# Midterm 1 – Smart Room Controller:

Desired goals:

* Have the Hue lights change color on a scale of blue to red based on temperature. This should be easy because I already have code that can be quickly adapted for this.
* Use the Wemo outlets to turn on a fan.
  + The fan will turn on if the temperature goes over 75ºF.
* The OLED will display the currently playing song, the current and total time in the song, and the current temperature.
* The music will automatically turn on when I sit at my spot in the room and turn off when I leave my spot for too long. This will use the ultrasonic sensor.
  + There will be 2 automatic modes with different playlists. The first mode will play classical music quietly, the second mode will play metal (reasonably) loudly.
  + Moving away from my spot will automatically turn the playlist to quiet mode.
  + The speaker will turn off if I’m away from my desk for more than 5 minutes.
* The manual controller will be a 3D printed enclosure with the speaker, sensors, buttons and breadboard installed.
  + The OLED will be near the center of the enclosure.
  + Neopixels will be in the enclosure to display volume with the number of lights enabled and temperature with the color.
  + An encoder will be used to control the volume and will change color depending on the current playlist.
  + A button to toggle modes. The encoder will be used for this.
* A lasercut and etched plaque for the encloser.

Stretch goals:

* Extra buttons to control the songs.

AnticipatedComponents:

* An mp3 player.
* A speaker to mount in the enclosure.
* A BME to get temperature.
* An ultrasonic sensor to sense when I’m sitting in my chair.
* An OLED to display temperature and song info.
* The neopixel ring to display the volume in increments.
* An RBG encoder for volume.
* 4 buttons for power, playlist swaps, wemos, and huebulbs. The encoder counts as a button.
* Filament to make the enclosure out of.
* Wood to make a plaque from.

Concerns and Consideration

* I need to get timers to finally click for me. I’m still having issues with them.
* I need to make an appointment for the laser cutter.

Notes:

* Discuss with at minimum Johnathan, Joshua, and either Ana Chavez or Charles Call.
* Use the laser cutter to make a plaque.
* Keep many notes and pictures to upload to hacker.io and github.
* Don’t forget the presentation! Write a script beforehand so I have an idea of how I want my presentation to go.
* I have the first draft of the fritzing and schematics ready. I need to redo this slightly to make room for the ultrasonic sensor, MP3 player, and speaker.
* I’ll use 2 or more arrays with the songs for each playlist in each array. Swapping playlists will be done with code.