

EE/CprE/SE 491 WEEKLY REPORT 8

April 3 - April 9

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 the firmware team continued to make progress in becoming comfortable and familiar with the hardware and the software that will be used to run and write the firmware. The Flutter team continued to familiarize themselves with the Flutter environment as well as beginning to prototype the application. This week we met with our client to learn more about BLE GATT servers.*

- **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.
 - Getting familiar with ESP32 development environment
 - Experimenting with the development tools and available framework
 - Getting familiar with the Flutter development environment
 - Exploring the features and abilities of Flutter
 - Worked on our GATT Service API documentation - Jared

○ **Individual contributions**

<u>NAME</u>	<u>Individual Contributions</u> <i>(Quick list of contributions. This should be short.)</i>	<u>Hours this week</u>	<u>HOURS cumulative</u>
Eduardo Contreras	<ul style="list-style-type: none"> ● Experimented with ESP32 DevKit and tried programming some starter examples in ESP-IDF ● Researched BLE API documentation by looking at different BLE device examples and checking BLE fields of API documents 	7	56
Riley Millam	<ul style="list-style-type: none"> ● Has been in charge of communication with the client and advisors. ● ESP32 programming 	7	59
Nicholas Morgan	<ul style="list-style-type: none"> ● Went over BLE modules and protocols ● Flashed and tested some projects into the ESP32S3 	9	60
Jared Staskal	<ul style="list-style-type: none"> ● Researched Bluetooth Low Energy technology ● Began the BLE GATT API document 	8	67
Nate Trotter	<ul style="list-style-type: none"> ● Familiarized, researched, experimented, with new hardware ● Experimented with BLE and ESP32 	6	65

○ **Plans for the upcoming week**

We intend to continue exploring the various technologies and working on prototypes for this next week.

Service	Arinc 429 BLE		
UUID	48c174f7-6e8c-493d-9138-71a0602e57d6		
Characteristic	Receive		
Description	Receive the Arinc 429 word from the chip over BLE		
UUID	81429dc5-2b11-420a-83ab-b61626fca73e		
Properties	Read		
Size	4 bytes		
Attributes:			
Attribute Name	Type	Description	Possible Values
Parity	boolean	The parity bit	0 - False 1 - True
SSM	unsigned int	The Sign Status Matrix	0 - 3
Data	bit[19]	The data from the word	19 bits
SDI	unsigned int	The Source Destination Indicator	0 - 3
Label	3 digits Octal	The label that determines how the data is interpreted	0-377
Characteristic	Send		
Description	Send the Arinc 429 word from the Flutter app over BLE		
UUID	9bf802ff-d75d-46a0-891b-c38003897fa3		
Properties	Write		
Size	4 bytes		
Attributes:			
Attribute Name	Type	Description	Possible Values
Parity	boolean	The parity bit	0 - False 1 - True
SSM	unsigned int	The Sign Status Matrix	0 - 3
Data	bit[19]	The data from the word	19 bits
SDI	unsigned int	The Source Destination Indicator	0 - 3
Label	3 digits Octal	The label that determines how the data is interpreted	0-377