

EE/CprE/SE 492 BIWEEKLY REPORT 3

September 28 - October 11

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

○ **Summary**

For the flutter application, we are currently completing further testing on bluetooth low energy (BLE). This involves streamlining the connection process for the end user via filtering the BLE search results. We also nearly finished implementing the Label Storage portion, with just one function and testing being left for the coming weeks. For the firmware, now that we can connect to the phone with our GATT server and defined characteristics we are working on receiving data from the testing device provided by our client. We were having some issues with this, but have clarified what we think the issue was and are updating our configurations to hopefully see progress in the next week.

○ **Past weeks accomplishments/issues**

- Label storage Implementation nearly complete
 - Updated json planning to be more user friendly
 - Testing is in progress
- Successful BLE connection from Flutter Application to ESP32
 - Using ESP32 Gatt server with hardcoded data
 - When connecting shows too many devices
 - Plan to filter devices by names to cut down on previous
- Began working on framework for managing data received from BLE in Flutter App
- Able to modify client's sample code for the ESP32 to fit our project
- Met with client regarding some provided C code
- ESP32 BLE connection mostly done
 - Still need to properly receive data
- Issues:
 - Flutter app file system was causing issues, have some leads to fixing it with Assets and path_provider package
 - Missing default configurations for the flutter app functionality was interfering with testing plans
 - Working on receiving Arinc429 word bus on ESP32
 - Studying example ESP32 code given by client that receives ARINC429 word bus

- We have a lead on this, it may be an issue with how we were configuring the SPI bus
- Having issues where ESP32 code isn't able a file needed to test the device
- Still learning Flutter ins and outs with widget types and states

○ **Individual contributions**

<u>NAME</u>	<u>Individual Contributions</u> <i>(Quick list of contributions. This should be short.)</i>	<u>Bi-weekly Hours</u>	<u>HOURS cumulative</u>
Eduardo Contreras	<ul style="list-style-type: none"> ● Continued working on gatt server ● Working on receiving ARINC429 word from testing device and Holt IC ● Modify client's sample code to fit our project ● Managed to run sample code with our project and initialize all components ● Debugging issues with ESP32 code working with testing device 	15	42
Riley Millam	<ul style="list-style-type: none"> ● Worked on some Flutter framework to utilize data received from BLE ● Worked on Flutter GUI elements ● C code overview with client 	13	35
Nicholas Morgan	<ul style="list-style-type: none"> ● Improving BLE connectivity from flutter to ESP ● Filtering connections by characteristic UUID ● Cleaning up connection display 	14	42
Jared Staskal	<ul style="list-style-type: none"> ● Implemented Label storage functionality and began testing on it ● Updated json and label/definition objects to be more accurate to the expected data and to be more user friendly ● Communicated Flutter app design goals to Riley as he transitions to helping with the Flutter app 	15	39
Nate Trotter	<ul style="list-style-type: none"> ● Continued working on gatt server ● Working on receiving ARINC429 word 	14	39

	<p>from testing device and Holt IC</p> <ul style="list-style-type: none"> ● Modify client's sample code to fit our project ● Managed to run sample code with our project and initialize all components ● Has been in charge of communication with the client and advisors 		
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○ **Plans for the upcoming weeks**

The flutter app side of the team will continue working on making progress with the app, specifically in connecting with the microcontroller via bluetooth and finishing the testing of the label storage. Once these items are completed we will begin work on the Converter component and the Label Creator. On the firmware side, we plan on finishing getting data from the test hardware and sending it out over bluetooth low energy. Additionally, we aim to finalize the ability to receive data through bluetooth low energy. We have a lead on how to chase down our current issues from our client and will mostly be troubleshooting our solution and finishing the core functionality necessary.

○ **Diagrams and Figures**