



## Mechanical/Environmental Sustainability Project

### High Efficiency Hybrid Cycle Engine

#### Mission Statement

To design a mechanical pump system capable of accepting multiple types of fuels for a high efficiency engine in development.

#### Synopsis

This platform is designed to run on multiple fuels including ethanol, bio-diesel, and hydrogen but the fuel injection system is incomplete. Our goal is to design a fuel pump that is projected to operate a diesel engine that will operate at efficiency greater than 50%, and significantly reduce emissions, while reducing weight, part counts, and manufacturing costs compared to existing engine designs.

With high gas prices and the concern for global warming, now is the time to research and develop ways of reducing car emissions. Developing a fuel pump for a diesel engine that can be up to 50% more efficient than existing engines will significantly reduce these emissions and save us money at the gas pump.

Over the course of this project we attempted to make use of new technologies and techniques in order to not only move forward but expand our skill sets. The team utilized the computer aided drawing software package known as SolidWorks

As the project progressed we became familiarized with fuel injection and rotary engine technology thanks to our project sponsor company. That introduction brought us a wealth of knowledge including several computer controlled and mechanically controlled fuel systems as well as the reasoning for using each.



Max Accardo  
David Kurtz  
David Goldberg  
PJ Paneru  
Eyas Azzuni

University of Hartford  
University of Hartford  
University of Connecticut  
University of New Haven  
University of Hartford