

PCB Design & Manufacturing DIY Project

Description: Now that you've completed both the Intro to Electronics and PCB Design & Manufacturing modules, it's time to design and create a unique project. You can create anything you choose as long as it satisfies the requirements listed below.

This is your time to create! Have fun with it.

Requirements: For this module, the project requirements include:

- The PCB must be modeled in a design software (Fritzing, Eagle, etc.)—both a regular circuit schematic and a PCB layout.
- You must use either a desktop milling machine or the Voltera.
- The result should serve some sort of function. For example, you could create a PCB that acts as a motion-activated light. It should have both a sensor and some sort of actuator (LED, fan, motor, etc.).
- Your PCB must include a complete and descriptive silkscreen.

If you have questions on your design, attend a Project Support Session in the Makerspace or ask an instructor. You should still check the grading rubric below to make sure your work covers those aspects, as well.

Deliverables: When finished with the project, submit the schematic and PCB layout file on Canvas along with a picture of the PCB and a video of the completed project (include as many angles/narration as necessary to demonstrate its functionality, features, etc.). For this module, you must include a short description of its purpose (200 words or less).

Grading: You will be graded as followed.

	1 pt	2 pts	3 pts
Creativity	Very simple design that requires no thought		Unique/useful implementation of the learned skills

Silkscreen	Not complete (0 pts). Attempted (1 pt).	Only partially descriptive.	Complete and high-quality silkscreen. Intuitive and sufficiently descriptive.
	0 pts ←→ 10 pts		
Design	The design does not include both required element and/or the design does not function. The PCB layout was done poorly (angled or crossing traces, excess traces).		Uses both a sensor and actuator with a connected purpose.
Milling/Soldering	The board was milled and soldered very poorly. Does not work.		The PCB functions as intended. Milling and soldering were done well.

The Makerspace has three books on the bookshelf next to the checkout window with non-microcontroller circuits. Check them out for ideas!

- Timer, Op Amp & Optoelectronic Circuits & Projects
- Electronic Sensor Circuits & Projects
- Science & Communication Circuits & Projects