Heavy-Duty Hybrid Truck Display

Overview
Students designed an advanced driver information display for a Plug-in Hybrid Electric Class 8 truck. The team investigated system functions to determine the most relevant feedback to the driver, using ECU and sensor outputs of the plug-in hybrid electric powertrain. The goal was to develop an intuitive human-machine interface integrated in the vehicle’s dash display to improve operator behavior.

Objectives
- To understand and meet the sponsor’s requirements and expectations to deliver a tested and verified final deliverable.
- To gain experience working with an enterprise on a real-world engineering design project.
- To gain experience in writing professional engineering documents, as well as presenting in a business environment.

Approach
- Met with sponsor on-site to discuss details of the overall project.
- Brainstormed customer requirements with sponsor.
- Using requirements draft, used 4 week design phase for brainstorming and outlining structure.
- Used weekly teleconference meetings and email correspondence for sharing ideas, thoughts, concerns, and requesting data.
- Reviewed different software design patterns to find what best suited the problem at hand.
- Utilized UML diagramming and created mock-ups for initial design drafts.
- Created and tested working prototype application for the sponsor to continue development.
- On-going unit testing was used in tandem with code development.
- Used the detailed customer requirements to validate the application meets the sponsor requirements.

Outcomes
- By our team completing this project, our sponsor now has a working framework to continue development on their lucrative concept.
- Since our team had little experience in the industry of the sponsor, the product benefits from an outside perspective that the sponsor was looking for the product’s target audience.
- The student team members have more real-world work experience in a full product lifecycle.