

Team 17: IoT Based Pet Tracker Bi-Weekly Update 1

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TA: Eric Lloyd Robles

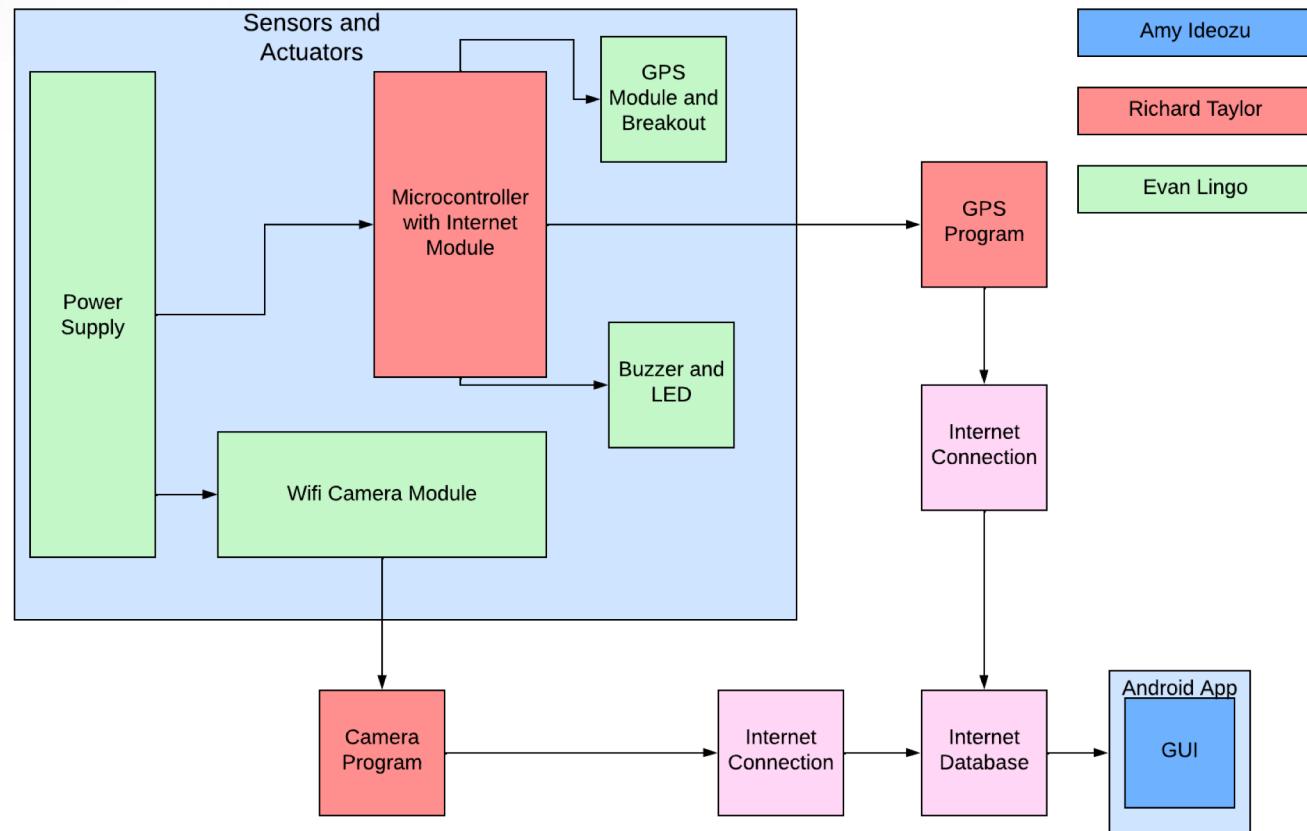
Project Summary

- 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



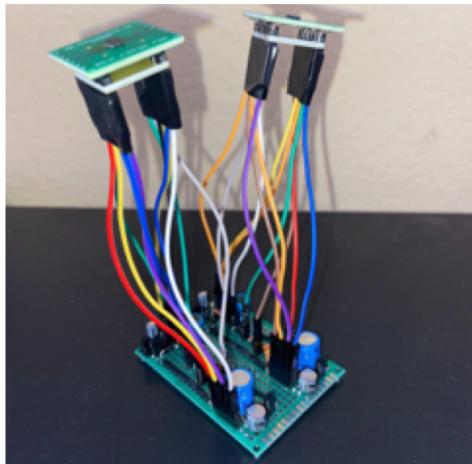
Major Project Changes for 404

- Microcontroller change: MSP430 to RP2040

Subsystem 1: Sensors and Actuators

Evan Lingo

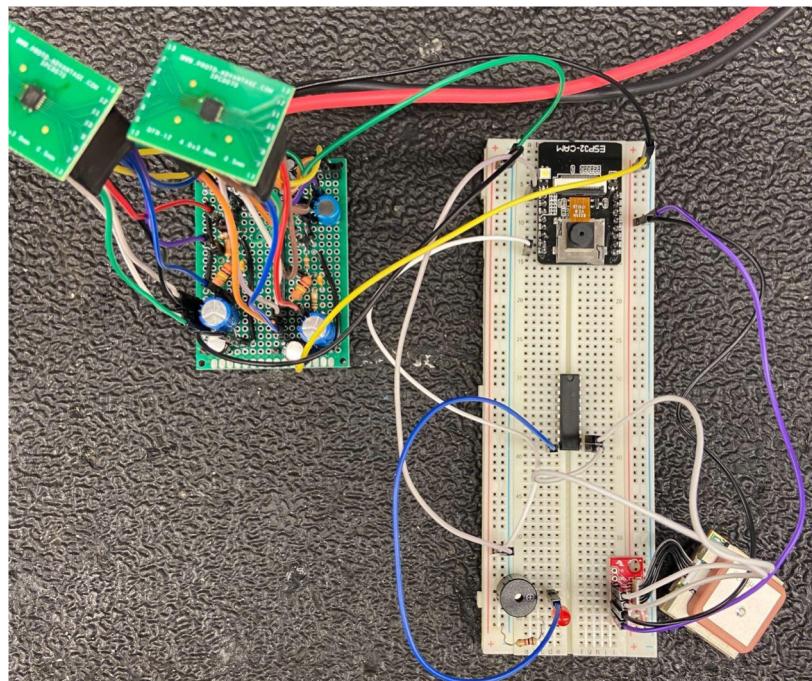
Accomplishments since 403 8 hrs of effort	Ongoing progress/problems and plans until the next presentation
<ul style="list-style-type: none">- Both buck/boost circuits back up and running from 403.	<ul style="list-style-type: none">- Basic integration with different components.- Finalize circuit layout with new MCU.- Progress on PCB design in Altium.



Subsystem 1: Sensors and Actuators

Evan Lingo

- 3.7V to 3.3V buck/boost circuit outputs 3.096V and will power the MCU, Wi-Fi module, and the LED
- 3.7V to 5V buck/boost circuit outputs 4.918V and will power the GPS module, Wi-Fi camera module, and the buzzer
- Change in MCU from MSP430 to RP2040



Subsystem 2: MCU Programs

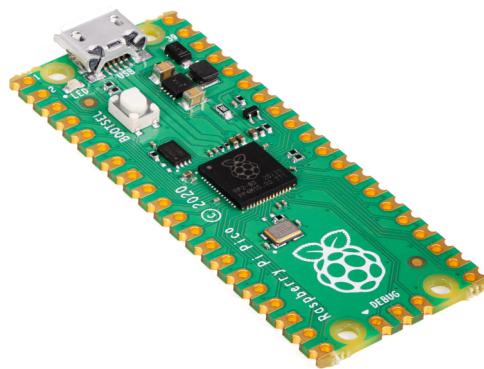
Richard Taylor

Accomplishments since 403 8 hrs of effort	Ongoing progress/problems and plans until the next presentation
<ul style="list-style-type: none">- New MCU RP2040 ordered- Linking code with database- Decision to use Circuit python to operate MCU in line with code from 403	<ul style="list-style-type: none">- Setting up new microcontroller- Camera code needs to be slightly edited from 403

Subsystem 2: MCU Programs

Richard Taylor

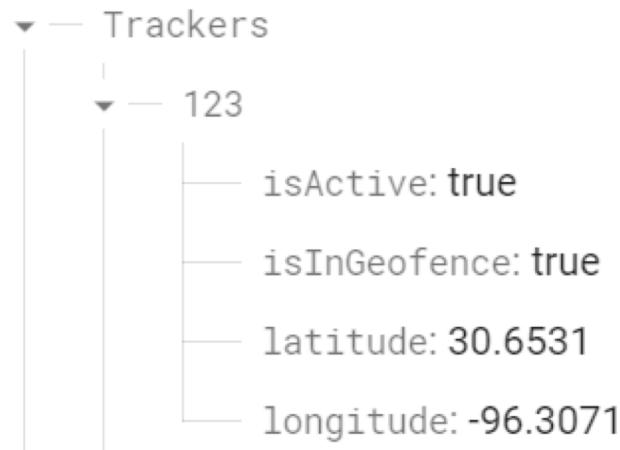
- New MCU needed, part order placed
- Code will be integrated once part is ready
- Integration with GUI database ongoing



Subsystem 3: GUI

Amy Ideozu

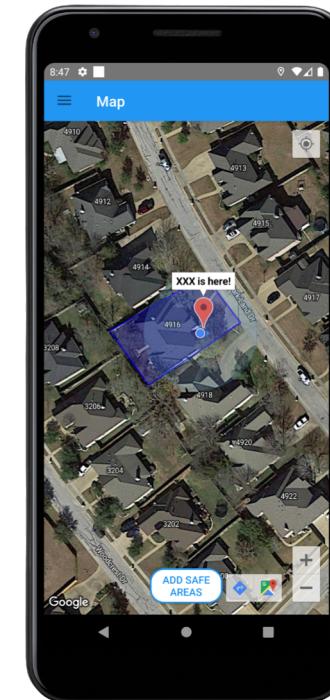
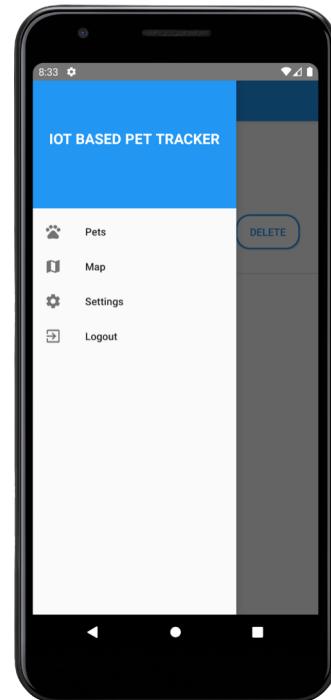
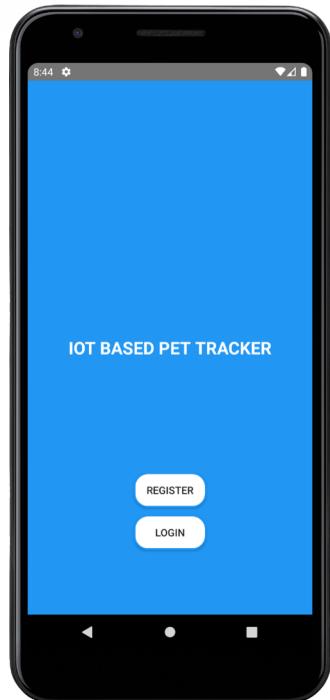
Accomplishments since 403 8 hrs of effort	Ongoing progress/problems and plans until the next presentation
<ul style="list-style-type: none">- Fixing Pet Creation/Deletion Activity	<ul style="list-style-type: none">- Adding signal for Safe Area to database for integration- Improving Geofencing/Safe Area System



Subsystem 3: GUI

Amy Ideozu

- Launcher Activity, Register and Login, Pet Creation/Deletion, App Navigation, Geofencing, and Notification System working
- Safe Area integration with MCU in progress
- Video Feed Request not started



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	Outout 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?**