EE/CprE/SE 491 WEEKLY REPORT 5

February 27 - March 5

Group number: 9

Project title: Arinc429 Portable Receiver APP and Firmware

Client &/Advisor: Colin Cox & Daji Qiao, Mathew Wymore

Team Members: Eduardo Contreras, Riley Millam, Nicholas Morgan, Jared Staskal, Nate Trotter

- **Weekly Summary** *This week we met with our client and advisors to discuss the revised system requirements and system sketch. We also worked on testing the hardware we'd been given and started figuring out how it all works. Also discussed the NDA, the delay was due to our client thinking it was just an NDA which was unnecessary instead of both the NDA and an IP agreement. That should be moving forwards shortly.*

- **Past week accomplishments**
    - Getting familiar with the Hardware from the client - All
        - Now that we've received the hardware we have started to test things with it to get more comfortable thinking about developing with it.
        - Have attempted some ESP32 IDF firmware programming starter examples to familiarize ourselves with different ESP32-S3 functionality and hardware pin layout.
    - Reworked our System Requirements
        - Based on the feedback from our client last week we updated our system requirements to more closely fit the expectations of our client
    - Reworked our System Sketch
        - Based on the updated requirements and the information from our client we updated our system sketch to be more complete and more correct.
- **Pending issues**
    - Need table that describes the Arinc429 data type of decoded labels

- **Individual contributions**

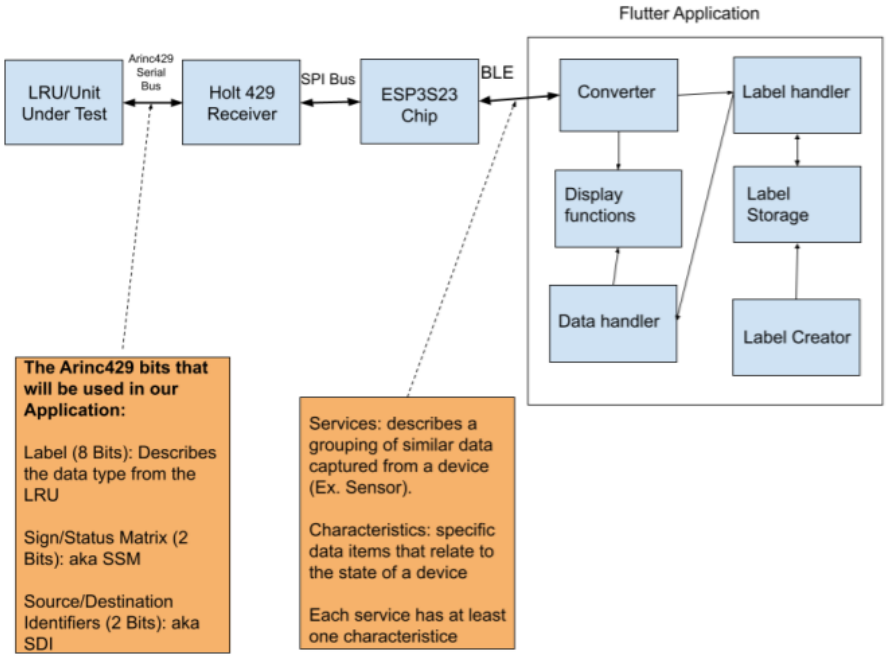
NAME	**Individual Contributions** *(Quick list of contributions. This should be short.)*	**Hours this week**	**HOURS cumulative**
Eduardo Contreras	● Experimented with ESP32 DevKit and tried programming some starter examples in ESP-IDF ● Researched and started BLE API documentation	7	31
Riley Millam	● Has been in charge of communication with the client and advisors. ● ESP32 programming ● Experimented with hardware	6	33
Nicholas Morgan	● Went over BLE modules and protocols ● Planning to start a datasheet for BLE ● Studied data sheets given by the client describing the technologies to be used in the project.	8	36
Jared Staskal	● Added requirement to the System Requirements document ● Reworked the system sketch to better reflect the requirements ● Fleshed out the pieces of the system sketch	7	34
Nate Trotter	● Studied data sheets given by the client describing the technologies to be used in the project. ● Familiarized with new hardware	8	36

- **Plans for the upcoming week**

  Now that we've spent time researching communicating over BLE and how to plan that out we need to start planning that by creating our BLE API documentation.

System Sketch W/ Descriptions

System Sketch



Converter

Takes in the data from BLE and Transforms it into an object detailing the values of all the different pieces using bit shifts and bitwise or operations.

Sends this data structure to the label handler to decode the label.

And sends the object the display functions to display the non-data bits such as the SSM and the SDI

Label Handler

Searches through the Label Storage to determine how to handle the data bits. Once it finds the details of the data sends those details to the data handler to interpret the bits

Data Handler

Takes the data object and the information on what the data bits mean and interprets the data bits. It sends the interpretation of all the bits to the Display functions to be shown to the user

Display Functions

Takes the word object and the output from the Data Handler and displays the meaning and values of the different parts of the word.

Label Storage

Storage for user defined label meanings. Probably just json with the labels sorted by label value for quick searching.

Label Creator

Screen for the user to create label definitions through. Inserts the label into wherever it needs to be in the Label Storage.