

AutoCRC Research Themes

AutoCRC has four broad research themes and a program dedicated to training and education. These comprise a portfolio of projects each of which constitute technology building blocks designed to enable substantial change within the Australian automotive sector. The research themes are:

Materials and Sustainable Manufacturing

This program is an investigation of technologies aimed at reducing manufacturing lead times and emissions and also focuses on the development of non-traditional materials such as magnesium and aluminium (in conjunction with non-metallic composites) and associated processes. High performance coatings will also be employed to reduce friction, prolong engine life and reduce emissions.

AutoCRC core capabilities – Magnesium and aluminium; composites; stamping and welding; carbon fibre; value chain analysis; RFID systems; vehicle structures.

Powertrains, Fuels and Emissions

Focuses research on improving the efficiency and emissions of conventional internal combustion engines to improve overall air quality and reduce the national consumption of fossil fuels. Research will include work on developing powertrains for hybrid or electric vehicles or those based on alternative fuels.

AutoCRC core capabilities – Engine and powertrain modelling; electric drives; LPG fuel systems; catalysts; battery and super-capacitors; thermoelectric devices.

Safety and Intelligent Vehicle Systems

This theme will focus its efforts on improving vehicle safety and injury prevention through pedestrian impact protection, far-side impact protection, human machine interface optimisation and child safety. In addition AutoCRC will investigate intelligent vehicle systems for improved performance and safety.

AutoCRC core capabilities – Restraint systems; driving simulators; vision-based object recognition; voice recognition; human machine interface; motion capture; human factors; emergency vehicle systems; telematics.

Virtual Design & Manufacturing

Aims to reduce typical development times of up to five years from concept to market to approximately one year. This paradigm shift will be achieved using state-of-the-art virtual design and engineering principles with modelling of products and processes.

AutoCRC core capabilities – Supercomputing; modelling/analysis; vehicle concepts; knowledge-based engineering; virtual reality; haptics; visual/video collaboration; software design; project management tools.

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