Weekly Progress Report (WPR)

Battery Management and Communication System (BMS)

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Course: EE175A – Senior Design I
Instructor: Prof. Sheldon Tan
Week:(*Oct 20 – Oct 26, 2025*)

1. Work Completed This Week

- Focused solely on CAD design and optimization of the BMS enclosure, including mechanical layout and airflow considerations.

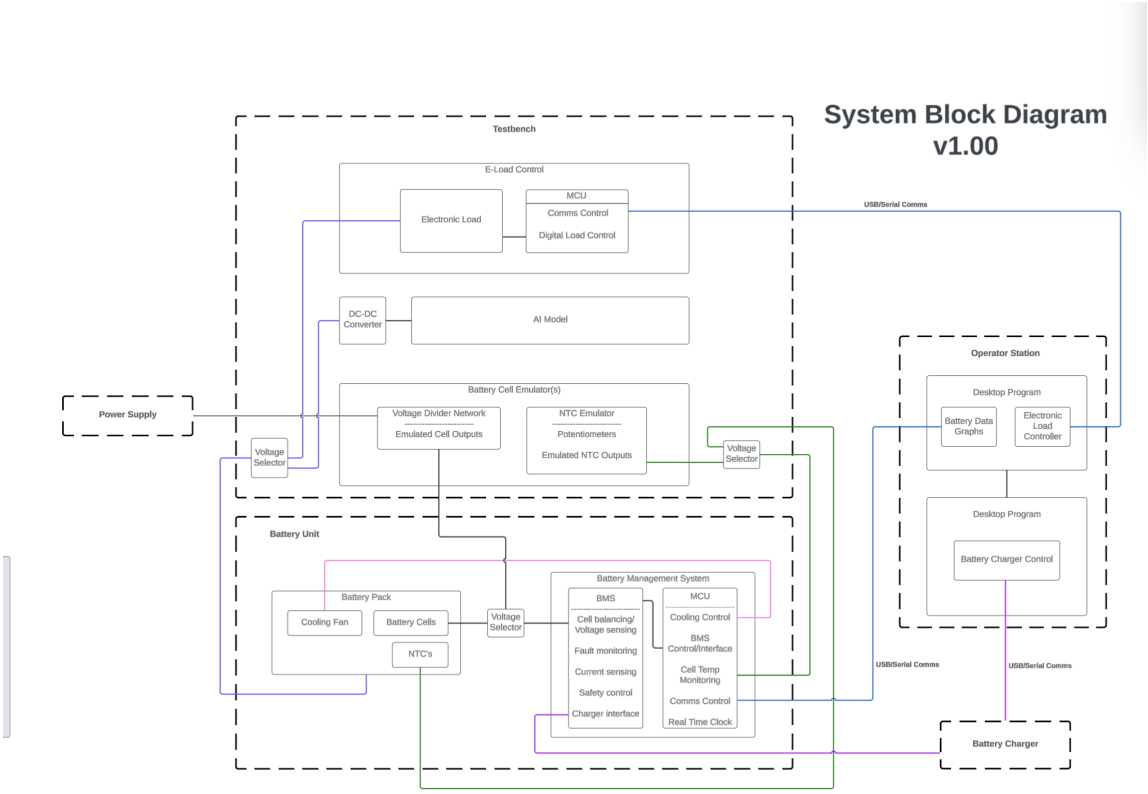
2. Challenges Encountered

- Limited clearance above the battery pack for PCB and lid integration — required tray redesign and low-profile connectors.
- Need to balance airflow for both pack cooling and electronic zone ventilation.
- Routing high-voltage sense lines while maintaining isolation distances between battery and STM32 domain.

3. Work Plan for Next Week

- Begin STM32 firmware development focusing on USB communication, fan control, and ADC data acquisition.

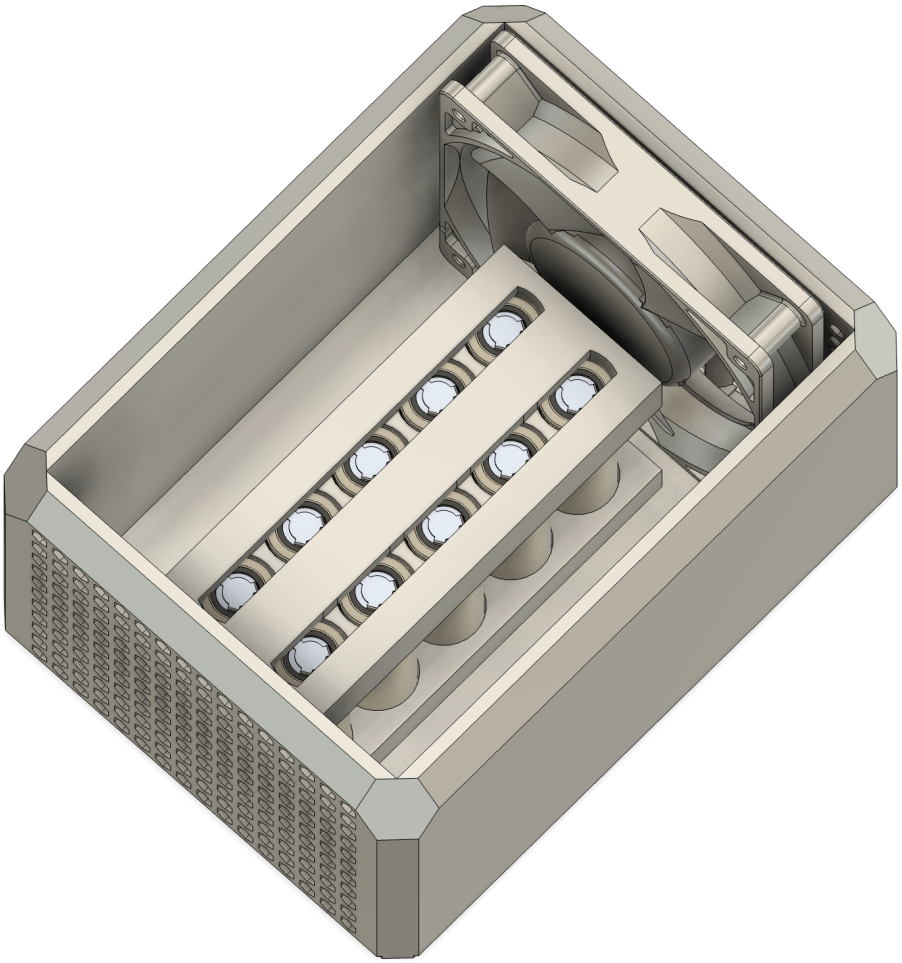
4. Appendix A – System Block Diagram



[Figure 1]

Figure A1: Updated System Block Diagram showing battery domain, isolation components, STM32 communication, and host interface (Source: EE175 Project Report).

5. Appendix B – Enclosure Visualization



[Figure 2]

Figure B1: 3D rendering of BMS enclosure with semi-transparent lid, showing airflow, fan, USB-C port, and internal component placement.