



# Electric Vehicle Range Extension

Adviser: Dr. Seungyong Hahn Sponsor: Dr. Michael Hays



## Project Scope

Cummins, Inc., a world leader in power systems, has tasked Team 2 with continuing last year's project of extending the range of an electric vehicle through non-traditional power adders. Team 2 will use the previous year's integrated systems as well as new components to meet the goals set forth by Cummins, Inc.

## Goals & Constraints

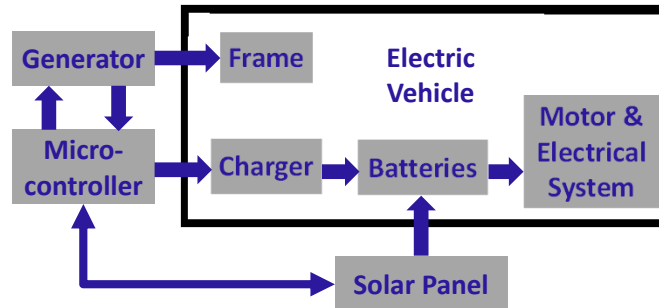
### Goals

- Document current vehicle performance
- Research variety of possible power adders
- Procure/incorporate additional sources
- Reconfigure overall vehicle circuitry
- Increase vehicle range by 15%

### Constraints

- Fuel supply cannot be increased
- Vehicle must be able to carry 4 people
- Top speed cannot be reduced by more than 10%
- Acceleration cannot be reduced by more than 10%

## System Overview

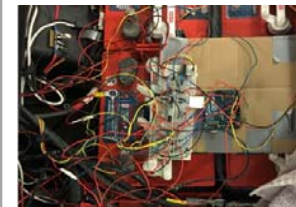


## Progress

- Completely new wiring for existing systems
- New LCD for user interfacing
- Fan covers and all around weather-proofing
- Completed benchmarking of cart

## Circuitry Improvements

### Before



### After



## Future Work

- Finalize circuit design for integration of new components
- Incorporate new components
- Write new code for additional components and generator
- Test for increase in range

## Acknowledgements

Team 2 would like to thank our advisor, Dr. Hahn, for continually providing helpful insight and feedback on our project. We would also like to thank our sponsor, Dr. Hays, for encouraging us to think critically and to find new ways to achieve our objective.

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