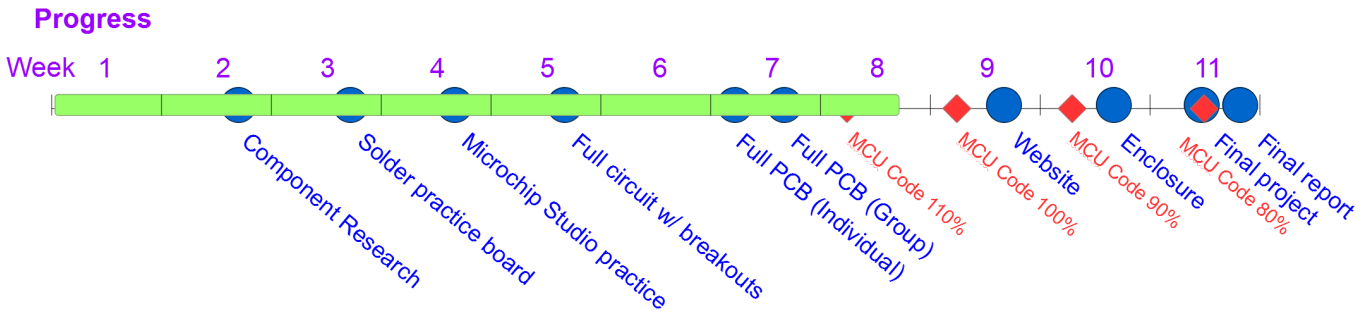
EE 326: Electronic System Design 1

Task 7: 3D Printing

Due: Mar 13, 2025



Please complete this assignment with your group. To get credit for your work, please upload the following to Canvas.
1) Your `.stl` files (enclosure and PCB).
2) A photograph of your enclosure, specified below.
3) In the comments, please provide a shared link to your Onshape document.

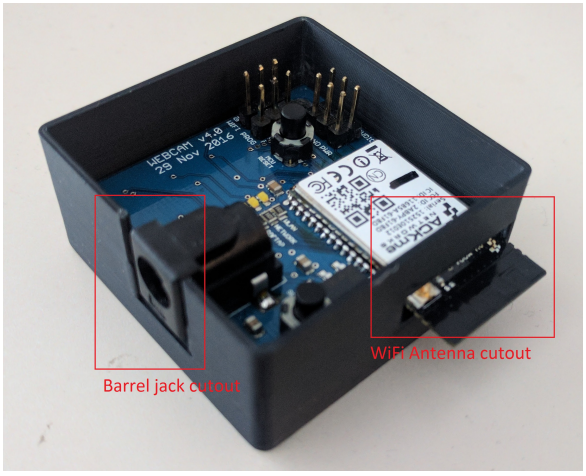
For your project enclosure, please use Onshape and follow these specifications. Altogether, you will design a project enclosure, a 3D model of your populated PCB, and an assembly putting it all together. **Don't forget to include a shared link to your document in your submission (instructions below).**

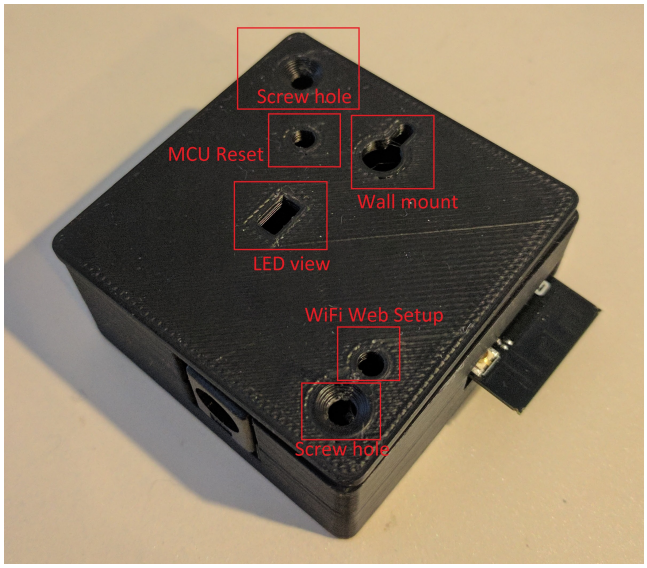
- Enclosure
  - All walls must be at least 1mm thick.
  - The box must be closed from all sides.
  - All structures on the PCB must be supported. In other words, if I shake the box, nothing should move.
  - There must be a cutout for the camera.
  - There must be a cutout for the power supply (barrel jack).
  - There must be small holes to access the MCU Reset and WiFi Provision buttons. These should be able to be pressed with a pin.
  - There must be small holes to view the indicator LEDs.
  - There must be a small hole to view the power LED.
  - There must be some way to mount the box on a wall (with the camera facing forward and oriented correctly, so that the video stream is upright).
- PCB
  - For reference, your PCB is 1.6mm thick.
  - For all other components, please use Eagle to get dimensions to create the model.
  - You don't have to include every little component (e.g. capacitors and resistors), but make sure to include at least the camera, WiFi module, barrel jack, MCU reset and WiFi provision push-buttons, indicator LEDs, and standoff holes (basically all things that either interface with the enclosure or that the user will interact with).
- Assembly
  - Use appropriate mates on your components, depending on how your enclosure works. Use appropriate limits to make it realistic (e.g. enclosure lid should not be able to go through the enclosure).
  - Make sure everything fits together allowing proper access to the PCB.
    - LEDs should be visible from their holes.

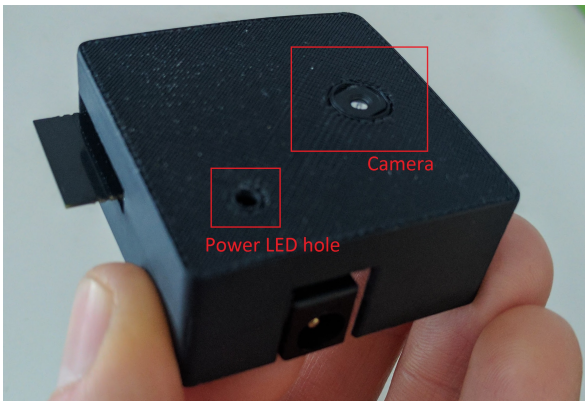
* Buttons should be pressable from their holes.
* Camera lens should be lined up with its hole.
* Barrel jack should be accessible from outside.

After you have designed everything, export your enclosure (including the PCB model) as STL files and submit these on Canvas. Your physical enclosure can be printed on any of our (or external) 3D printers. As part of your submission, take a photo of the camera inside the enclosure, both with the cover open and closed (similar to below, but you don't have to label anything).

Some examples of a completed enclosure are shown below.







FAQ

Q. How do you share a link to the Onshape document?

A. To find the Onshape link to submit with your assignment, click on “Share” in the top right corner, then click on “Link sharing” in the tabs, and click “Turn on link sharing”. This should then give you a link that you can copy into your submission.