Team Name : PiPeWan

Date of Submission : 10/17/21

Meeting Date & Time : 10/07/21 5:00 pm

Meeting Location : Teams

Meeting Duration : 2.2 hrs

|  |  |  |
| --- | --- | --- |
| Team Members | X = Present | Notes |
| Mohammad Daoud | X |  |
| Edgar Chavez | X |  |
| Aron Wiley | X |  |
| Alex Rossillon | X |  |

# Progress

Team accomplishments for the week

This week we worked on a lot of research for our project, we began finalizing our hardware choices, and some of our software choices. We met with Coach to get information about the LoRaWan server including login and hardware info. We are going to be using some of the hardware that GoCreate already has including their server and gateways, this will mean that we only need to create a node and then a program to run on the server.

Individual contributions

*A brief narrative (1-3 sentences) made by* ***each team member*** *summarizing their respective activity for the past week.* ***NOTE:*** *Missing the meeting without advanced notice, making no contributions to the meeting, or missing two team meetings could result in a zero for any team assignments.*

Mohammad

For this week I did in-depth research on the hardware and technical aspects of the project. I investigated the RF emission standards for the Lora specification we are using (US902-928). This was used to collect information and design mitigation techniques to avoid interference with other infrastructures on the same band. I also looked into the best ways to design and place an antenna to achieve maximum range and lowest disruptions.

Edgar

This week I did some research into what kind of software is compatible with LoRaWAN as well as a standard guideline for creating a user interface. I found several different software that are compatible with LoRaWAN some of the more highly recommended software were Emqx, Dgiot, as well as Chirpstack.

Aron

This week I did in-depth research on the hardware that we will use for our node, along with the software that will run on the node and on the server. The software that is going to run on the server is ChirpStack, which is a LoRaWan server management system that handles gateways and nodes. The hardware that we looked at included an Arduino, temperature sensor, and flow sensor.

Alex

This week I researched the LoRaWan specifications with a focus on secuirty and LoRaWan libraries. We decided to use the LMIC library on our Arduino for communicating with the server. Our application session key will keep our node data encrypted until it reaches our windows application. There we can interpret it, display it, and store it in a MySql database.

# Project Tracking

*Tasks which are activley being worked on.*

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| --- | --- | --- | --- |
| Team Member | Assignment | Due Date | % Complete |
| Mohammad | Finalizing decisions on hardware we need, which includes getting the SF pro from Dr Stallard which Is LoRa compatible. | 10/24 | 40% |
| Edgar | Start creating a basic program to use with the SparkFun | 10/24 | 0% |
| Aron | Getting a SparkFun Pro from Professor Stallard, research software, and get the SparkFun connected to the LoRaWan network. | 10/24 | 40% |
| Alex | Prototyping on the SparkFun Pro, connecting it to the server, and receiving hardcoded values to our application for a sanity check. | 10/24 | 0% |

# Plan

*Future work. A brief description of the tasks and activities the team needs to accomplish over the coming weeks. As team members pick up assignments, move from this table to the tracking table. Consider future work a running task-list with an expected due date for completion.*

|  |  |
| --- | --- |
| Assignment | Due Date |
| Acquire the SparkFun Pro from Professor Stallard | 10/24 |
| Get started using the SparkFun Pro | 10/30 |
| Have some demo software | 10/30 |
| Acquire the rest of the hardware (temperature sensor, flow sensor, etc) | 10/30 |
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# Issues

*Include a brief description of issues the team has encountered, and potential resolutions for the issues. If the team would like staff to help with the issues, this is the appropriate place to request assistance.*

# Next Meeting

Date & Time : 10/18/21 6:00 pm

Location : Teams