

RESEARCH THEME: MATERIALS & SUSTAINABLE MANUFACTURING

Coulomb Damped Automotive Castings (CDAC)

Research in development of cost effective manufacturing processes in pressure die casting to enhance Coulomb vibration damping of electric motor housings and other thin-walled aluminium and magnesium castings.



Project Leader

Dr Thang Nguyen
CSIRO
P: 613 9545 8443

Project Participants

GM Holden
CSIRO

AR Projection System for Work Cells 2

The aim of this investigation is to invent a system that projects perspectively correct visual data onto arbitrary 3D surfaces for the express purpose of providing just-in-time information to an operator in-situ within a physical work cell.



Project Leader

Prof Bruce Thomas
UniSA
P: 618 8302 3464

Project Participants

GM Holden
UniSA

VIRTUAL PAINT extension

This research focuses on delivering simplified simulation procedures for two key manufacturing capabilities of a vehicle paint process - Oven Baking Simulations (OBS) and Fluid Access and Drainage (FA&D).



Project Leader

Thomas Dittmar
VPAC
P: 613 9647 5432

Project Participants

GM Holden
VPAC

T-MAG

The aim of this project is to design and validate requirements for furthering the application of the T-Mag magnesium casting process to automotive components.



Project Leader

Geoff Delooze
CSIRO
P: 613 9545 8436

Project Participants

GM Holden
CSIRO
DTED

LIGHTWEIGHT VEHICLE STRUCTURES

This project aims to build collaboration between Hefei University of Technology (China), Deakin University and AutoCRC in the areas of materials, manufacturing and simulation.



Project Leader

Dr Bernard Rolfe
Deakin
P: 613 5227 2417

Project Participants

Deakin

ADVANCED RIVETING SYSTEM PHASE 2

This project aims to further develop, validate, and demonstrate Friction Stir Blind Riveting technology using a robot-mounted riveting system designed and fabricated during Phase 1 of this project.



Project Leader

Prof Sri Lathabai
CSIRO
P: 613 9545 2740

Project Participants

GM Holden
CSIRO

COULOMB DAMPED HOUSINGS

Coulomb Damping is a phenomenon observed when metallic components rub against each other. It is proposed to apply this concept to improve performance of motor housings. The development work will be based on a simple high pressure die-cast specimen design. It will explore requirements for insert material, thickness, geometry, coating and manufacturing method.



Project Leader

Dr Thang Nguyen
CSIRO
P: 613 9545 8443

Project Participants

GM Holden
CSIRO

TESTING ELECTRICAL STEEL PERFORMANCE

The aim of this research is to develop a technology that will improve quality of electric motor products, therefore customer satisfaction by identifying components out of specification and reducing the production variation of low performance electric motors.

Project Leader

Dr Howard Lovatt
CSIRO
P: 612 9413 7412

Project Participants

GM Holden
CSIRO

BEYOND LEAN: POST LEAN MANUFACTURING IN AUSTRALIA

Lean manufacturing is now the incumbent paradigm within the global automotive industry. Its success in the super competitive global automotive market has attracted the attention of manufacturing and service providers who are currently enjoying the benefits of waste reduction and lower operating costs with enhanced quality and customer satisfaction.



Project Leader

Ass Prof Roger
Labrooy
RMIT
P: 613 9925 6009

Project Participants

RMIT
SMR

GAS METAL ARC WELD MODEL FOR ALUMINIUM

The aim of this project is to develop a three-dimensional, time-dependent, computational model of GMA welding of aluminium, in lap fillet weld geometry.



Project Leader

Dr Tony Murphy
CSIRO
P: 612 9413 7150

Project Participants

CSIRO
GM Holden

VIRTUAL SIMULATED WORK ENVIRONMENT

Project benefits include enabling accurate dynamic digital human modeling of operators performing assembly tasks from basic push/pull through to manipulation of flexible hose/cable and will significantly impact on ergonomic analysis of assembly processes and assist in build/design path optimisation of flexible materials.



Project Leader

Prof Saeid
Nahavandi
Deakin
P: 613 5227 1231

Project Participants

Deakin
GM Holden

PLASTICS MIRROR COATING DEVELOPMENT

The aim of this project is to develop a second generation manufacturing process that will eliminate the traditional liquid hardcoat system, replacing it with an in vacuum hardcoat (Plasma Enhanced Chemical Vapour Deposition) process. By converting the whole process into a single "black box" and eliminating all manual handling, a high volume process with significant cost savings can be realised.



Project Leader

Dr Peter Murphy
UniSA
P: 618 8302 3564

Project Participants

UniSA
SMR

LASER PROJECTION SYSTEM FOR WORK CELLS

This project will determine ways of evaluating an environment and selecting the most suitable areas to project information onto, and modifying the projection to appear as understandable as possible. The research will also investigate straightforward user interface technologies to support users on the shop floor.



Project Leader

Prof Bruce Thomas
UniSA
P: 618 8302 3464

Project Participants

GM Holden
UniSA

VIRTUAL PAINT PROCESS

This project focuses on developing two key virtual manufacturing capabilities for the vehicle paint process. Firstly paint oven bake simulations and secondly fluid access and drainage simulations. The aim is to assess, and where required, extend or replace the current simulations capabilities.

Project Leader

Thomas Dittmar
VPAC
P: 613 9647 5432

Project Participants

GM Holden
VPAC

ADVANCED ACTUATORS

This research will develop two complimentary technologies, the first associated with Shape Memory Alloys (SMA), which are a class of materials that undergo a phase transformation in the solid state. The second is an Integrated Actuator system that allows a single motor to provide multiple outputs, thereby overcoming the need for multiple electric motors and reducing component mass and cost. The Integrated Actuator will utilise the enhanced SMA technology developed in this project.



Project Leader

Dr Martin Leary
RMIT
P: 613 9925 6177

Project Participants

Futuris
RMIT

PLASTIC MIRROR DEVELOPMENT

The aim of this project is to develop a cost effective plastic mirror to replace the traditional components of glass, backing plate and screen printed resistive heater pads on automotive exterior mirrors utilising technologies that include injection compression moulding, vacuum metallisation and resin based hard coatings. The proto-type product at present has several limitations, including optical quality and coating performance.



Project Leader

Dr Peter Murphy
UniSA
P: 618 8302 3564

Project Participants

UniSA
SMR