Background
The modern passenger automobile now contains hundreds of computers. When adding a complex hybrid-electric powertrain to a vehicle, even more computers are necessary to guarantee safety while providing high power output. To get authority over all controllers, a single Supervisory Controller is added to manage the existing system and the additional powertrain system. And modeling software is used to develop the best design.

Research Questions
• How can we build software in charge of an entire vehicle?
• What advanced algorithms can we implement to benefit vehicle performance and safety?
• How can we model dynamic systems to help drive design decisions?
• How can we streamline a model based design process?

Methods
• Track software requirements to code.
• Develop embedded code for the Supervisory Controller using MATLAB/Simulink.
• Develop a vehicle model using MATLAB/Simulink.

Status
• We have developed the component and system logic for our supervisory controller.
• Improved and optimized the implemented logic.
• We need algorithm developers and engineers to help squeeze efficiency out of the system.
• We need engineers to model and optimize future vehicle architectures.

Conclusions
• If you’re looking to apply your passion for engineering, make strong industry connections, and compete to develop the next generation of advanced vehicles, the UW EcoCAR Controls/SMS team is the place for you.

Apply to our team!

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