



Design and Make Project

Introduction

Jaguar Land Rover is the UK's largest automotive manufacturer, built around two iconic British car brands: Land Rover, the world's leading manufacturer of premium all-wheel-drive vehicles; and Jaguar, one of the world's premier luxury sports saloon and sports car marques.

As part of its global school STEM education programme, Jaguar Land Rover engages with thousands of young people in the UK and overseas each year. Jaguar Land Rover operates Education Business Partnership Centres at its advanced manufacturing plants in Solihull and Castle Bromwich in Birmingham and Halewood in Merseyside. They also operate a Research and Development facility in Warwickshire and an Engineering Centre in Coventry as well as the Engine Manufacturing Centre in Wolverhampton. The Education Centres offer educational visits to schools, colleges and universities from the UK and overseas as well as work experience placements and careers courses during school holidays.

Design Context

Jaguar Land Rover aims to enthuse and inspire students to pursue STEM careers through Education Centres and STEM Challenge programmes, which help young people develop the skills and abilities needed for its apprentice and graduate pathways.

The company's innovation is continuous: it will spend more than £4 billion in the coming year on new product creation and capital expenditure. From 2020 all new Jaguar Land Rover vehicles will be electrified, giving customers even more choice. JLR will introduce a portfolio of electrified products across its model range, embracing fully electric, plug-in hybrid and mild hybrid vehicles as well as continuing to offer ultra-clean petrol and diesel engines.

The company is searching for new talent with digital skills to fill roles such as software design and virtual modelling to help it develop Automated, Connected, Electrified and Shared future vehicles and technologies. JLR employs 43,000 people globally and its team of experienced designers, engineers and technicians is growing and evolving. The company also offer excellent career opportunities starting with advanced and degree apprenticeships and also offers a two-year graduate programme.

This project involves several schools working with JLR on a project to investigate the 'eCar'. This involves exploring the future of digital controlled autonomous vehicles and investigates some of the systems they might contain using programmable microprocessor systems available in schools. The project will be supported by Jaguar Land Rover apprentices who will also provide an insight into the career opportunities.

At the end of the process, all the solutions will be displayed and evaluated in a 'Show and Tell' hosted by Jaguar Land Rover.

The Task

Jaguar Land Rover is currently working on lots of technologies to deliver its Automated, Connected, Electrified and Shared future. In this task, we'd like you to develop a range of prototype eCar systems that use computer control to control features in future cars. We would like you to investigate the use of the following and develop design prototypes that might involve the use of:

- electric motors to provide movement
- lighting and sound systems for both internal and external use
- both internal and external sensors to give feedback to systems
- microcontroller systems to control in-car systems
- demonstrate the potential use of computer control in future vehicles

In this task you are required to consider the design and modelling of external and internal eCar systems that illustrate the potential features of next generation cars. You should look to draw on your full range of D&T knowledge and skills to present and model one of your ideas.