

TEJ4M – ‘Mini Summatives’

You have been working exceptionally well on your projects this semester, but in order to determine your final mark, individual assessments are necessary. You will be given a final assignment for each of our main three project types: 3D CAD modeling, Arduino Coding / breadboarding, and KiCAD PCB modeling.

3D CAD Modeling (Solidworks):

- You will model one of three shapes all provided:
 - o Plastic net hook
 - o Stubby wrench
 - o Easy Button (including top text and bottom features, but not including battery compartment)
- You are expected to determine appropriate dimensions yourself.
- Your product should identically match the physical model.
- You will submit your final SLDPRT model file.

Arduino Coding / Breadboarding

- You will be provided a demonstration circuit.
- Your mission is to recreate the functionality of the existing demonstration circuit BY INSPECTION (meaning, you will have to take the time to evaluate how the demonstration circuit works, and recreate both its functionality and wiring)
- You will submit your final “ino” code file.

KiCAD PCB modeling

- In order to have the correct components, start with the provided template.
- You are tasked with creating a full traffic light system
 - o 3 lights: Red, Yellow, Green in each of the compass directions (N, E, S, W)
 - o Two buttons for use in traffic control
 - o The final circuit board should be laid out in an appropriate way to graphically demonstrate the traffic light.
- Assume you are simply wiring the LED controls to an Arduino through headers (your schematic should simply connect the LEDs to header pins)
- You are expected to expend some effort in making the circuit aesthetically pleasing and well laid out.
- You will submit your entire project directory, zipped.