## Mar 7, 2024 10:00 AM | [Senior Design Team 50 Biweekly Meeting](https://www.google.com/calendar/event?eid=MnBuOTRzNTVvNDJwOW4xN240NmhmZG1pYWpfMjAyMzEyMDVUMTQwMDAwWiByYWJhaWxlM0BuY3N1LmVkdQ)

Attendees:

| Present [Huangjie Gong](mailto:huangjie.gong@us.abb.com)  Present [Andrew Bailey](mailto:rabaile3@ncsu.edu)  Present [Manny Harris](mailto:erharris@ncsu.edu) | Present [Ralph Cullom](mailto:rmcullom@ncsu.edu)  Absent [Labib Kasim](mailto:lkasim@ncsu.edu) |
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[Team Charter - 50\_ResidentialPowerDisaggregation\_Fall\_2023](https://docs.google.com/spreadsheets/d/19QlSl8Cbm5M9cFBJFcICrvQb3tRDH6ZTBHSlsWt19BE/edit#gid=770004057)

Agenda:

* **Walk in item solicitation**
* **Planning review**
  + **Alpha Demo accomplishments**
    - Home assistant running on RPi, influx and grafana add ons
    - Working weather API
    - Reading from influx and making predictions with ML
    - Displaying predictions on local grafana
  + **Alpha Demo comments/room for improvement**
    - Network issues with ESPHome
      * Using external router
      * Using MQTT broker on home assistant
    - Grafana dashboard
      * Updating local grafana dashboard
      * Adding cost graph (coordinate with Labib)
    - Weather APi and cost calculation
      * Running weather API with ML model code
      * Improving cost calculation (time of use)
    - ML model and influxDB data
      * Scheduling to make predictions at what interval
      * Improving ML model in other ways than better training data
        + Different methods for creating model
        + Better preprocessing for data
    - General
      * Running python code on RPi
        + Install python on Rpi
* **Previous action items & timeline check**
* **Update budget**
* **Walk in items**

Walk in items:

Previously discussed items:

* Weather API sites [Link 1](https://www.weatherbit.io/api/historical-weather-api) [Link 2](https://openweathermap.org/history) (If no measurements from raleigh use other city in NC like Charlotte)
* Grafana presets [Link 1](https://grafana.com/grafana/dashboards/13721-circuitsetup-6-channel-energy-meter/)
* Docker on RPi [Link 1](https://www.tim-kleyersburg.de/articles/home-assistant-with-docker-2023/)-
* Can run ML and preprocessing on raspberry pi
  + Can make predictions every 15 minutes

## From Feb 8, 2024 7:00 PM

**Alpha Demo - 3/5**

* Have predicted graph presets & measured graph presets (Website/UI)
  + Have a temperature graph for chosen time shown in Grafana (Website/UI)
* Run machine learning model real time
  + Train final machine learning model (Using customer 1 data with weather added)
  + Pull values from local influxDB
* Store measurements in influxDB locally from ESPHome
* Real time weather data/ future weather predictions