

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.

Gannt

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.



- 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.

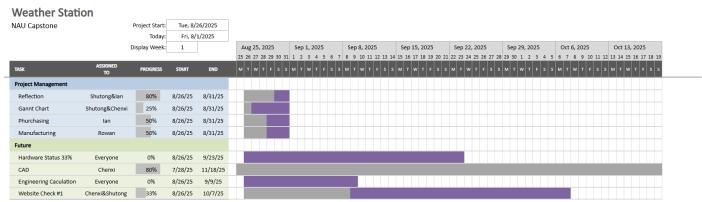


Figure 1: Gannt Chart (Week 1 until the first Hardware Status Update)

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.

Material	Quantity	Cost	Part Status	Make/Buy	Primary vender	Manufacturer	Lead Time	Link to Product
Onn MicroSD card 32gig	1	6.96	Arrived	Buy	Walmart	Onn	Same Day	https://www.wal
MCP3008 Analog to Digital Converter	2	15.3	Arrived	Buy	Amazon	Bridgold	Two Day	https://www.am
BME280 Sensor	2	14.1	Arrived	Buy	Amazon	Qoroos	Next Day	https://www.am
Sensors	5	3100	In house	Preowned	NRG	NRG	N/A	N/A
Raspberry Pi 3 model B+	1	35	In house	Preowned	Mouser	Raspberry Pi	N/A	https://www.mo
Wire/cabling	1	22c/ft	In house	Preowned	Home Depot	Syston	N/A	https://www.hor
FUTURE PURCHASES:								
MCP3008 Analog to Digital Converter	4	30.6	September purchase	Buy	Amazon	Bridgold	Two Day	https://www.am
Voltage Amplifier (AD620)	3	33.3	September purchase	Buy	Amazon	Midzooparts	6-10 Day	https://www.am
Voltage Divider (AMS1117-5.0)	6	8.99	End of August	Buy	Amazon	Holy Feather	Two Day	https://www.am
U-Bolts with Mounting Plates	4	11.36	September (Purchase with	Buy	Home Depot	Everbilt	Same Day	https://www.ho
	Total Cost:	3265.61						

Figure 2: Updated BOM Without Manufacturing

This is our updated BOM with future plans of purchase. The sensors are an estimated value, as our client does not have the receipts for the purchase. It is apparent that there will need to be more specific planning on order dates for this project, as we ran into issues with late-arriving parts during the prototyping phase. One thing that needs to be clear in the planning is which sensors we will have fully functional for each hardware landmark, as the parts will need to be ordered specifically for different sensors. This will be updated further as we meet with our client, Professor Pete. We have scheduled to have weekly interviews with him every monday.

Action items:

- 1. Update Financial Manager Status
- 2. Establish order of completion for hardware
- 3. Order needed parts for initial sensors
- 4. Establish wired connections (possible added cost of heat shrink or electrical tape)

Manufacturing Plan:

There is only one part we are currently aware of that will require manufacturing for our weather station. This will be the mounting crossbar for the sensors to sit on top of the tower with ample space between them. The CAD model can be seen below in Figure 3.



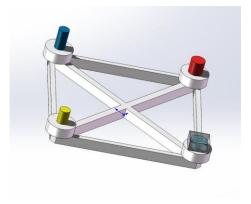


Figure 3: Crossbar for Sensor Mounting

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.