

To: Professor Armin Eilaghi

From: RE Lab Weather Station Team

Date: 8/30/2025

Re: Project Management for 486C

Reflection

Successes:

The following list discusses what the team believes were successful things the team was able to complete. This review is contributed to by all members of the team.

- The bi-weekly meetings were a great way of checking on progress and establishing a connection within the team. While some meetings were short, they were still important to discuss what was upcoming and what was currently being worked upon.
- Effective task allocation and follow-up: Tasks were clearly assigned to each member and followed up in meetings to ensure accountability.

Room for Improvement:

The following list contains items that the team feels are pertinent to improvement within the team. The list is in no particular order but aims to provide a comprehensive overview of our self-evaluation.

- Adjustment of roles: For example, transferring Financial Manager position from Rowan McCullough to Ian Torp.
- Maintaining role while working on the project. Our prototypes took extra time because we were working outside of our assigned roles, and we aim to follow our assigned roles more closely this semester.
- Attentiveness to due dates. There were a few assignments that were turned in late by the PM, causing slight grade adjustments. This is not acceptable and will be improved.
- Improved risk management planning: The team should fully identify potential risks (such as supplier delays and component failures) and be prepared to respond.

Project Management – Action Items

Based on the areas above, we propose specific steps to improve our project management this semester:

- Set up a shared project repository on GitHub or Google Drive → Centralize all CAD files, code, test logs, and wiring diagrams for easy access and version control.
- Create a detailed task tracker with deadlines and responsible owners
- Use tools such as Trello or Excel to assign weekly deliverables and mark completion status.
- Establish weekly integration checkpoints
- Schedule a 10-minute meeting during team meetings to ensure electrical/mechanical/software subsystem compatibility.
- Implement a final review process before prototype assembly
- Ensure each subsystem is thoroughly tested before integration into the complete build to minimize rework.

Remaining design work

Lastly, we list the major tasks that still need to be completed to finalize the project:

- Finalize and test power modules (voltage regulation, battery management).
- Complete full enclosure assembly and ensure weatherproofing.
- Integrate LoRa data transmission and verify connection range.
- Conduct full system testing under environmental conditions (temperature, wind, pressure).
- Finalize website/dashboard UI to enable real-time sensor display.

Gantt

This Gantt chart shows the key tasks and progress for the Weather Station project from August to October 2025.

- The project management component includes reflection, Gantt chart creation, procurement planning, and manufacturing planning, all of which are due to be completed by the end of August.

Memorandum

- The follow-up work component includes hardware status updates, CAD design, engineering calculations, and site inspections.
- CAD design tasks began at the end of July and are expected to be completed by mid-November, with progress currently at 80%.
- Engineering calculations will be conducted from early to mid-September.
- Site inspections began at the end of August and are scheduled to be completed by early October.
- The first hardware status inspection is scheduled to be completed by the end of September but has not yet begun.
- Each hardware status update will include two fully connected and functional sensors in the weather station, as that splits it evenly into thirds.

Weather Station

NAU Capstone

Project Start: Tue, 8/26/2025
Today: Fri, 8/1/2025
Display Week: 1

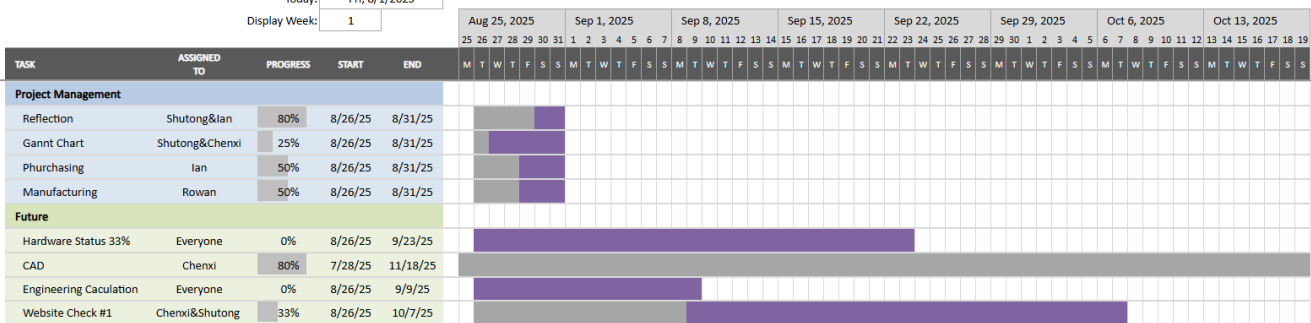


Figure 1: Gantt Chart (Week 1 until the first Hardware Status Update)

Purchasing Plan

Figure 2 below shows the current updated Bill of Materials for our project. This BOM is subject to change as more information comes to our attention through testing and implementation. Our plan is to acquire as much material as possible early on, so that adjustments can be made with ample time.

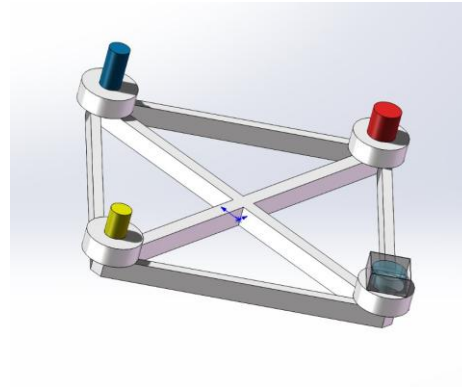


Figure 3: Crossbar for Sensor Mounting

We are planning to make it out of aluminum, hopefully acquired from Home Depot. The material is not set in stone and may change down the line. It is our hope that Home Depot may assist us in assembling the crossbar, as it shouldn't require any welding or complex machining. Simple brackets and bolts should suffice for construction. If not, we will build it as a team at the NAU machine shop. Rowan McCullough will be leading this manufacturing effort. Construction should be very short, less than a week once materials are acquired, so we plan to start this process as soon as we feel we have a working sensor ready to be mounted outside. This should be around the time of the first hardware status update, as we will have two sensors ready by then.