

# ENGR 3430: Final Project Proposal

due March 14, 2019

For your final project, you will be working in teams of two or three to design an electronic system of your own choosing. The final project must involve designing, assembling, and testing a PCB that you have designed. Your board must incorporate a microcontroller running code interacting with other components to perform some function that you specify. It must be at least as complex as Miniproject 3. You are welcome to use Miniproject 3 as a starting point for your design or you could use a microcontroller with more computational resources, if you feel that your project needs it. Your board may be a stand-alone embedded system or it could interact with a host computing system of some kind (e.g., it could be a hat for a Raspberry Pi or it could be a peripheral that communicates with a host via USB or some kind of wireless communication link). Your PCBs can either be two-layer or four-layer boards, up to  $100\text{ mm} \times 100\text{ mm}$  on a side. They must adhere to the same design rules as your Miniproject 1 and 3 designs. You may spend up to \$300 from the class budget to cover the cost of your projects, including PCB fabrication, electronic components, shipping costs, and any prototyping supplies you may need. A two-layer board costs \$5 for ten copies plus \$17 for shipping and takes 1 to 2 days to manufacture and 3 to 5 days to ship. A four-layer board costs \$49 for ten copies plus \$17 for shipping and takes 4 to 5 days to manufacture and 3 to 5 days to ship.

**Timeline.** Each group will be responsible to set the schedule for the major milestones for their projects with the following common boundary conditions:

1. Proposal due by the end of class on Thursday, March 14.
2. Last day to submit a PCB for fabrication is Thursday, April 25.
3. Last day of class is Thursday, May 2.
4. Final report due and Demo Day, Tuesday, May 7 from 9-11am.

**Deliverable.** By the end of class on March 14, you must turn in a brief proposal addressing the following questions:

1. Who is on your team?
2. What do you plan to build for your final project? What will it do? What are its features?
3. What type of microcontroller do you think is appropriate for your project?