Thesis Project Portfolio

Optimization of a Formula SAE Intake Manifold

(Technical Report)

Impacts of Passenger Vehicle Fuel Economy on a Global Scale

(STS Research Paper)

An Undergraduate Thesis

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Brett Mihovetz

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Department of Mechanical and Aerospace Engineering

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Sociotechnical Synthesis

Climate change has become a major cause for concern over the last 20 years, with the passenger vehicle being a major contributor to greenhouse gas emissions. This paper looks to address what policy decisions and what solutions can be found in order to reduce consumer grade passenger vehicle emissions in a manner that is equitable. In order to answer this problem, a cost benefit analysis was conducted on four policy solution archetypes which were identified through research. When analyzing this problem, it was important to consider the vehicle market itself and identify areas in which certain policy decisions might unfairly support different groups, and how to avoid that. STS research will be conducted by collecting information gathered from other researchers on the various topics at hand within the paper, and synthesizing these findings in order to determine what appropriate solutions might look like. In order to analyze these findings in a fair and overarching manner Utilitarian Ethics was used as a lens. It is likely that current environmental policy decisions unfairly distribute aid and tax incentives to middle to upper middle-class households, which needs to be addressed. Through the research done through the capstone project and the research paper it can be found that current passenger vehicles have numerous technologies which can be utilized in order to reduce the auto industries carbon footprint, primarily by increasing fuel economy. These technologies can be implemented equitably by providing incentive to install new emissions control technology onto preexisting vehicles, allowing lower income households to benefit from emissions control legislation.