**What** is the problem, **Why** that is a problem, **How** are your planning on solving, or **How** you solved it.

Due Sunday 10/17/2021

Class Week 9

Journal #3

Recounting:

I failed to read and consider the feedback given back on journal entry #1. This will recount it and bring it all up to speed. Our project is smart parking. The general idea is to give the user information on open parking spots through a iOS app (since this is what the CS team wants to focus on app-wise). As part of the hardware part of the team, we’ve been looking at the main solutions of creating the sensor package and came up with these choices of hardware: Ardunio MKR WAN 1310, Adafruit VL53L0X (Time of Flight Sensor), and a 3-Axis magnetometer that uses the sensor QMC5883L. This package will be installed in every parking spot.

We are using the Arudino specifically to connect to the LoRa WAN network (the main reason to attempt to receive Service Learning Credit). The 2 sensors mentioned are what our team came to a consensus on in terms of detecting a vehicle in a parking spot or not.

Based on paper specifications, the energy usage looks fine (as low as 114uA up to 161mA). Based on a 10,000 mAh battery, the worst case scenario (24hrs/7days), this package could consume 3,336 mAh in 24 hours, which would deplete that battery in 2.1 days. At the lowest consumption at the same 24/7 rate, it would only consume 2.7 mAh, which would deplete the battery in 3,723 days (a bit more than 10 years!) This is mainly to set a range to give a vague idea of what the package could possibly consume.

Once we received the Arduino, we (EE team) and the CS team got one each to get familiar with the environment. The main goal here was to attempt to connect to the LoRa WAN gateway and send/receive data. There were a few setbacks on that, mainly getting reliable login access, but once that was addressed, the CS team was able to send/receive data. Now that we have the ToF sensor, we can connect that, download any libraries (a ‘rough’ version of drivers) needed and try to make the sensor work as intended.

The main reason why my first 2 entries were so light with the project altogether was because when we were presenting our project, the CS part of the team was also doing the same thing and then at the last moment we agreed to form the team of 9. While this is quite a big team, we are hoping that this will let all of the 5 CS team focus on the software package, while the 4 EE’s focus on the hardware package. Now that we were able to be on the same page and have a proper workflow, we can really get on with the project.

A question, if you can give feedback on this like with the first entry: I normally do a researching document that has the things I’m looking through and the sort of a timestamp of my start/stop time, is that something I should also attach to this to also give some context?

Current Problem:

We have the Arduino and the ToF sensor on hand, so we really need to see if it will work as intended and see if we need to format the information in any manner to make it usable on the CS side (Google Firebase server).

Solution:

We need to get familiar with the Arduino’s coding environment and get any applicable libraries for it and the ToF sensor and see the output.