For Thursday, November 21, here are my suggestions on how the FTC robotics class might run.

Please bring a digital camera and photograph all notes on the white board.

Debbie Boyer will bring the robot parts and supplies to the coop sometime during the day on Thursday. Could you possibly drop the equipment off at my house on your way home at 6353 Merritt? I’d like to see the progress and have it to plan for the next week.

During class, I record class discussion, decisions, ideas (including ones that don’t fit the current discussion) on the white board. Then I photograph the board for inclusion in the Engineering Notebook. Try to make it clear what question or issue is being discussed and what ideas were considered and what conclusion is reached and why.

1. We have purchased a book called *FTC Robotics: Tips, Tricks, Strategies, and Secrets: 2013-14 Edition*, which we are passing around and having each student select a tip to discuss in class.
   1. Luke will be presenting this week. Each week a student will take the book home for the week and pick a tip or idea.
   2. The student will explain the idea to the class. (Class listens to the presenter, except perhaps to seek clarification. I suggest coach take notes on the white board because this can be difficult for the student to manage while presenting the ideas.)
   3. Then he will make a suggestion for us. What will we do, based on this input? (Although this will transition into discussion with the whole class, they should hear out the presenter’s suggestion. Coach records notes on the white board.)
   4. Then the class will discuss and decide how we apply the idea presented. (Coach should facilitate discussion, encourage presenter to defend, elaborate or modify his suggestion, draw out pros and cons, and have the class work toward consensus. Keep track of everything on the white boards, then photograph the board before erasing.)
   5. (Last week Aidan presented tip that four-wheel drive has advantages. We decided to act on this tip by purchasing additional hardware and modifying our robot to implement four-wheel drive.)
2. I’d like to have the class work on two aspects of the robot. I usually have them split into two groups according to their choice. Take photographs of students working, and of the design process and decisions. Especially, be sure to photograph any assembly ideas that do not get built or fastened together; that will help to make it possible to pick up next time where we leave off.
   1. The drive motors need attaching to the base. I think it will be clear how to do this with the new four-wheel drive design, since we had decided how to do it with two-wheel drive, but needed some holes drilled. I’ll try to have the holes drilled so assembly can proceed.
   2. On the arm the gear attached to the motor shaft needs to be more stable in its position to keep meshing with the large gear. Work on bracing the motor or altering how it attaches to the arm so the gear on the shaft is held securely meshed with the large gear.
   3. When done, pack the parts in the boxes with the newly assembled parts in as well as possible.