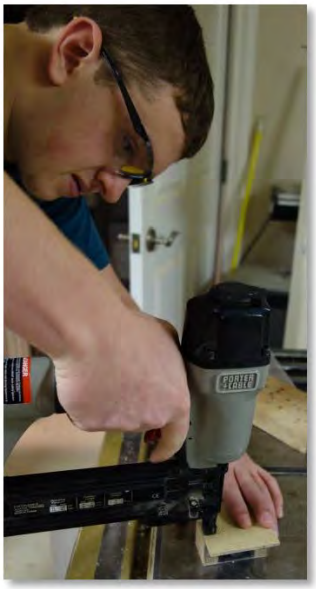
Create tool to turn gears

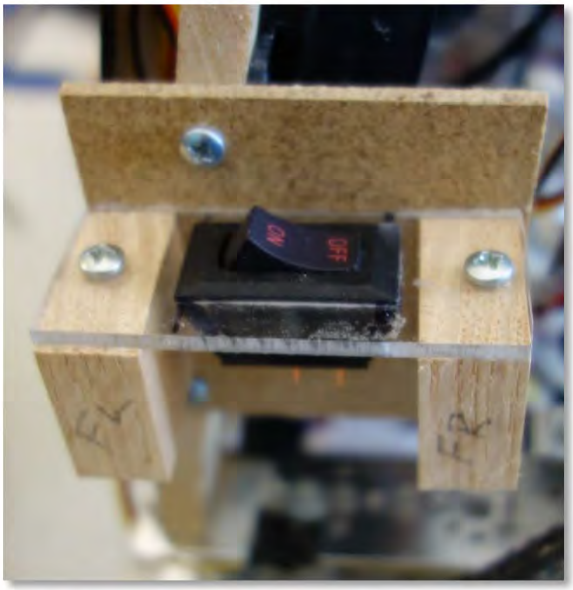
- Manually turning gears can be painful so we created a tool to turn the gears!

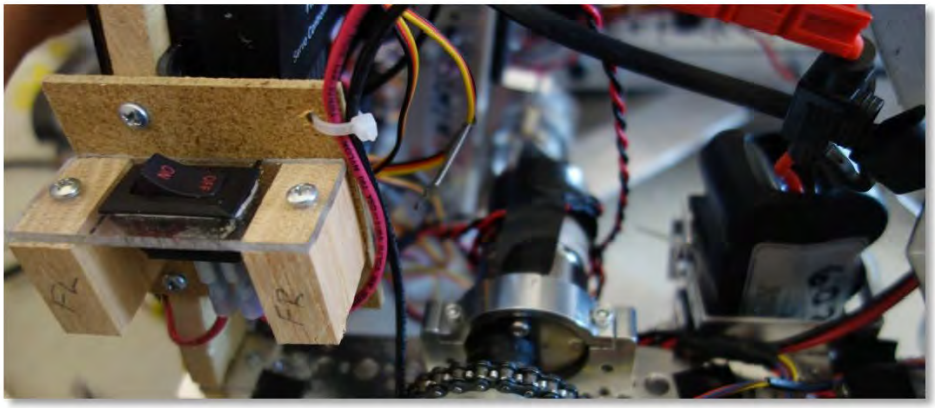
Make new Power Switch Holder

- Due to new wiring and wood splitting we decided to make new power switch holder and relocated it
- Cut the wood using saw to build the block and the back, used the power nail gun to put it all together









Test the Robot

- Tested all functions and everything works - sucking and spitting up blocks, moving both bat'leths, and moving tractor beam up and down. Ferrite chokes showed a little improvement in the balloon static test.
- We still have to add in the touch sensor for the rack and pinion.

Status	Suggested Tasks	Who wants to do?	Parts Needed
Completed	Add/Convert Anderson Power Poles	Logan, Brandon, Scott	Anderson Power Poles, connectors, crimpers
Completed	Rewire motor/servo controllers so they are not daisy chained. This will require only a small code change, which has already been done.	Logan, Brandon, Scott	
Completed	Reroute wiring and provide shielding for all wires, particularly servo control wires	Logan, Brandon, Scott	
Completed	Rework servo connectors & wires to make sure there is no stress on them and add servo clips to ensure they stay connected.	Logan, Brandon, Scott	
Completed	Add ferrite chokes to all cables going into NXT to help reduce voltage spikes.	Logan	Ferrite Chokes 10?
In Progress	Modify Block Knives	Logan & Scott	
	Hit power connections to check for glitches	Logan	
	Fix the dropping connection	Everyone	

Mini Outreach

The team had a request to show another Galena High School student, Aaron Mayer, the team robot and explain FIRST and FTC to him. The team showed him their robot, explained this year's challenge and played a few of the team's YouTube videos for him to see.

Written by: Scott Dooley | **Checked by:** Brandon Villar

Monday 04/07/14, 1:00 pm - 4:00 pm

Meeting #52: Finish Tackling the "Robot To Do"

Build Team

Attending: Logan Peterson, Carter Peterson **Coaches/ Mentors:** Wade Peterson, Suzanne Peterson

Goals:

- Finish Robot To-Do list
  - Hit all the power connections to check for glitches
  - Make double double hang bar hook and replacements
  - Add touch sensor for rack and pinion
  - Test tension on the rubber bands
- Fix Double Double Hang Hook
- Finish up the "Kling-On"

Tasks	Reflections
Finish Work on Robot To-Do list	Checked all items off!
Finish the Kling-On	Kling-On was completed!
Reinforce the rack and pinion	Doesn't lean, doesn't wiggle as much
Fix Double Double Hang Hook	It was easy to make the hook and made extras just in case
Determine if new parts need to be ordered	Since two servos burned out we will probably need order more
Organize tool box	Carter started to organize the new smaller tool box that will be easier to travel with.

Reinforce the Rack and Pinion

- The rack and pinion was showing excessive wear on the right side due to the arm leaning so much to one side. To help the uneven wear of the rack and pinion reinforcement was attached to offer more support to the arm which will reduce the swing in the arm. The rack and pinion was reinforced by adding a new slide that was fabricated in the workshop using aluminum. Added grease to the reinforcement mechanism.
- **Note: It is important that the grease is not wiped off as it will cause the motor to burn out!**



Finish the Kling-On

Kling-On was completed! Because of the two burned out servos a new approach was taken. Kling-On is direct drive to the servo which will keep the servo from burning out. The chain and sprocket mechanism quickly cause a servo to burn out. This made us have to rethink if there was still another way to make the Kling-On work. When thinking of a K.I.S.S. solution (Keep it Simple Silly), using a direct drive servo came to mind. We attached a direct drive servo to the Bat'leth and it worked! This is a very simple solution that should be very reliable.

Finish Work on Robot To-Do list

- Hit all the power connections to check for glitches - All the connections look fine
- Add Touch Sensor for rack and pinion – Completed, code was rewritten and fixed for the sensor
- Test tension on rubber bands - Rubber band was zip tied and rubber band adjusted to make sure that the wires do not get caught in the gears

Fix Double Double Hang Hook

The aluminum part of the Double Hook Double Hang Hook that attached to the robot broke off. A new aluminum piece was fabricated. Extras will be made to take to Worlds just in case this piece breaks again.

Status	Suggested Tasks	Who wants to do?	Parts Needed
Completed	Modify Block Knives	Logan & Scott	
Completed	Hit power connections to check for glitches	Logan	
Could not reproduce	Fix the dropping connection	Everyone	

Written by: Logan Peterson	**Checked by:** Brandon Villar

Wednesday 04/09/14, 6:30 pm - 8:00 pm

Meeting #53: Drive, Drive, Drive

Build Team

Attending:	Brandon Villar, Logan Peterson, Carter Peterson	**Coaches/ Mentors:**	Carol Villar, Wade Peterson, Suzanne Peterson

Goals:

- Test the robot using two controllers at the same time to see if this will make the robot drop
- Test robot driving after all of the rewiring
- Test the new code by driving the robot and making sure everything works right
- Test rack and pinion touch sensor
- Fix the dropping connections

Tasks	Reflections
Drive the robot	
Fix the dropping connection – static?	

Status	Suggested Tasks	Who wants to do?	Parts Needed
Could not reproduce	Fix the dropping connection	Everyone	

Static

04/19/13: Landroids show that static can cause Mindstorms NXT to lock up. The Landroids identify 3 reasons for the static build-up. http://youtu.be/Rr4mBtiYmjs

1. Low humidity
2. Mats on carpet (As they were at Super-Regionals)
3. Omni-wheels buffing (In all but one match, 6024 locked up after making contact with a robot that had omni-wheels. See " Team# 6024 Observation" below)

Effect:

01/4/14: Cougar robotics http://www.cphsrobotics.com/ Blog entry: "January 4, 2014 at the Liberty Science Center "

"Team 5212 and 251 go at it again at the Liberty Science Center to win it. There seemed to be a problem with Team 251's robot. Their robot kept freezing and didn't know why until one of the referees told Team 251 that their omni wheels on their robot was causing a static shock. This is something both robotics teams never encountered before. Unfortunately because of this major issue Team 251 was eliminated from the competition due to the many static issues. Team 5212 was still in the competition and made it all the way to the semifinals but lost there. In the award ceremony, 5212 was a runner up for the Connect Award and winner of the PTC Design Award."

Team# 6024 Observation:

Logan reviewed 5 matches from Super-Regionals where The Enterprise locked up on the field. Review of video tape from Super-Regionals revealed the following information:

1. **Match#30** MVI-0017 - Observed match with robot Team 6559. This robot had four sets of omni-wheels and 3 sides of plexi sides. Our robot died after making contact with this 6559.

2. **Match #44** Team 6471 is the only robot with omni-wheels on the field. During the match 6024 and 6471 stay on opposite side of the field and never make contact. 6024 goes on to double hang!
3. **Match #51** Team 6024 came into contact with an omni wheel robot, the robot locked up.
4. **Match #60** Team 267 is the only omni wheel robot on the field. We make contact with this 267 and lock-up.
5. **Match #65** Team 6935 is the only omni wheel robot on the field. We make contact and lock-up.

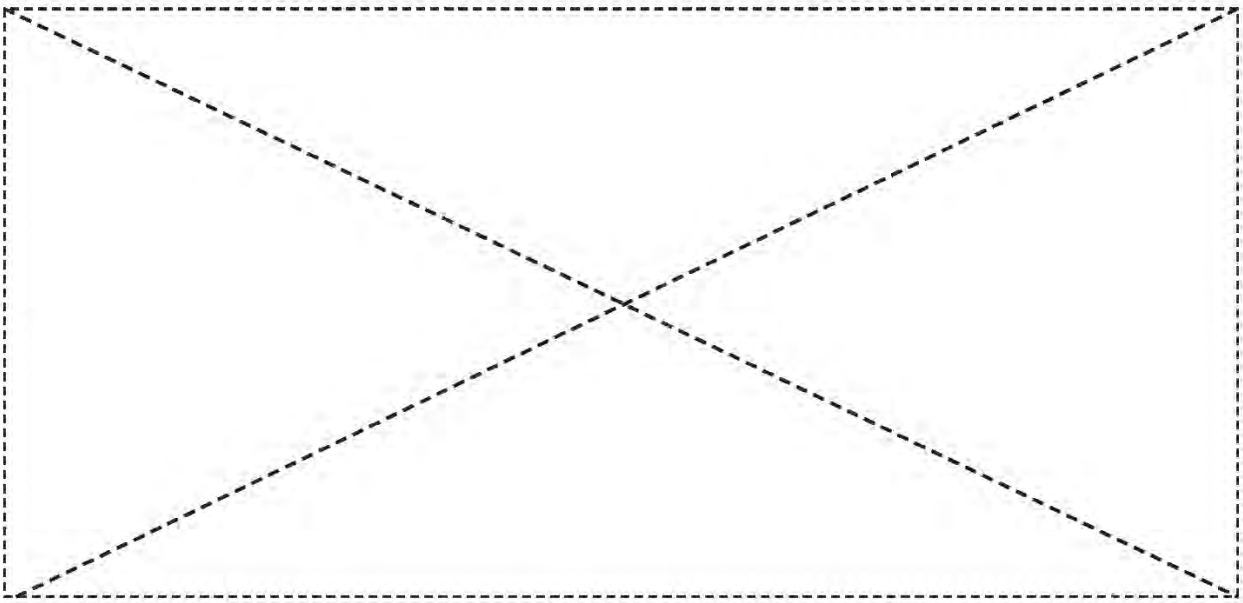
At Super-Regionals they were not spraying the fields with water or rubbing with dryer sheets like they did in at the Las Vegas Championship.

Note: Over the weekend, the boys observed and video-taped the effect on the servos when a static charged balloon placed near the robot watch the video http://youtu.be/RwAx20_uxhg

Cougar Robotics - Use of copper tape on Plexiglas (We have aluminum tape that should work like the copper tape and will determine if it can be used) http://youtu.be/UQ_nRF3PGu8

Drive

- Tested the robot using two controllers at the same time to see if this will make the robot drop – did not drop
- Test robot driving after all of the rewiring – all is working fine
- Test the new code by driving the robot and making sure everything works right – all working fine
- Test rack and pinion touch sensor
  - The **touch sensor** was at not working at first because it got disconnected – NEED TO ADD TO CHECKLIST and also need to add CHECK NXT CONNECTIONS
- Issues found and solved
  - The main wires in the tubing got stuck in the gears during hanging – added another rubber band to keep it out of the way
  - Lower linear slide motor burnt out – need to determine why



Written by: Brandon Villar	**Checked by:** Logan Peterson

Friday 04/11/14, 10:00 pm - 2:00 pm

Meeting #54: Fix it!

Build Team

Attending: Logan Peterson, Carter Peterson **Coaches/ Mentors:** Wade Peterson, Suzanne Peterson

Goals:

- Replace lower linear slide servo and determine why it burnt out
- Reduce tractor beam Plexiglas static
- Build shipping box

Tasks	Reflections
Replace lower linear slide motor	Replaced motor. Unable to determine the reason for why it burned out. This is something that will have to be tested during drive practice to see if it happens again
Reduce tractor beam Plexiglas static	To reduce the risk of ESD, the Plexiglas bottom on the Tractor Beam was replaced with a piece made out of Aluminum
Order servos	Three 180 degree servo motors (Part# W739197) were ordered
Reach how to build a shipping box	Discussed ideas with Wade Peterson. Wood and wheels have been purchased
Provide Tele-Op code for review	Tele-Op code was emailed for review by Mr. Cole

Lower linear slide servo

- The motor on the lower linear slide was replaced. This is a motor that we have used all season.

Reduce Tractor Beam Plexiglas Static - Replace with Aluminum!

- After all of the research that we have done on static, it was decided that the Plexiglas bottom of the Tractor Beam should be replaced with a sheet of aluminum.
- A 0.40 thick piece of aluminum was purchased.
- The Plexiglas was removed and I traced the shape onto the aluminum so that I could cut it out using the band saw in the workshop.
- I used the Plexiglas piece to mark the holes that needed to be drilled into the aluminum.
- I used an electric sander to sand the aluminum piece smooth before attaching it to the robot.
- The drive team will have to let me know if the Aluminum piece works as well as the Plexiglas piece.
- The Plexiglas piece is still available to reattach if necessary.

Build Shipping Box

- Wood and wheels have been purchased.

Written by: Carter Peterson	**Checked by:** Logan Peterson

Saturday 04/12/14, 10:00 am - 1:00 pm

Meeting #55: Robot & Code

Build Team

Attending:	Jamie Poston, Price Poston, Cole Kenny	**Coaches/ Mentors:**	Patti Poston, Jim Poston, Jeremy Cole

Goals:

- Check the robot and see if anything else needs to be done
- Work on the Autonomous Code

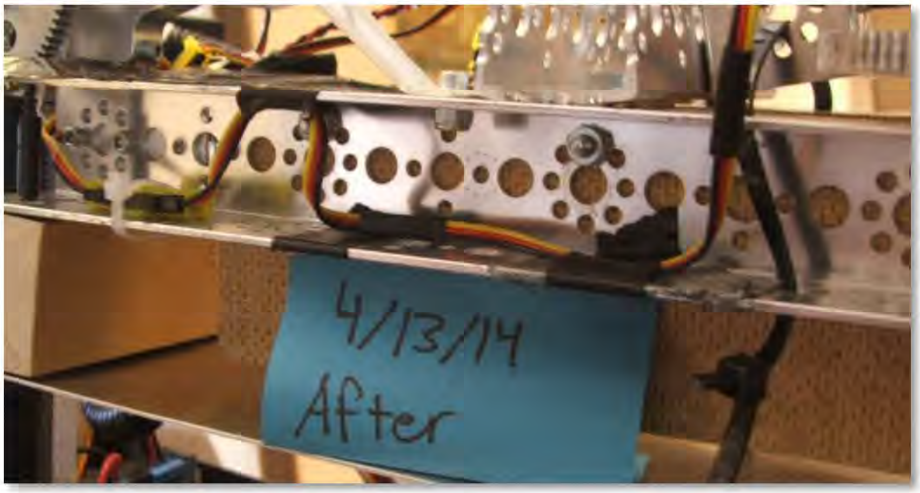
Tasks	Reflections
Robot	Rewired, secured wires, and repositioned right rear motor.
Code	Met with Jeremy Cole.

Robot

The team looked at all the changes on the robot, drove the robot to see how it preformed We also hit the robot with a mallet while we were driving it like the ref at Super Regional's suggest and it did not drop connect..

We thought everything looks great, however we did see a cable that was very close to getting caught in a gear. We decided to tape the cable to secure it from getting caught in the gear. When we got to the wire we noticed that the insulation of 2 different wires had already been crimped. We believe they still will work but we need to keep an eye on these wires. We electrical taped the wires and secured them further away from the gears so they hopefully will not get crimped again.

We saw the right rear motor was angled so that the chain brushed up against a wheel. To fix this problem we moved the motor back in the motor mount by doing this it straightened the motor out so the chain does not rub on the wheel.

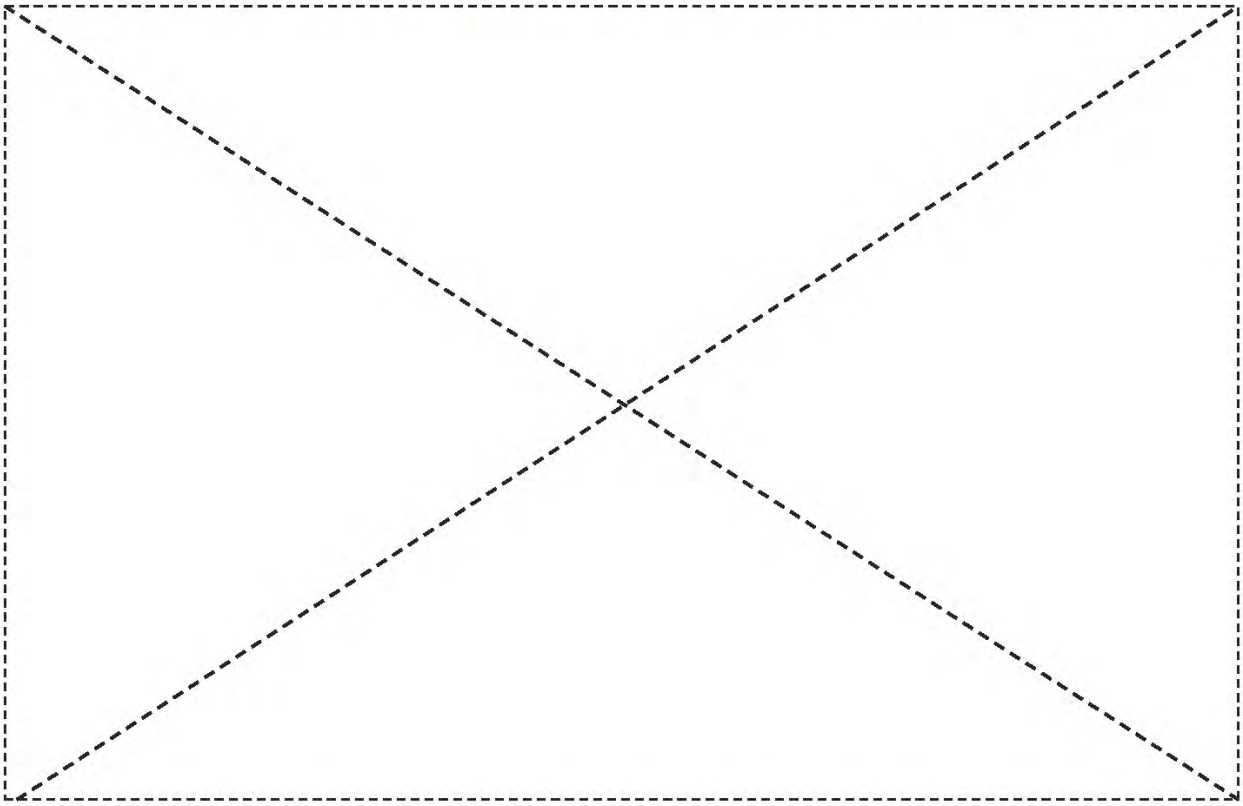


Code

Jamie changed the pragma's in all of the different Autonomous codes (6) so accommodate for the new wiring layout.

The team met with Jeremy Cole, a programmer with Google to talk to him about how to fix up the code that they have on the robot. Jeremy gave Jamie several suggestions on how to tighten up the code and clean it up. She will work on this through the next week and ask for more suggestions as she finishes.

Lastly, the team took an afternoon break and ventured out to the Petroglyphs at Logomarsino Canyon.



Written by: Jamie Poston	**Checked by:** Cole Kenny

Sunday 04/13/14, 2:00 pm - 4:30 pm

Meeting #56: Autonomous

Build Team

Attending:	Jamie Poston, Price Poston, Cole Kenny, Brandon Villar	**Coaches/ Mentors:**	Patti Poston, Jim Poston, Carolyn Kenny, Carol Villar

Goals:

- Work on the Autonomous Code

Tasks	Reflections
Autonomous	Fix autonomous to work with new robot changes and get it ready for World's

Robot

The team tested the autonomous code and found they would have to change the code to work with the new changes to the robot. We went through all 6 autonomous programs and rewrote each code. Basically, we needed slight changes in the choreography of the robot, meaning we had to change the physical motions of the robot because of the new wiring. We also made sure they worked by testing them on the field.

One possible problem we may have at World's is they will be using a different IR Beacon than the one we have so we are hoping that when we get to World's we can recalibrate the Autonomous program using their new IR Beacons and hope they work.

Written by: Jamie Poston	**Checked by:** Price Poston

Tuesday 04/15/14, 3:00 pm - 6:00 pm

Meeting #57: Last of the Last

Build Team

Attending:	Logan Peterson, Carter Peterson, Brandon Villar	**Coaches/ Mentors:**	Carol Villar, Wade Peterson, Suzanne Peterson

Goals:

- Test drive the robot to make sure that recent changes made to the robot function as designed
- Fix any detected problems on the robot

Tasks	Reflections
Test Drive to detect problems with any of the recent changes	3 major problems were detected
Fix the detected problems	3 major problems were fixed
Driving Observations	Aluminum v. Plexiglas there are some differences
To -Do List	Electrical tape was peeling in several places. We did not have zip-ties to replace the electrical tape. We need to make sure zip-ties come with us to Worlds.

Test Drive:

Problem #1 - During Meeting #54, the lower motor burned out on the rack and pinion. We were wondering if this was a fluke or was it caused by the changes that were made to stabilize the rack and pinion? This was a concern and decided that we needed to see if this was a legitimate problem. While lifting of the robot on the hang bar, another motor burned out just like it did in meeting #54! We immediately removed the stabilization. We determined that the stabilizing structure put too much strain on the bottom motor when the rack and pinion was extended. When the arm was extended, it leaned forward and put too much pressure on the motor. After the stabilizer was removed the rack and pinion moved up and down faster and sounded much better! No further problems happened.

Problem #2 – The wooden side panel of the robot became detached when hit against goal. Two screws were pulled from the wood on the right side of the robot. We found larger screws to replace the #6 screws that pulled from the robot. We packed an extra 4 screws just in case this happens again. In the worst case scenario we can always use duct tape!

Problem #3 – The Kling-On was positioned too high so it kept sliding over the tops of the blocks. The Kling-On was lowered and tele-op code was changed.

Driving Observations

- Aluminum v. Plexiglas - blocks do not slide out as easily so the driver may have to assist by shaking the robot.
- Catching the new aluminum tractor beam on the edge of the ramp or the bottom buckets may bend the aluminum so extra care must be given to lift it when going on the ramp and placing blocks in buckets. We will bring the Plexiglas one as backup in case it gets too bent and unusable.
- Kling-On can be very useful in tight situations. The theory is that you reverse with the Kling-On down to capture some blocks and then go forward to suck them in and get more blocks if needed.
- Since the stabilizing structure was removed it will continue to sway as it did before.

Written by: Logan Peterson	**Checked by:** Brandon Villar

Saturday 04/19/14, 12:00 pm - 4:00 pm

Meeting #57: Last of the Last

Build Team

Attending: Cole Kenny, Brandon Villar, Jamie Poston, Price Poston, Matthew Nugent

Coaches/ Mentors: Patti Poston, Jim Poston, Carol Villar

Goals:

- Streamline autonomous code and test the new IR Beacon
- Practice driving
- Take up field because Worlds here we come!

Tasks	Reflections
Test autonomous	Revised the code and the new beacons work fine!
Drive	The new Klingon is somewhat tricky, but opens up a new range of motion.
Pick up stuff	Pick up field

Autonomous

- For the Worlds FTC Championship tournament, the IR beacons that the fields will have are in the 'new' style of IR beacon. This 'new' style of IR beacon is different than 'old' style that we have been practicing on, and different than every other tournament we've been to so far.
- We ordered a 'new' style IR beacon with the sponsor money that we have fundraised, and it was shipped here on Thursday. This is the first meeting since we got the new beacon, and the first time we have run the autonomous programs with the new beacon.
- We tested out all the Autonomous programs on every position, and it seemed to work just fine! Except for an ongoing problem in differentiating between the two farthest buckets.
- We also read the IR direction and strengths at each position, and in doing so we found a way to use the strength to differentiate between the two farthest buckets.
- That ongoing unreliability on the two farthest buckets is totally fixed now, and everything is set and ready to go for worlds!

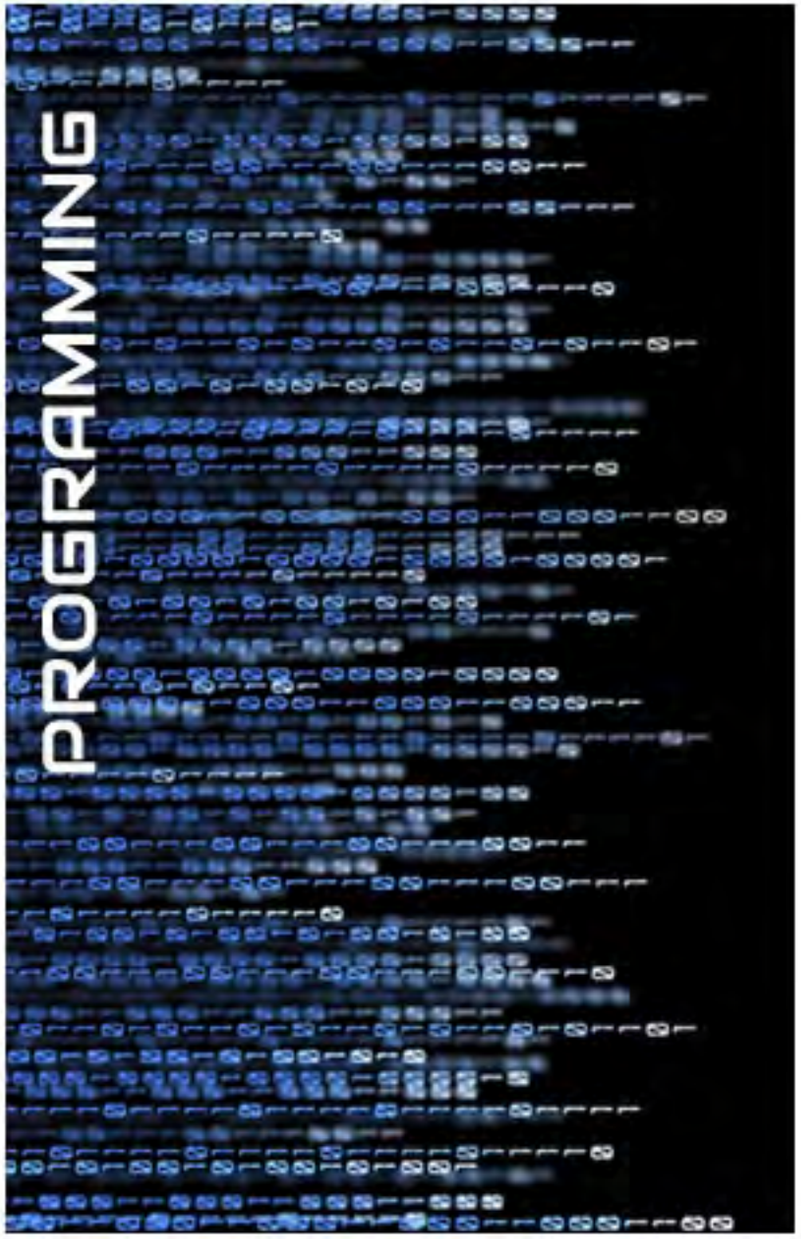
Drive

- When we were driving we noticed that the front left motor was slow. We decided to take a motor from the extension robot and put it on the main robot to see if it would help.
- The left side still seems to be dragging a bit? The robot is still drivable, but it is a little worrying (and annoying) that it keeps lagging behind like that.
- If we had more time, I would definitely like to see that fixed, but now's the time to just go and have fun at worlds!

Pick up Field

- The field was broken down and all the mats and sidewalls were separated.
- The next time we will be using this field is probably during demonstrations or something! It's kind of nostalgic really. ☺

Written by: Matthew Nugent & Jamie Poston	**Checked by:** Brandon Villar


PROGRAMMING