

Rookie Conference Call #7

Week 4 – JAN 30 – FEB 4: fabrication and assembly

This week goals:

- Robot should be moving by now
- Continue build and assembly
- Bumpers – begin construction soon
- Programmers – continue development
- Drive team selection ... might want to consider it now

Bumper Tips

- Bumper instructions and segment layout examples are located on AndyMark in same place you ordered the bumpers
- Bumper Segment Example Layout - <http://files.andymark.com/37-bumper.pdf>
- Sample Board Layout and Hole Spacing <http://files.andymark.com/37-board.pdf>
- **Don't forget – you need 2 colors (red and blue)!**
- **Team 2809, KBotics, posted a white paper on how to make reversible bumpers – may be worth looking at!**
- K-Botics 2809 Reversible Bumpers White Paper - <http://www.chiefdelphi.com/media/papers/2437>
- Use the bumpers to keep your center of gravity low and make sure your bumpers weigh the full 20 pounds

Bumpers, balls and barriers:

- Bumpers can be at different heights – you don't need to keep the same level all the way around
- Start testing your bumpers out with the balls – they may go under bumpers – have a back up plan
- If you are going over the barrier and land on a ball, be careful or you could get a penalty for possession for too many balls (if you already had 3)

Balls:

- New balls versus old – run some tests
 - New balls need more compression - old do not
 - New balls are lighter than old balls –
 - Once the seal on the ball breaks, the balls really react differently – test, test, test!

- Get some new ones - keep away from robot then rotate in
- When they are “chunked”, they will be replaced on the field
- Prediction: “Einstein” will have all new balls ...
- Calibration needs to be done with dead balls
- Could make different settings if there are new balls
- Just be AWARE that the balls act differently

Programming

- A great set of labview tutorials on video: www.FRCMastery.com
- While testing auton - start small
- Make sure you have a plan B - try other things – especially if your partners can only do one thing – you will need a plan B
- Main auton make sure that your sensors are always set to zero
- Not only set the sensors to zero, but be careful on how you put the robot on the field. If you move it around front and back, it can mess up your zeros
- Use the camera to let you know that you are “on target”
- Your robot must touch the key - breaking the plane does not count
- Avoid program killing mistakes – test the code EACH time after you change the program

Robot Durability

- Going over the barrier is REALLY going to shake things up
- Use nylon lock-nut or Loctite
- Every component REALLY needs to be tested after each match
- You might want to have a “Pit check list” to guarantee that all is good with your robot

Q: We are having trouble saving the program. What do we do?

A: It could possibly be from the 2 kinds of deployment

- Be sure you’re doing “full deployment” to save for next time - “full deployment” package - Labview tells the CRio to remember this next time for reboot
- Can take 5-7 minutes
- Know how much time you have between matches - Be sure to plan for this 5-7 minutes to download before you go to your match!!!
- Use the “quick deployment” just to test if code is working
- Then save in “full deployment” if code is right, and test again in “full deployment” to make sure it saved
- Test before you go to match to make sure it worked

- AGAIN – give yourself ENOUGH time for full deployment at the competition.
- NOTE: Don't forget to go to the website to check updates: Control Systems – Kit of Parts

Q: *Can you clarify the rule on lining up your robot on the field?*

A: Per the rules, when you go onto the field you cannot take any props to align your robot (ie triangle, measuring tape, laser pointer, etc.). Having said that ...

- This is a very important consideration for consistency in setting up your robot and accuracy for your auton
- You can use your hands, feet, etc. to align your robot
- You can also use line following and ultrasonic sensor to really know where your robot starts at the beginning of auton
- SUGGESTION: Your first time at auton, do not start it in full speed; start small to see where you're at and then increase speed throughout tournament; starting at full speed could really harm your robot if something goes wrong
- Velcro your controls to the player station – if a team runs into the wall, it can knock off your controls!

Size and weight of robot should be seriously looked at NOW

Q: *How do you weigh it when it's this big?*

A: Can use wrestling/athletic scale – get the athletics teams involved/interested in why you may need their scale!

- Put plywood platform on scale, zero it out, and then weigh the robot
- Be sure you are using an accurate scale! Important for going to competition!
- Also double check your size constraints – it MUST fit in the box or you don't go on the field

Robot Transportation (Cart)

- Get/build a cart to transport the robot (simple is good)
- Can use a garden cart from Home Depot
- Can use a Carpet cart
- Make sure it has good, sturdy wheels and is easy to pull
- Make sure your robot can sit on cart without wheels touching so you can test the program in air without having it on the ground

Sponsor Recognition

Q: What do I need to do to make sure sponsors are recognized?

A: Be sure to update TIMS on FIRST so sponsors are recognized during announcement of team at competition

- Be sure they are recognized on the t-shirt
- Update on website and all other publications (create a poster-board or sign that thanks sponsors to put in pit at competition)

Q: How to keep sponsors abreast of status:

A: Here are some ideas - send out newsletter/pictures of robot/team progress to sponsors/school administration

- Send out weekly videos/interactive newsletter
- Invite sponsors to team meetings/shop to see what the team is doing/progress
- Invite them to all competitions and events!
- At competitions, give sponsors “VIP pit pass” to feel important
- Utilize JCP connection – maybe have a wall in a store highlighting team?
- Include sponsor names, etc. in newsletters, website and newspaper articles
- Continue other business processes

Competition Arrangements

Hotel

- Need to start calling NOW for hotels if you haven't already
- MI State Tournament – other major competitions are in the area the same time, so a lot of hotels are getting full
- Probably don't need to put money down yet so you can at least make a reservation and cancel if you don't qualify for States
- Utilize parents to help with this!
- If you're staying more than an hour away, seriously consider getting a hotel, especially in case of inclement weather
- Staying in a hotel is a great way to increase team bonding and planning for the tournament!

Uniforms - discussed last week (for more thorough notes)

Get this rolling – you are running out of time!

Give t-shirt company at least a week

Start collecting shirt sizes for order - get samples for members to try on if possible

Scouting plans - discussed last week (for more thorough notes)

Establish what do you want to know?

What are you going to do with the data?

ipads? Database? Spreadsheet?

Is there a veteran team that may work with you? ASK!

Awards

- **Awards are due the Thursday BEFORE robot is shipped (Feb. 16th)** – Website, Dean's List, Chairman's
- You do not have to submit Chairman's in order to submit Rookie All-star
- Good practice to submit online and continuously improve year after year
- Read award criteria and promote teams strengths based on those criteria
- More info on these awards in last week's minutes

Website

- Team Websites – you can do it!
- Check with school/teacher – may have ability to host a website
- Great communication tool with team, parents, sponsors
- Can post team documents (ie permission slips, calendars, etc.)
- Put link to sponsors
- Have “in the news” section for articles about the team
- Great opportunity for students to learn!

Periodically check FIRST calendar for due dates