

RESEARCH THEME: POWERTRAINS, FUELS & EMISSIONS

ELECTRIC VEHICLE CONTROL SYSTEMS AND POWER MANAGEMENT

The project involves several doctoral projects on electric vehicle technology at Swinburne University of Technology. The work will be carried out jointly with Hefei University of Technology (HFUT) located in Hefei, Anhui Province, China.



Project Leader

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Project Participants Swinburne

VOLUME EFFICIENT HIGH PRESSURE STORAGE VESSELL

The objective of this project is to develop novel system design and manufacturing solutions for high pressure gaseous fuel storage for automotive applications to achieve a range close to that expected in conventionally fueled vehicles.

Project Leader

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Project Participants ANU

HIGH DENSITY GASEOUS FUEL STORAGE

This project aims to determine the feasibility of increasing the storage density of gaseous fuels at low and high storage pressures.



Project Leader

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Project Participants GM Holden
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ELECTRIC VEHICLE DRIVETRAIN

This project aims to develop Electric Vehicle (EV) drivetrain and storage integration that can be applied to existing vehicles for hybrid EV and full EV conversion and used for new EV and hybrid vehicles.



Project Leader

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Project Participants Swinburne
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VPAC

LIGHTWEIGHT INTERIORS

This venture brings together the technology, skills and capability to enable the creation and production of composite car interior products (initially seating) that provide all the functional benefits (including weight savings) of composites but also competitive in price to existing general use products.



Project Leader

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Project Participants Futuris
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LIGHTWEIGHT MODULAR VEHICLE PLATFORM

This project takes a “modular” approach to the vehicle lightweighting challenge. The resulting design aggressively reducing weight in the various modular components of the vehicle body. Although engine fuel efficiency has steadily improved over the past decade, fuel economy of typical vehicles has largely plateaued due to increasing vehicle mass. A key enabler for real world reductions in fuel consumption is reduced vehicle mass.

Project Leader

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Project Participants

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APPLICABILITY OF ELECTRIC VEHICLES

The uptake of electric vehicles (EVs) in Australia will provide many opportunities for the development of new products and services to support these vehicles. This project will identify key factors in Australian travel behaviour, vehicle and recharging infrastructure requirements that will influence the uptake of EVs and make recommendations.



Project Leader

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Project Participants

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DTED (SA)

SMART CHARGING OF ELECTRIC VEHICLES

The introduction of Electric vehicles in Australia will create new demands on energy infrastructure. At the household and business level, the competing energy demands of essential and non-essential systems will require “smart” technology to accommodate these demands while enabling convenient EV charging. This project will study the energy requirement “signatures” at the household/business level and develop models and strategies for enabling smart charging of EV within an energy-constrained scenario. A number of Australian businesses have expressed interest in this area and are considering developing commercial products and services using the research outcomes.



Project Leader

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Project Participants

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ZERO EMISSIONS ELECTRIC VEHICLE INFRASTRUCTURE

The electricity used to recharge the batteries of electric vehicles must be generated from clean sources in order to avoid the greenhouse gas pollution produced by fossil fuelled power stations. The aim of this project is to design, build and test a prototype heat engine, with a 50kW electrical output, that can be scaled up to a 1MW commercial unit for recharging electric vehicles.



Project Leader

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Project Participants

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