Due to rising concerns of the air quality, this project was done to demonstrate that carbon dioxide emissions can be eliminated from 4-wheelers by replacing the combustion motor with an electric motor.

The conversion was done using a brushless-DC motor, motor controller, lithium batteries, and an Arduino Mega for instrument control.

Battery Management System – Uses headboard and individual cells to control input/output power of Lithium batteries

Electric Motor – DC Brushless Permanent Magnet (5 kW)

Motor Controller – Sevcon Gen4 (110 continuous amp PMAC controller)

Domino Throttle Body – Has “Deadman” feature to shut system off if user crashes

Speed Sensing – Magnet closes Reed sensor upon every revolution

Microcontroller – Arduino Mega 2560

Temperature Control – DC fans keep the temperature at ambient

Towing – It can pull 1000 lb very easily, and reaches its limit around 6000 lb

Speed – The 4-wheeler can reach speeds up to 30 MPH

Climbing – It will overcome a vertical obstacle up to 8”.

Battery Charge Span – The batteries will last up to 4-5 hours with continuous driving

• An electric motor conversion will help reduce the amount of greenhouse gases emitted into the atmosphere

• The electric system can do the same amount of work as the combustion system

• It will benefit many people

• There will not be a performance loss converting to an electric system