

# **Team 17: IoT Based Pet Tracker**

## **Bi-Weekly Update 3**

**Amy Ideozu, Evan Lingo, Richard Taylor**

**Sponsor: Souryendu Das**

**TA: Eric Lloyd Robles**

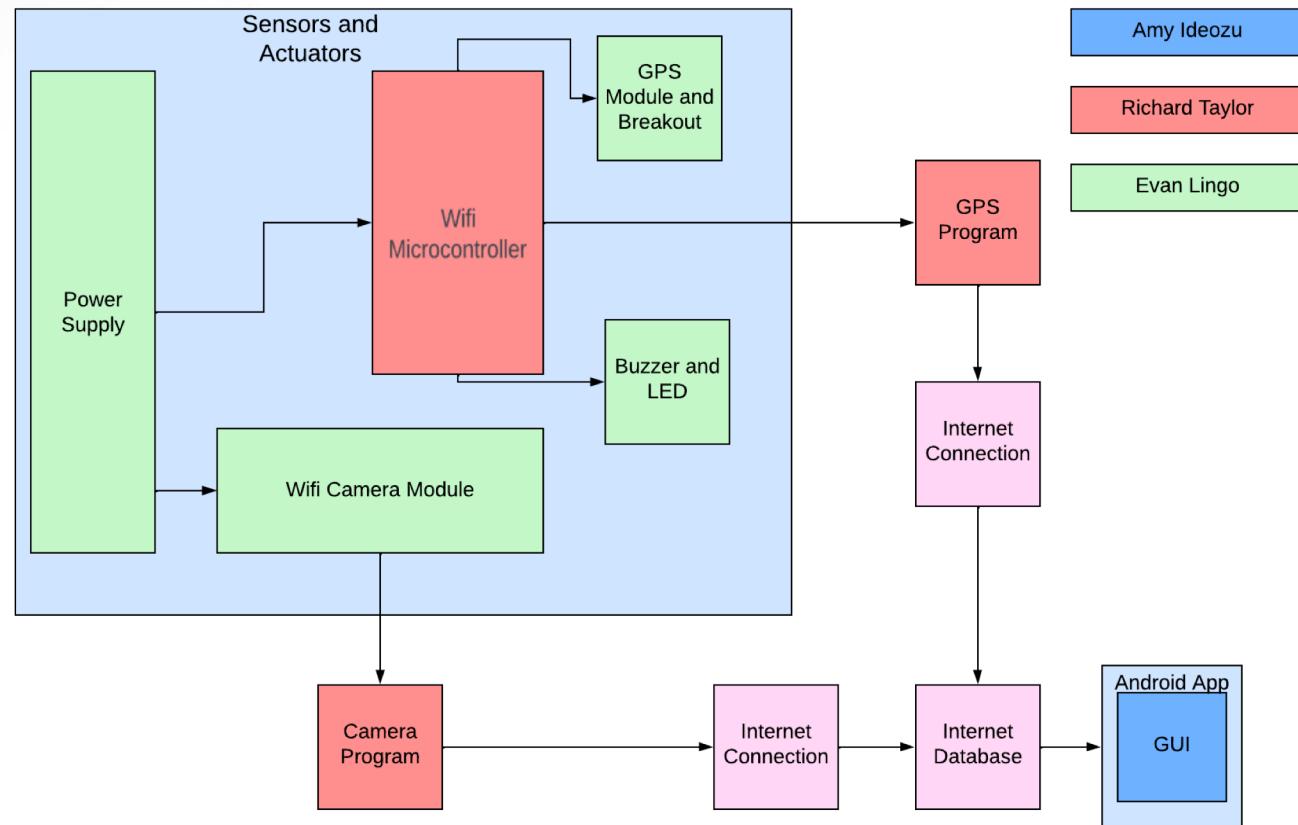
# Project Summary

- At times it can be difficult to keep track of your pet
- $\frac{1}{3}$  of pets in the United States are reported missing in their lifetime, with more than 80% never being found
- Develop an IoT Based Pet Tracker to keep knowledge of your pets location via GPS and video feed through the use of an android app



# Project/Subsystem Overview

- GUI Application: Amy Ideozu
- MCU Programs: Richard Taylor
- Sensors and Actuators: Evan Lingo



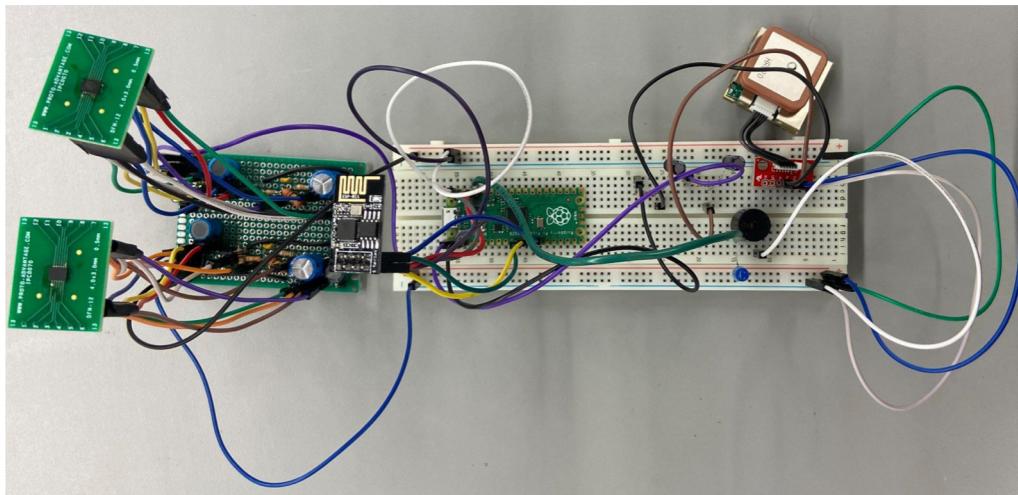
# Project Timeline

Subsystem Designs and Testing  (completed 9/08)	Integration of S&A and MCU subsystem  (completed 9/22)	Integration of MCU and GUI subsystem  (to complete by 10/06)	Final Integration  (to complete by 10/20)	System Test  (to complete by 11/03)	Validation  (to complete by 11/10)	Demo and Report  (to complete by 12/01)
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# Subsystem 1: Sensors and Actuators

Evan Lingo

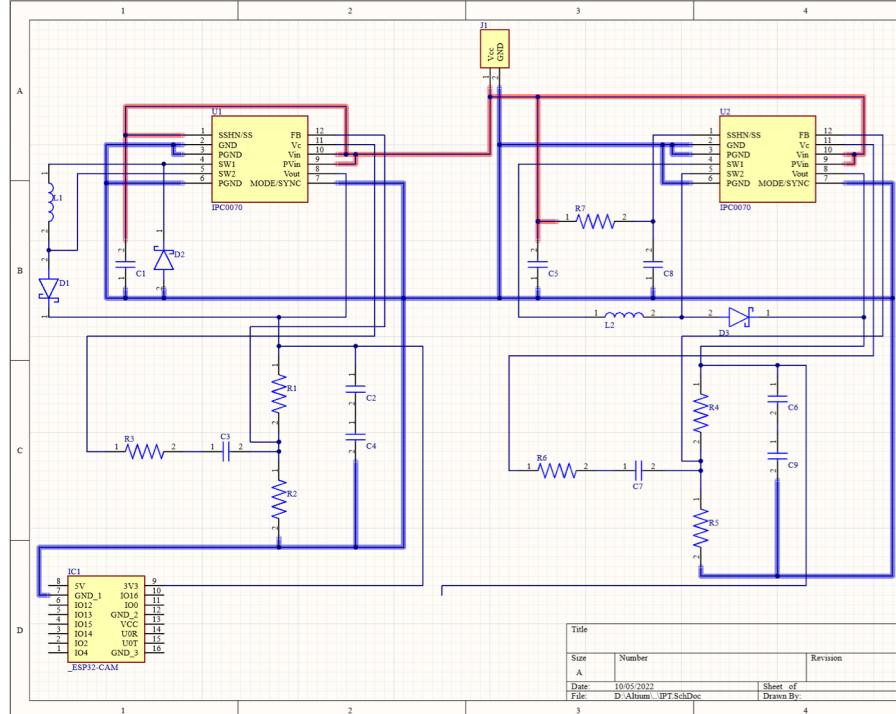
Accomplishments since last update <b>12 hrs of effort</b>	Ongoing progress/problems and plans until the next presentation
<ul style="list-style-type: none"><li>- Finalized PCB design</li></ul>	<ul style="list-style-type: none"><li>- Construct housing unit for hardware</li><li>- Solder PCB components once PCB arrives</li></ul>



# Subsystem 1: Sensors and Actuators

Evan Lingo

- PCB finished with exceptions of a few wiring decisions that need to be made with the MCU
- PCB will be ordered by the end of the week
- With the dimensions of the PCB finalized the housing unit can start being designed



# Subsystem 2: MCU Programs

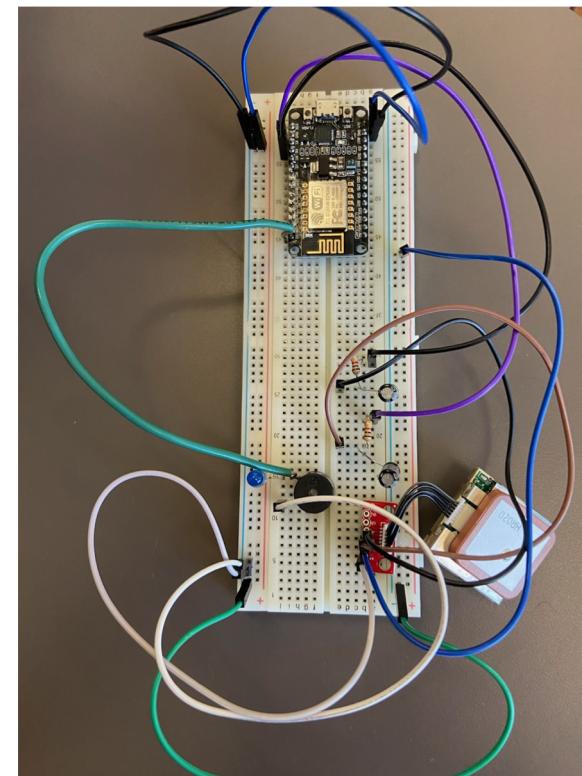
Richard Taylor

Accomplishments since last update <b>12 hrs of effort</b>	Ongoing progress/problems and plans until the next presentation
<ul style="list-style-type: none"><li>- New WiFi MCU being used</li><li>- Code linked with database</li><li>- Working on code for integration with firebase</li></ul>	<ul style="list-style-type: none"><li>- Finishing integrating with GUI</li></ul>

# Subsystem 2: MCU Programs

Richard Taylor

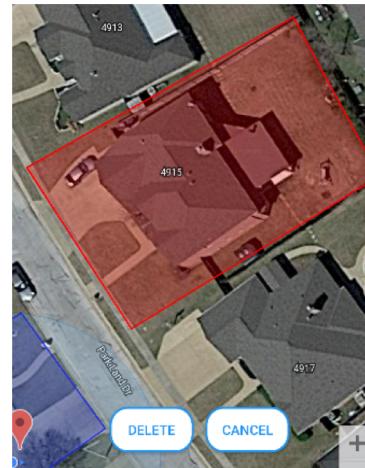
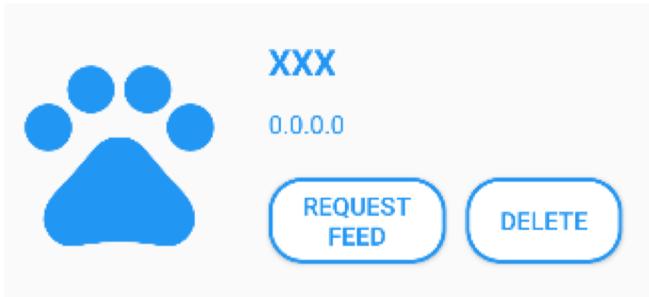
- MCU almost integrated with gps for final PCB design
- MCU code will read safe area data from database and provide gps coordinates to database
- Integration with firebase ongoing



# Subsystem 3: GUI

Amy Ideozu

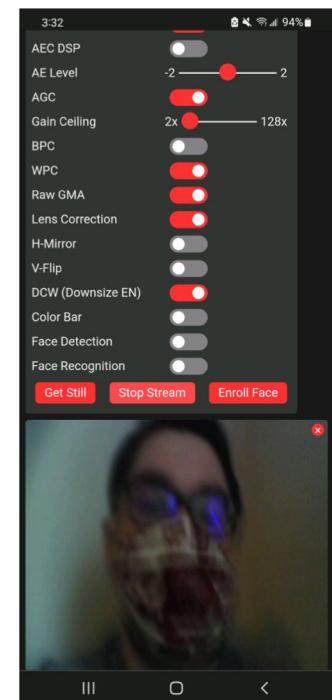
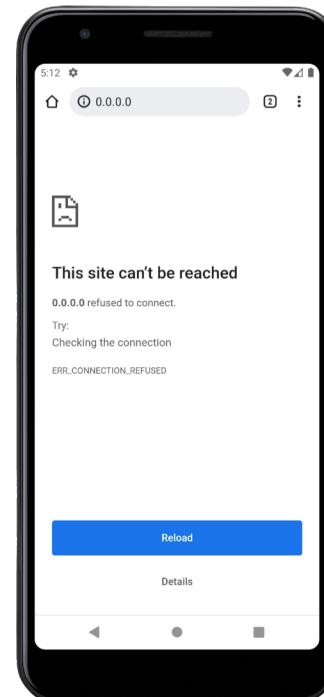
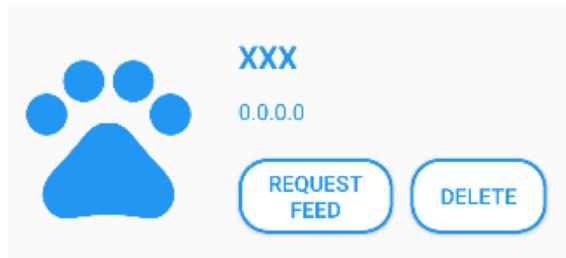
Accomplishments since last update <b>12 hrs of effort</b>	Ongoing progress/problems and plans until the next presentation
<ul style="list-style-type: none"><li>- Video Feed Request</li><li>- Safe Area deletion</li></ul>	<ul style="list-style-type: none"><li>- Testing with MCU program</li><li>- Minor bug fixes</li></ul>



# Subsystem 3: GUI

Amy Ideozu

- Video Feed Request, Safe Area deletion complete
- Validation tests with MCU in progress
- Video Feed Request:
  - Camera set with dedicated IP address → Web Server
  - App navigates to web server
  - User controls camera



# Parts Ordering Status

Part Description	Status (order approved/order placed/part received)
Microcontroller - RP2040	Part Received

# Execution & Plan

# Validation Plan

Paragraph #	Test Name	Success Criteria	Methodology	Status	Responsible Engineer(s)
3.2.1.1	Battery Operating Life	Battery last for 8 hours	IPT is put in default operating state and left to run for 8 hours. Power will be monitored with connection on IPT	Not Tested	Evan Lingo
3.2.1.2	Time to Alert (GUI)	Notification sent to user's phone within one minute	Use stopwatch to measure the amount of time between pet leaving geofence/safe zone and the user being notified on their device	Tested	Amy Ideozu
3.2.1.3	Geofence Size	Geofence size is $\geq 100 \text{ sq ft} \leq 3600 \text{ sq ft}$	Phone application lets user choose a geofence size with a minimum radius of 100 sqft and maximum radius of 3600 sqft	Tested	Amy Ideozu
3.2.1.4	Video Stream quality	Stream quality of 480p	Video stream from camera is broadcasted to website using program where it can be monitored	Tested	Richard Taylor
3.2.2.1	Mass of IPT	Mass of maximum 213 grams	Measure system of sensors and actuators with a digital scale	Not Tested	Evan Lingo
3.2.2.2	Size	Volume should be 1.5 inches in height, 2 inches in width, 3 inches in length	Perform measurements for the enclosure created for the IPT	Not Tested	Evan Lingo
3.2.3.1.1	Power consumption	Max 3W consumption	Perform a power up to stable test	Tested	Evan Lingo
3.2.3.2.2	Output Voltage Level	Output voltage level of 3.3V and 5V	Line regulation and load regulation test	Tested	Evan Lingo
3.2.3.2.3	Raw Video Output	Streams video to user via ip	The video stream will be available to watch whenever the user checks the designated web ip	Tested	Richard Taylor
3.2.5.1.1	GPS Functionality	GPS module provides accurate data tracking via program	The gps program will decode the NMEA sentences and provide gps coordinates of the current location of the module	Tested	Richard Taylor

**Thank you for your time.  
Questions?**