

Preliminary Project Proposal
ENGN/PHYS 208—Winter 2021
Due: Friday, 29 Jan, 4pm

Project Background/Context

The purpose of the preliminary project proposal is to stimulate your thinking about specific projects for your Electronics design project. You should provide enough context/information such that it is possible to gauge the feasibility of the scope and nature of the project. As such, you aren't asked to know every last detail, but the more information you can provide, the better.

Students will collaborate in *teams of 3-4*, where possible. It is entirely permissible—encouraged, in fact—for multiple teams to pursue the same project. Each team will receive a **budget of \approx \$150**; we have \$750 budget for the class (our collective thanks to funding from the Dean's Office!). The choice of topics is wide open, so long as it *addresses a real-world problem*. You may build a novel device or one that improves upon an existing device (open-source versions of existing commercial hardware are often highly desirable and doable). Good projects should be both ambitious and achievable. In case you are in need of a bit of inspiration, various seed ideas can be found on pages 2-3 of the Electronics—what we'll do/study document posted to the course website. There are many possibilities, let the creative juices flow!

Project Outlines

Please describe **at least two** potential projects. For each, please do the following:

- Provide a brief (approximately 1 paragraph) description of the nature of the project. What do you want to build and why? What is the real-world application?
- Identify (at least) 2 relevant sources related to your proposed project. These could be journal articles, science/engineering news stories, schematics from existing designs.
- Make a (preliminary) bill of materials (BoM): What do you need to design, build, and test your electronics system? Think about sensors (e.g., pressure, temp, distance, accelerometers), microcontroller (e.g. Arduino, Teensy, Adafruit Feather, etc.), communication devices, (Bluetooth, Wifi), visual displays (LCD, TFT display), actuation (motors, pumps), and power sources (battery, wall power adapters). Also list any necessary mechanical components/housing. Do you need any special materials? Be sure to include potential vendors of equipment, where possible. Definitely check out Adafruit and Sparkfun for parts—they make sophisticated electronics projects possible!
- Identify any major pieces of laboratory equipment you may need for testing. This could be electronics (e.g. Picoscope, digital multimeter) or simple mechanical rigs (e.g. a bucket and stop watch if you want to see how much fluid a hydroponic garden can pump). For each one, specify whether it exists on campus or your current locale.