**Github:**

* Github.com/AnthonyYos/IoT
* github.com/aaackc
* github.com/s0720bae
* github.com/Alshaikh1abbas

**Video:**

<https://www.youtube.com/watch?v=bLzQR3dirOk&app=desktop>

**Introduction:**

The goal of ICP2 was to read a heart beat and transmit over Wi-fi to thingspeak using their API, for graphical visualization.

**Approaches/ Methods:**

* First we needed to correctly wire the lcd to the Arduino and display a message to confirm the connections were correct, then display heartbeat of an individual onto the screen.
* Second we had to create a connection via Wi-Fi between the Arduino and thingspeak using an API.
* Last we connected LEDs that would light within certain bpm ranges.

**Workflow:**

First we connected both the lcd and heartbeat monitor through trial and error. After getting the correct connections. Wi-Fi connection was made through a hotspot, after which we used the thingspeak API to transmit data into a channel. Last we integrated ICP1 to light an LED to correspond with certain bpm values.

**Circuit Diagram:**

**Parameters:**

* LCD prints Group 1 on setup
* Wi-fi was changed to connect to a specific hotspot, and use a thingspeak write API key
* We added code for LEDs to light when certain bpm values are reached, (bpm>170 = red light), (bpm<100 = green light)
* Coded added for ICP bonus.

**Evaluation & Discussion:**

There were some confusions on how the lcd was supposed to be wired, and there were major difficulties in both wiring and connecting to the esp Wi-Fi module. After some assistance with the wiring we spent a considerable amount of time troubleshooting the connection error, only to learn that it were three lines of code missing. The applicable uses we saw were transmitting a patients bpm for observation, to see if its stable and erratic.

**Conclusion:**

Most of our difficulties and time wasted came from troubleshooting the esp Wi-fi model. We were however able to successful see how data can be transmit to a third party through an internet connection and API usage. Applicable uses a of this can be seen in health, sport, etc.