




# FIRST NV – NORTHERN NEVADA FTC Webinar

- Presenters: Team Phoenixtrix
  - Additional Panelists: Matthew D. Fall, Russel Evermann, Dee Frewert
  - Webinar sponsored by the Cummings Foundation
- 

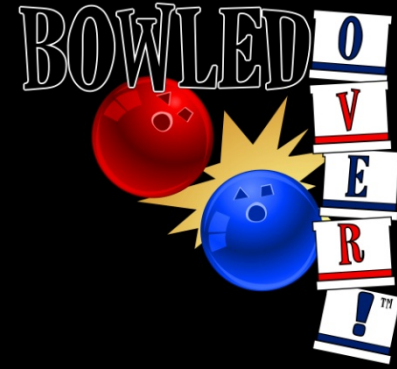


# FTC ENGINEERING NOTEBOOK

*Team 3509 - PHOENXTRIX*

*December 6, 2011*

[www.phoenixtrix.org](http://www.phoenixtrix.org)



# Important Disclaimer

- The presentation is **NOT** a substitute for reading the Official Game Manual and other *FIRST*® documents
- 2011 – 2012 Game Information is at <http://usfirst.org/roboticsprograms/ftc/2011-2012-game-info>
- Also check out: <http://usfirst.org/roboticsprograms/ftc/getting-ready-for-competition>

# Our Sources

- Official Engineering Notebook page:
  - <http://www.usfirst.org/roboticsprograms/ftc/engineering-notebooks?id=7366>
- 2011 Mentor Guide
  - [http://www3.usfirst.org/sites/default/files/uploadedFiles/Robotics\\_Programs/FTC/FTC\\_Mentor\\_Guide\\_2011.pdf](http://www3.usfirst.org/sites/default/files/uploadedFiles/Robotics_Programs/FTC/FTC_Mentor_Guide_2011.pdf)




# Engineering Notebook

- What?
  - Why?
  - How?
- 




# What is an Engineering Notebook?

- A record of your engineering design process
  - A critical piece of documentation for engineers and scientists
    - Legal document for patents
  - It is a living document, recording every step of the team's FTC journey
    - From the kickoff through the competitions
    - Obstacles, lessons learned, ideas
    - Information about the team and its outreach
- 




# Why?

- Engineering Notebook is an excellent documentation of your journey
    - ▣ Your robot is an end product but your notebook captures the learning process
  - Engineering Notebook is a required element for several awards
  - Your notebook represents your team to the judging panels
- 



# Why?

- Inspire Award
    - Judges should use match performance, observations made during interviews and in the pit area, and the **team's Engineering Notebook as equal factors** in determining the winner of this award
  - Rockwell Collins Innovate Award
    - The team's **Engineering Notebook should be marked** with journal entries to show the design of the component(s) and the team's robot in order to be eligible for this award, and entries should describe succinctly how the team arrived at that solution.
- 





# Why?

- Think Award – it's all about the Engineering Notebook
  - This award is given to the team that best reflects the "journey" the team took as they experienced the engineering design process during the build season.
  - The Engineering Notebook is the key reference for judges to help identify the most deserving team. The team's Engineering Notebook should focus on the design and build stage of the team's robot.
  - Journal entries of interest to judges for this award will include those describing the steps, brainstorming, designs, re-designs, successes, and those 'interesting moments' when things weren't going as planned.
  - A team will not be a candidate for this award if they have not completed the section of the Engineering Notebook describing the team's experience.

# How? The Type of Notebook

- Electronic/Online:
  - For judging, need a printed copy in an 1" binder
  - Pages must be electronically numbered and in order
  - No online videos or demonstration
- Written:
  - Use a notebook with a stitched binding
  - Do not use loose leaf or spiral bound notebook
  - Pages cannot be substituted or deleted/removed

# Electronic/Online Engineering Log

- Examples

- Electronic: by Team#2 Pyschotic Strawberryz.

- [http://www.usfirst.org/uploadedFiles/Community/FTC/Team\\_Resources/FTC\\_RES\\_PS\\_EngNotebook.pdf](http://www.usfirst.org/uploadedFiles/Community/FTC/Team_Resources/FTC_RES_PS_EngNotebook.pdf)

- Online: by Team#2848 Technoguards

- <http://www.ftcengineering.org>

- website that lets you develop engineering log online. Check it out!

# Online Engineering Log Website

## FTC Team Engineering Logs

Techno Guards Engineering Log

My groups

Welcome Karl

FTC2848

Select team number

FTC2848

Create Log Entry

Shout box

5 members

Manager: Alan

My membership

Web Site

Log Out

Join a team

Home » Groups » FTC2848

9/19/2010 -- The Basic Robot Idea -- DONE!

View Edit Revisions

Log Entry 9/19/2010 -- The Basic Robot Idea -- DONE! has been updated.

Meeting Date:

Sun, 09/19/2010

Personnel Present:

Karl, Chris, Al, Gavin, Alan

Tasks This Meeting:

Finalize the robotic arm idea

Build some field elements

prototype the axle to axle motor drive

build differential gears from bent aluminum

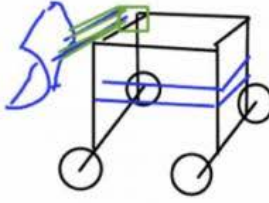
finish Flux Capacitor sensor for HiTechnic Prototype Board

Reflections:

The Flux Capacitor will take more time than we have to perfect... hopefully it will be sort-of working soon, then we'll have all the time we need!

Most of the meeting was spent building the blue dispensers and finishing the mountain. One those were done, we put some of the ideas that we've had down on paper (well, OK, we used my iPad).

So far, our best idea is a robot that's pretty simple... (Actually, it's kinda like the one we used for Face Off! a couple years ago.) 🤖



Al worked more on CAD and istrying to take the ideas that we all came up with to computer.

Gavin is still fixated on the Flux Capacitor Sensor... He figures that if he can get time travel to work we will have a lot more autonomous time than even the 40 seconds allowed this year.

Add new comment

Printer-friendly version

Posted September 30th, 2010 by Karl

Team Shout

Shout

Karl LaWin: Great start to a fun season! 24 min 23 sec ago

All shouts

Recent members

Alan admin

Karl

Chris

Alejandro

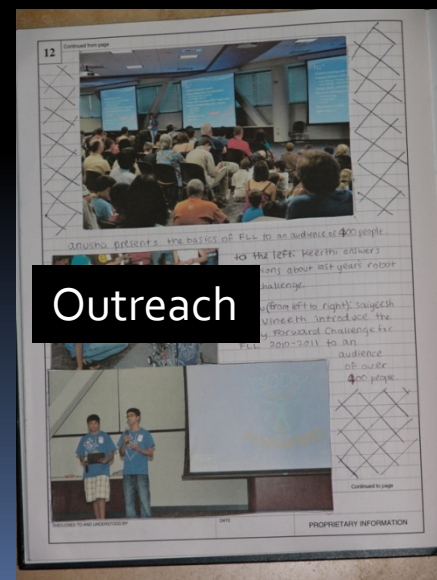
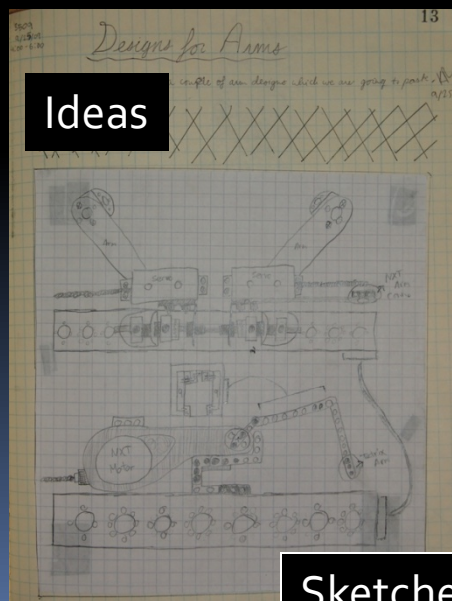
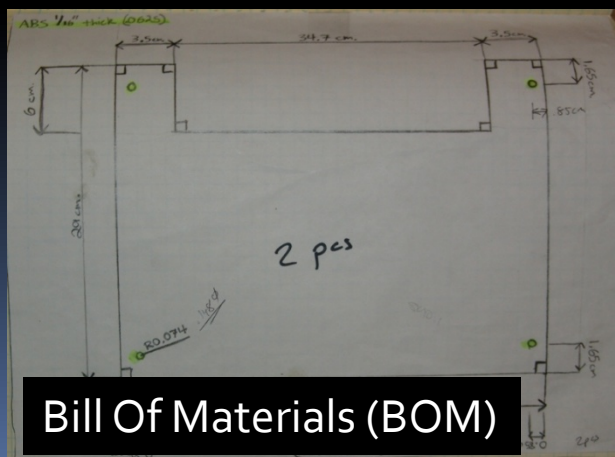
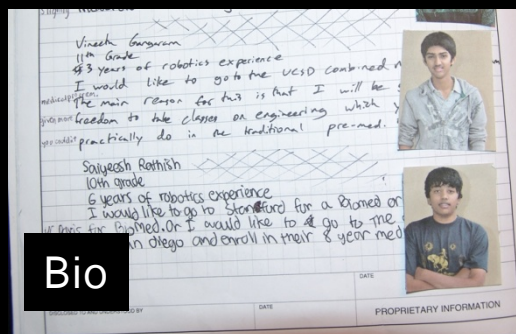
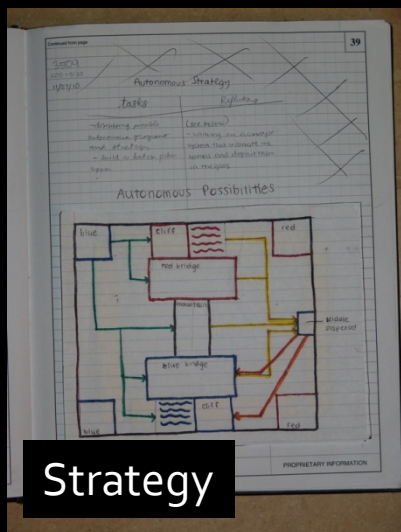
Gavin

Techno Guards Engineering Log - Powered by WordPress - Managed by FTC2848 Techno Guards

# How? The Guidelines

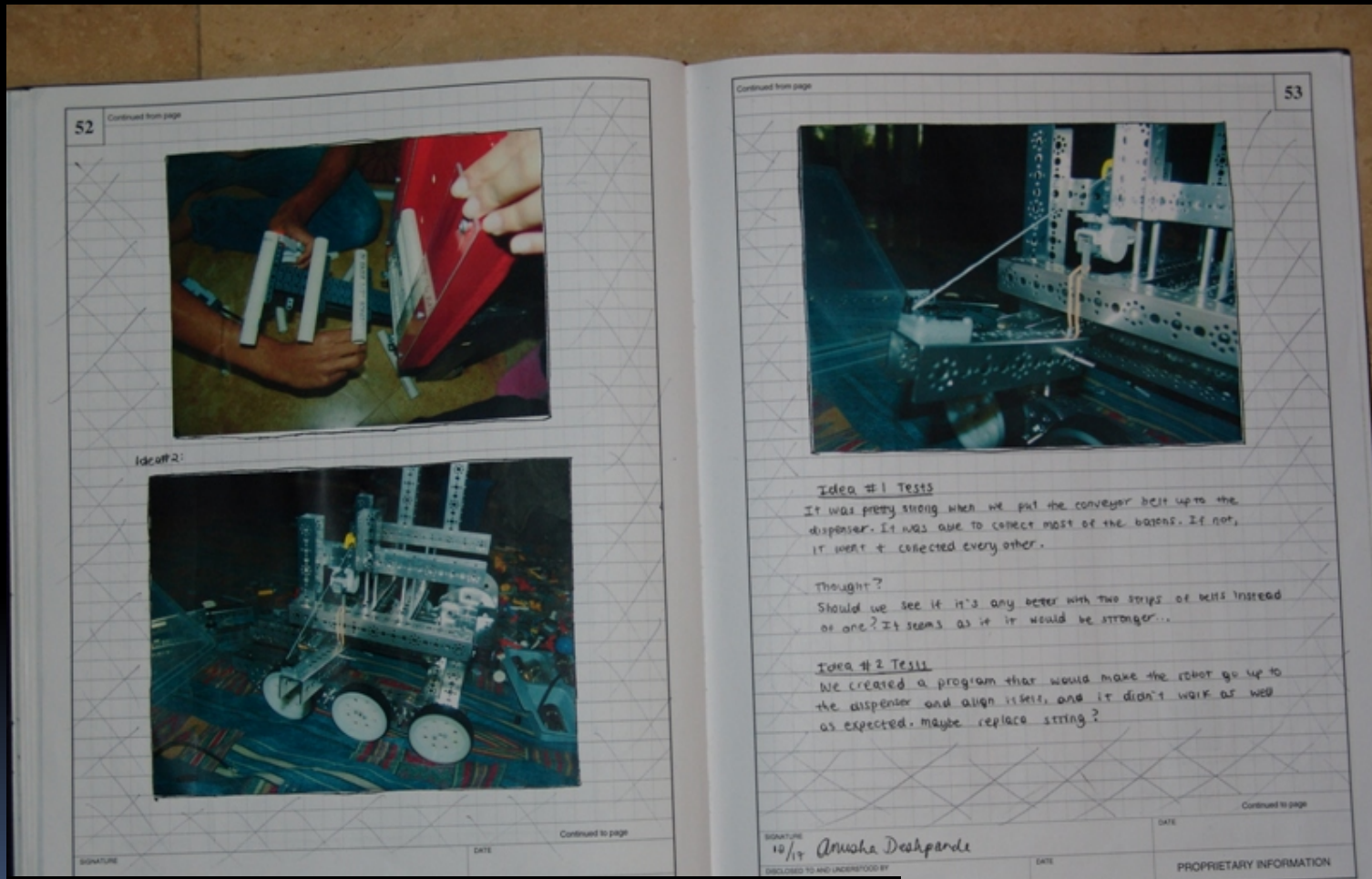
- Document EVERYTHING !!!
- An outsider should understand your team and your journey.
- Write in **Permanent Ink – not a Pencil**
- In case of an error, draw a single line through the incorrect data
  - Do not erase or use correction fluid
  - Initial and date the corrections
- To insert pictures, tape the picture and outline with permanent ink
- Use both sides of a page. X out any unused space

1111





# Sample Notebook Pages




Pictures taped and outlined with permanent ink

Both sides are used and unused space is crossed out



# How? Guidelines for a Page

- Start a fresh page at every meeting.
    - Your team number, date, and start/stop times should be recorded when starting a new page.
  - Each day should start with two columns:
    - Task Column – What your team is doing and discovering?
    - Reflection Columns – Where your team records thoughts on what is happening and any questions that need to be answered.
  - Entries should be made by every team member, initialed, and dated.
- 



# Sample Notebook Pages

Starting a new page with team number, date and start/stop time

Continued from page 5

6 3509  
8/20/10  
4:00-6:00

Tasks	Reflections
<ul style="list-style-type: none"> <li>Setup of Kickoff</li> <li>Create Chassis of the arm</li> </ul>	<ul style="list-style-type: none"> <li>We decide what type of workshops booths we wanted to do.</li> <li>- FTC</li> <li>- FII</li> <li>- FRC</li> </ul>

polycarbonate for baton holder

The arm collects the 15 batons then extends out of the robot and dumps the batons in the rolling goal.  
The arm is very extendable because it can reach each goal without moving the robot a lot.

Continued to page

SIGNATURE: SR. 8/20

DATE

DISCLOSED TO AND UNDERSTOOD BY

DATE

PROPRIETARY INFORMATION

Each Day should start With two columns

21 3509  
9/26/10  
2:00-5:00

Tasks	Reflections
1. Design dispenser and scoring objects to meeting	1. Milun's dad brought it over from his house
2. Brainstorm robot ideas with newly made field elements	2. decided that we were not going to go over the mountain, but would go on the bridge
3. <del>AD 9/26</del> work on baton dumper	3. only decided that it should be a funnel-shape and that we should use servo motor (3 different joints)
4. Set up Samantha Module	4. Got Samantha Module <del>AD</del> set up until we messed up the numbers and had to start over.

SIGNATURE: AD 9/26

DATE

DISCLOSED TO AND UNDERSTOOD BY

DATE

PROPRIETARY INFORMATION

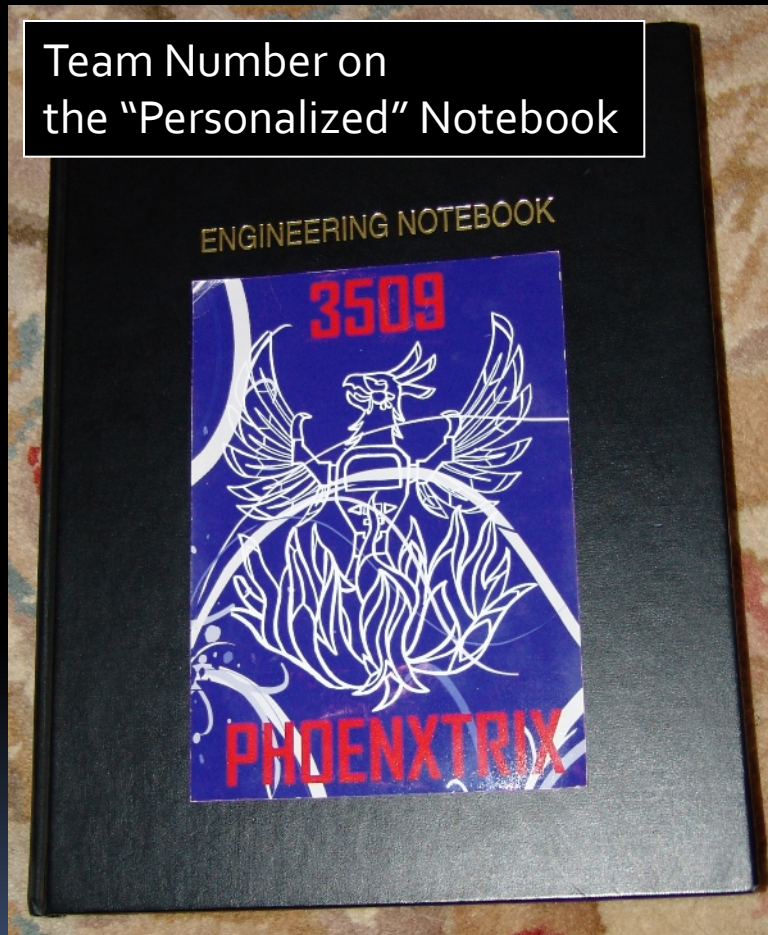
Entries initialed and dated

# How? Tips and Tricks

- Make sure you have your team number on the notebook
- Start your notebook by introducing each team member with a brief biography and reasons for joining your team
  - *Tip: Pictures along with the bios would serve as a great visual for the judges to get to know each member of your team.*
- All designs and changes to your robot should be recorded directly into your notebook. The inclusion of all elaborate details and sketches are preferable. Notes and calculations should be done in your notebook, **NOT** on loose paper.
  - *Tip: A judging panel is always interested to see a unique design or playing strategy. On the other hand, a design without the substance to support its reasoning will not be viewed as highly.*
  - *Tip: Pictures or sketches of your robot designs are recommended as part of a thorough documentation.*

# Sample Notebook Pages

Team Number on  
the "Personalized" Notebook



Short Bio with Pictures

Vineeth Gargam  
11th Grade  
3 years of robotics experience  
I would like to go to the UCSD combined  
medical program. The main reason for this is that I will be  
given more freedom to take classes on engineering which  
you couldn't practically do in a traditional pre-med.


Saiyeesh Rathish  
10th grade  
6 years of robotics experience  
I would like to go to Stanford for a Biomed or  
UC Davis for Biomed. Or I would like to go to the  
University of San Diego and enroll in their 8 year med  
program.

DATE

PROPRIETARY INFORMATION



# How? Judge's Tips

- Every notebook is a work in progress, forever changing and developing. Judges do not want to see a “final” copy notebook; they want the real thing complete with misspellings, stains, worn edges and wrinkled pages. Just remember to keep it real!
  - When turning notebooks into the judges, place sticky tabs at the top of the page on your top 6 to 12 best moments as a team. Judges will use these pages as their preliminary review of your notebook.
  - Don't be afraid to customize your Engineering Notebook to reflect your team's personality!
- 




# For Inspection and Judging

## Rule <R6>

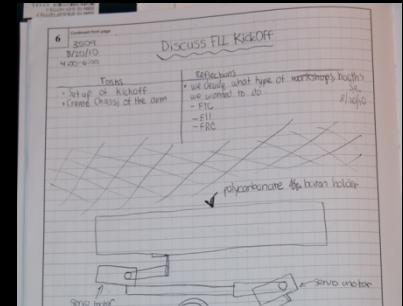
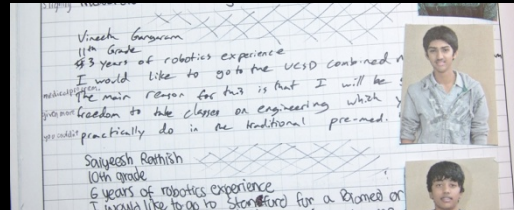
- All parts listed in <R5>c that have a maximum constraint and that are used on the robot must be tracked on a Bill Of Materials (BOM).
- This list must be submitted at inspection and a copy should be included in your Engineering Notebook.



# Summary

- Engineering Notebook is a critical element for your team
  - If you do not submit an Engineering Notebook, you may not be eligible for judged awards
  - Engineering Notebook documents your team's journey and it's an excellent way to look back at your season
- 

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_



Any questions?

## Pictures

## Outreach

# Sketches

