

Team Finesse
ME218B: Shiny Pearls of Wisdom

1. Preliminary specification is good, but design with flexibility to access and change hardware components through the final iteration.
2. Write pseudo-code and your software module structure well in advance of implementing your code, even though the specifics will change.
3. An approximate order of things should be:
 - a. Figure out your circuits and wire them up on a breadboard
 - b. Assemble a very rough prototype with approximate dimensions in mind and try out your circuits and subsystems with test software code- don't worry about driving your motors, just push the robot around on the board
 - c. Then design a more involved hardware prototype and build your software up in parallel
 - d. Finally implement extensive motor timing/encoder testing to benchmark required speed/time/distance
 - e. Put it all together
4. Leave unfettered access to the microcontroller boards and electrical wiring.
5. Purchase extra batteries and ensure testing with decently charged batteries.
6. Approve your schematics with someone who has an idea of what your circuits will do before you begin soldering and hiding your perf boards deep inside your robot.
7. At the very beginning of the project assemble a kit with the following tools and materials (having these available will save you the time of scouring the very messy and busy SPDL):
 - a. multimeter (an inexpensive one is fine)
 - b. hacksaw
 - c. hot glue gun and glue sticks
 - d. electrical tape
 - e. ruler
 - f. wire cutters and wire strippers
 - g. Phillips and flat head screw drivers
 - h. exacto knife and spare blades
 - i. scissors
 - j. duct tape
8. Buy your components with the knowledge that some will get trashed, fried, or unexpectedly fade into the dark- i.e. get extras of everything.
9. Write test-code for every hardware subsystem and test that subsystem right after it's hooked up.