Zinc Fuel Car

IPRO 313
Prof Ruiz

Why Zinc Fuel?

Today's vehicles use internal combustion engines. This causes pollution and dependence on the limited resource of oil.

Current alternatives have their own inherent problems.

Biofuels	Emissions Land needed to produce
Hydrogen Fuel Cell	Expensive, Dangerous Produced from natural gas
Plug-in Hybrid	Emissions Oil dependence
Electric	Expensive Limited range

Zinc fuel has zero emissions, is safe, and is cost effective. It won't require the users to change their driving or fueling habits.

Previous Work

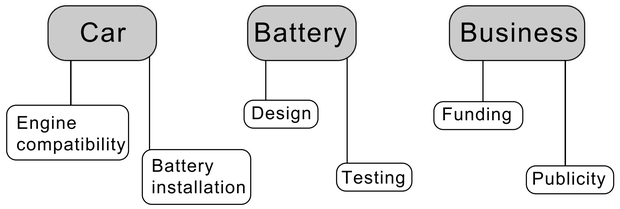
Made several battery designs, constructed and tested the first prototype of the zinc air fuel cell.

Received 2 Chevy S10 trucks to modify for our design, donated by Argonne Lab. Listed parts needed to convert the engine.

Financial support from Exelon.

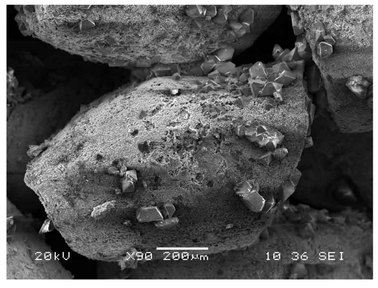
Methodology

Team Structure

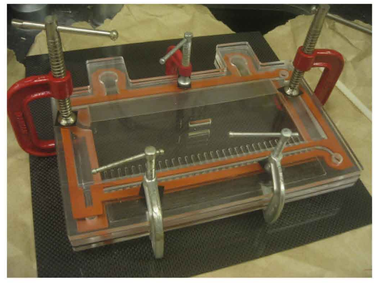


Battery Team

The battery team investigated the previously tested prototype to determine what changes needed to be made to the design. They took microscopic images of the chemical reactions in the zinc and investigated material changes.



Using the results,they designed and built a second prototype which is more efficient than the previous one.



Objectives

Continue fuel cell design in a laboratory setting. Increase the efficiency of the previous design and troubleshoot the flaws.

Modify the truck to make its components compatible with the zinc battery. Increase space available for the battery.

Continue to search for outside funding.

Car Team

Revised and ordered necessary parts decided in the previous semester. After gutting the truck, they installed the new parts. They removed the motor and transmission, and replaced the motor with a new one which is more efficient. It is considerably smaller to allow more room for the battery.

Business Team

The team researched potential sponsors and started a proposal for a grant from Chevron. They applied for a grant from the Wiser Foundation.The results are expected mid-December.

WISER
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They created a Facebook page to spark interest in the project in the upcoming semester.

Future Plans

Continue testing and designing single cell battery.

Design and build full scale battery to test in modified truck, solve issues with space in the truck for full-scale battery.

Design and test refueling system

Continue seeking sponsorship and publicity, build a website to promote the project.

Devise commercialization strategy for implementation of our system.

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IPRO It takes a team!
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