#### Dev Shah

#### WEEK 5:

**Date:** 2/11/22  
**Total hours:** 7  
**Description of design efforts:**  
This week consisted primarily of developing the software that will be used for the project. We had originally planned on using MicroPython to program our ESP32. However, because we were told not to use this for the final project, we switched to using ESP-IDF. Because of this, I worked on setting up a workspace and learned how to program our microcontroller. I was able to learn how to toggle on/off LEDs using the GPIO pins and a timer, and how to create an interrupt to toggle an LED when a button is pressed and print "Alert!" to the terminal. One issue we found was the button sometimes registers multiple presses even though it was pressed once. Video 5.1 shows the green LED toggling on/off every second, and the red LED toggling when the button is pressed.

<https://engineering.purdue.edu/477grp19/Team/progress/img/shah5.1.mp4>

Video 5.1

Another task I programmed this week was the ability to read the voltage values coming from the pulse sensor and ADC pin. This feature is able to change how often the program reads the values using a delay that is specified in the code. Video 5.2 shows the voltages values that are being read from the sensor when attached to an index finger. This is being done 5 times each second, but for more accurate results, the values should be read quicker.

<https://engineering.purdue.edu/477grp19/Team/progress/img/shah5.2.mp4>

Video 5.2

Also this week, I removed the MicroPython Reference Guide from the References page and completed the Pulse Sensor and LoRa sections of the Component Analysis.