

Meet the Team



Chandler Harrison (PM)
Mobile App
Power System

Adarsh Ram
Hardware
Logic
Enclosure

Eddie Armeriv
Arc GIS
Cloud

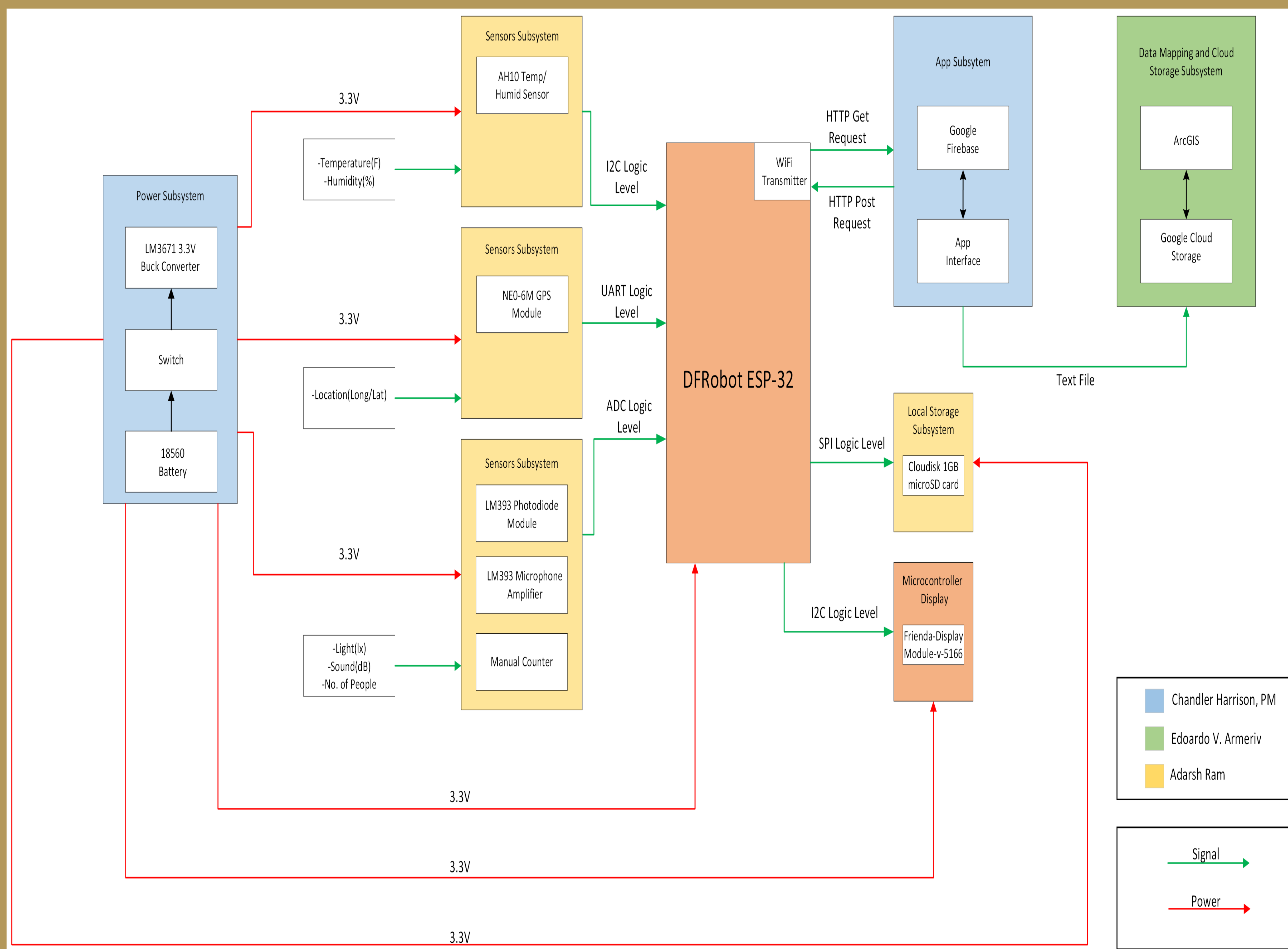
Project Background

- ❑ Texas State University's Health and Human Performance-Recreation Studies and the Ingram School of Engineering have collaborated to create a sensor that integrates with data visualization platforms, producing high-resolution urban heat maps.
- ❑ These advanced heat maps assist city governments in planning effective heat mitigation strategies, especially in developing tree-rich green spaces to enhance urban cooling.

Subsystems

- ❑ **Mobile Application Development**
Displays live data on a Google map
- ❑ **Power: Power Budget, Voltage Reg., Battery life**
regulates Voltage to 3.3V, Manages Power, Battery Life Display
- ❑ **Enclosure Design and Fabrication**
3D-printed case
- ❑ **Hardware Systems Logic & Hardware Design**
Sensor/LCD/Storage logic, ESP-32 logic. Hardware layout
- ❑ **Data Visualization**
Portray data in Arc-GIS heat mapping software
- ❑ **Cloud Integration**
Display Data on a google spread sheet

Block Diagram



Accomplishments

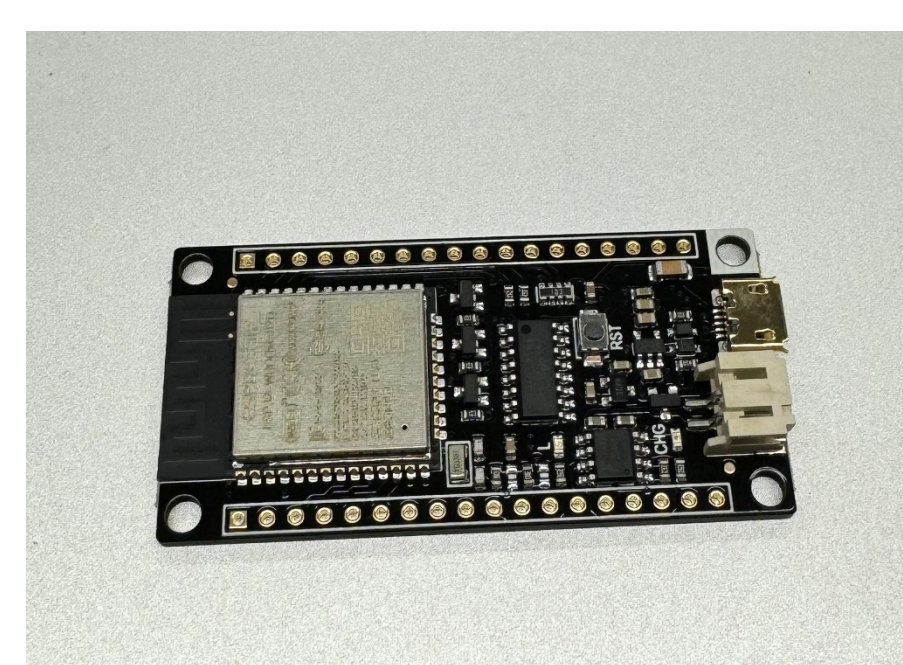
- ❑ Successfully log time, location, sound, light, temperature, humidity
- ❑ Display data on Arc GIS and Google Firebase
- ❑ Deliver 3.3 Volts and maintain a battery life of a minimum of 4 hours a day.
- ❑ Display battery life, temperature, humidity, and time on an LCD screen,
- ❑ Save data successfully to a 1 GB micro-SD card
- ❑ Designed our first enclosure(Not Final design)

Plans for Design 2

- ❑ Use push buttons to successfully count people for the user
- ❑ Complete User Friendly reliable mobile app that displays data accurately.
- ❑ Successfully save 4 weeks worth the data
- ❑ Design a Shock-Resistant/Water-Resistant enclosure

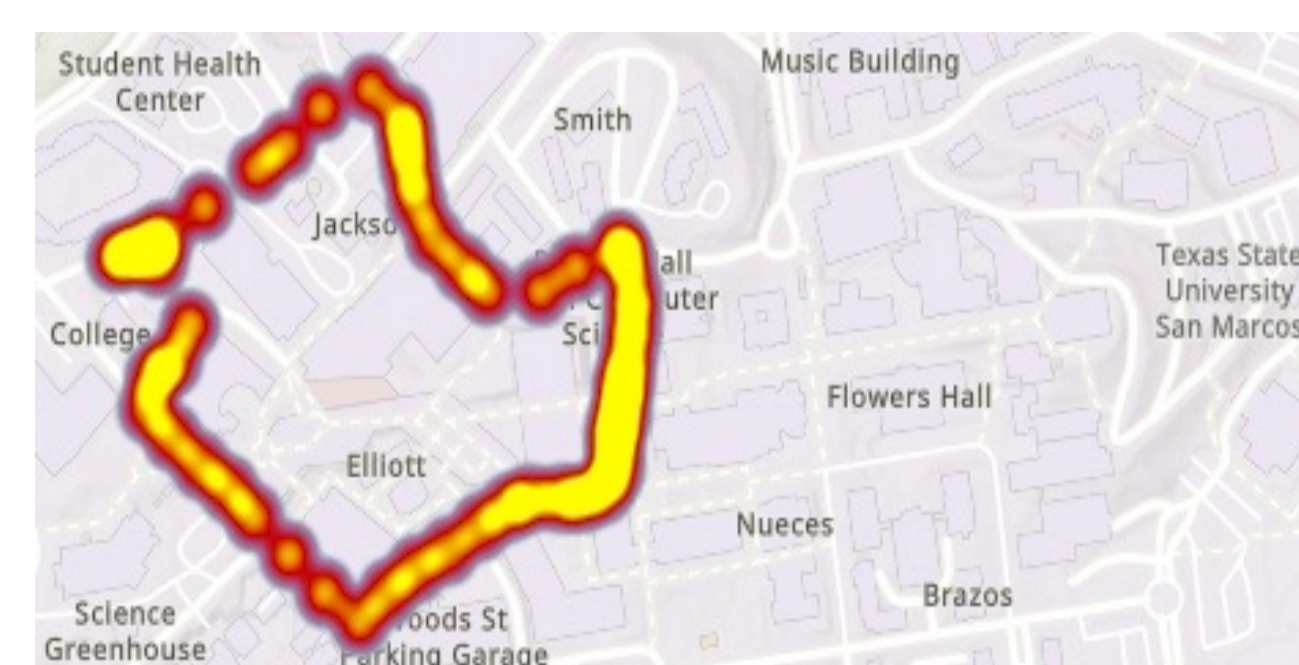
Individual Subsystem Showcase

Hardware Logic



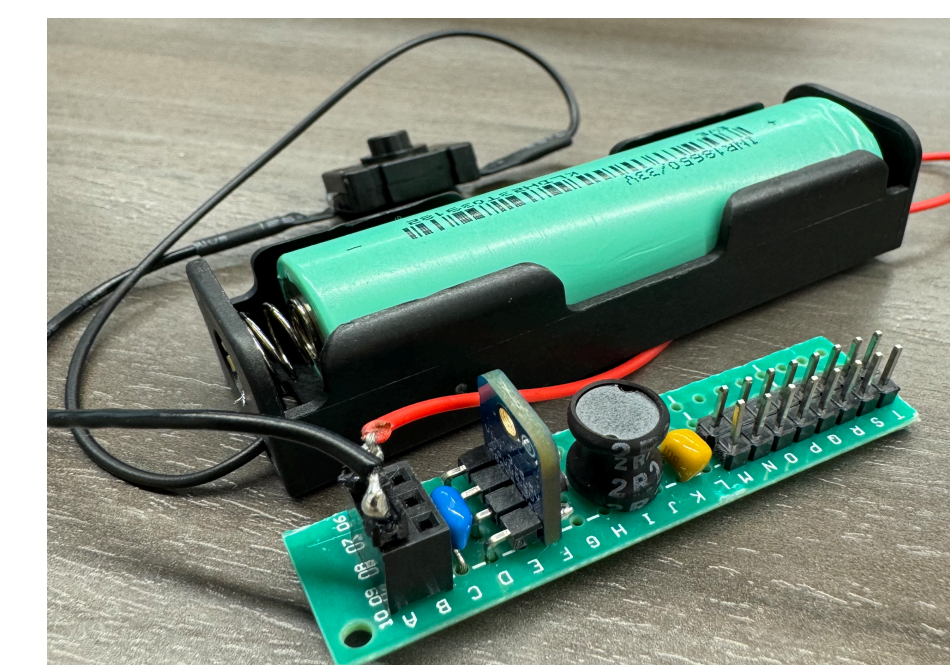
- ❑ Uses UART, ADC, and I2C to communicate input signals to ESP32
- ❑ Outputs data to SD card module and LCD display

Arc GIS/Cloud



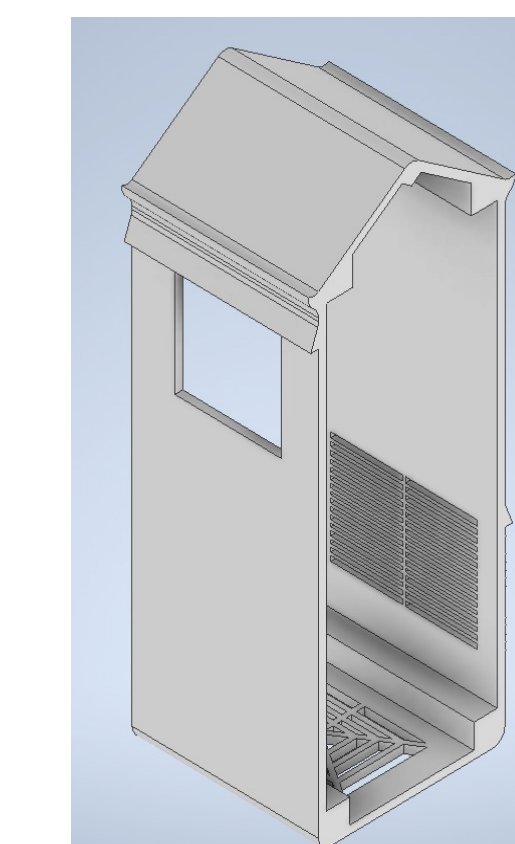
- ❑ Display recorded data on Arc GIS platform and display live data on Google Firebase

Power System



- ❑ Deliver 3.3 V, 3.2A for a minimum of 4 hours per day.
- ❑ Be able to charge in less than 8 hours

Enclosure



- ❑ Encases all components with simple access inside

Acknowledgements

- ❑ Sponsors: Mr. Behmann, Dr. Awoniyi
- ❑ Advisor: Mr. Stevens
- ❑ Mentor Team: Erich Ellsworth, Aidan McSpadden, Jaxon Castillo