EE/CprE/SE 492 STATUS REPORT

Start Date – End Date: 1/31/2025 - 2/13/2025 Group number: sdmay25-18 Project title: Weather Triggered Wireless Telemetry System Client &/Advisor: Daji Qiao and Sarath Babu Team Members/Role:

- 1. Alex Chambers: Individual Component Designer
- 2. Alexander Christie: Client Interaction
- 3. Adam Fields: Data Formatting
- 4. Nisha Raj: Team Lead
- 5. Aidan Gull: Component Integration
- 6. Colin Kempf: Documentation

<u>Summary</u>

Over this last report period our group began to create the respective parts of our group project. For the API prediction metrics, we collected data for the last two weeks and we have been able to get good data during precipitation events. We have also been working on creating a script that will parse the precipitation probability text files. This will then take the probabilities for each hour and find the average between all three APIs and if the average exceeds a certain threshold we will trigger the ARA data collection scripts. For ARA live data collection we created a script to detect live precipitation. Once precipitation is detected, the script begins to collect the live weather data. It records until the script detects no precipitation data is detected for one minute. For the data formatting, we are creating and testing scripts that can generate different readme files with different descriptions based on codes passed from the ARA live data collection portion of the project. We have also been making sure that our flies adhere to ARA's naming conventions.

Accomplishments

• API Prediction Metrics

- Started creating script that will parse the precipitation probability text files
- Script will pull the probability values and take the average probabilities between the 3 APIs
- Began reviewing prediction metric code to change the formatting of how data is stored
- ARA Live Data Collection
 - Wrote a script begin collecting live ARA data based on detected live precipitation data
 - When precipitation data is detected, the script records the weather data until it detects nothing for one minute
 - Currently running intermittently on local devices for confirmation

• Can possible piggyback off of disdrometer precipitation analysis

• Data Formatting

- Made prototype scripts that create readme files.
- Making sure data files meet ARA's naming conventions.

Pending issues

• No current issues

Individual contributions

<u>NAME</u>	Individual Contributions	<u>Contributed</u> <u>Hours</u>	HOURS cumulative
Nisha Raj	 Worked on code to parse the text files and pull and take average of precipitation probabilities Reviewed the ARA weather prediction script to see used logic 	12	83
Alexander Christie	 Collected precipitation prediction data before, during, and after weather events (without trigger) Reviewed current prediction script to plan changes for data formatting and prediction methods 	12	82
Aidan Gull	 Helped develop a script to generate readme files that contain certain bits of meta data Made sure that files adhere to ARA's naming conventions 	12	82
Colin Kempf	 Assisted in programing the collection of live ARA weather data when weather event is detected Adjusted live weather detection based on collection script's recorded results 	12	82
Alex Chambers	 Worked on ARA Weather Data Collection script Ran script and validated output 	12	84
Adam Fields	 Developed a script to generate readme files that contain certain bits of metadata Made sure that generated files adhere to ARA's naming conventions 	12	82

Current Plans

• API Prediction Metrics

- Continue working on script and will begin taking the average of actual API data text files
- Set a test threshold that will then trigger the ARA wireless data script to start collecting
- Start changing the formatting for the way prediction metric data is stored in text files

• ARA Live Data Collection

- Continue testing, adjusting the detection metrics for live weather
- Add in checks for false negatives
- Add edge case for continuing weather events
- Get script running on ARA servers
- Data Formatting
 - Testing our data formatting code to make sure it is generating files correctly.
 - Looking into data storage and analytics
- Integration
 - Combining the different components to operate together

Summary of advisor meetings

We met with our client and advisor once this last report period on 2/12. During this meeting, our group presented the work our group had done on getting the starting three components (API Prediction Metrics, ARA Live Data Collection, Data Formatting). We showed our progress and talked about our next steps. Our client and advisor asked questions and gave us feedback on what we had completed.