

Innovation is Great Part 2

Here in Bristol, there's a snake on the loose, but this is a snake with a difference. Behind me is a high-tech science facility at the cutting edge of British innovation... and the snake? Well, it's a robot.

This is a snake-arm robot created by OC Robotics. The arm can be guided to places where people can't or don't want to go... so can be used where access is difficult or where there might be danger. It's being used in the aerospace, medicine, security and nuclear industries

Dr. Rob Buckingham is the co-founder of OC Robotics.

Richard: Rob, what exactly is the snake-arm robot?

Rob: The snake-arm robot is a long, slender robot arm and it's designed to get into confined spaces where there's radiation, or underwater, or very small spaces.

Richard: So this would be perfect for space exploration?

Rob: We are talking to Nasa about just that, so maintenance of satellites. There are now lots of satellites in space and also when it comes to going to Mars, again, it's all going to be robotised.

Richard: Tim, how exactly does this hub work?

Tim: So it's really simple. A couple of monitors, one showing the on-board camera, one showing a virtual environment, a few computers controlling the system and then this games console controller.

Richard: All right, I've used one of these before. This should be very easy. What do I have to do? Just forward, backwards...?

Tim: Forwards, backwards, left, right with those, and we're good to go.

Richard: This isn't worrying you at all...?

Tim: No, absolutely, go ahead.

Richard: Just go for it. Easy-peasy. Is it supposed to do that? Do you like the way I moved to the right there? Look at that. Oh, look, we can see ourselves in the background.

Tim: So that's from the onboard camera.

Richard: Hello mum!

Richard: Why do you think Britain leads the world when it comes to innovation?

Rob: Well, I think it's because we're brought up to be quite creative and we're not scared of a challenge, and that's a powerful combination.

Britain leads the way in high-tech innovations, including the high-profile world of Formula 1. Every part of a Formula 1 car has some input from Great Britain - from design to manufacture.

And now McLaren have taken their Formula 1 technologies, and put them into their first high performance, low emissions sports car: the MP4-12C.

They've even built a factory that the Prime Minister himself opened.

David Cameron: It gives me great pleasure to declare this incredible facility is open for business! Thank you very much indeed.

McLaren Manager: The opening of the McLaren production centre by the prime minister is something that is so special and such an honour for the whole team that's been involved in developing this car and developing this production centre.

The MP4-12C has an amazing innovation – the whole chassis is a carbon fibre composite. This

leading design and production could pass down to even more affordable road cars.

Rolls-Royce has been a motoring icon for over 100 years, and this is its home. The historic Goodwood Estate, famous for its links with motor sports.

This impressive building is their headquarters and manufacturing plant. For the last decade, it's where they've been designing and making luxury cars.

Rolls-Royce is unique in the way it brings together technical innovation and traditional craftsmanship.

I'm here to test drive the latest addition of the Rolls-Royce family; it's called the Ghost and it's the most powerful car they've ever built.

Each Ghost goes through around 2,000 individual stages. It takes at least 20 days and around 60 people to create each car. There's plenty of hidden technology and each one of these is hand-built to order.

Matt Smith is an apprentice.

Richard: So, Matt, what makes the Ghost so unique?

Matt: Well, the ghost actually has our most powerful engine ever produced here at Rolls-Royce. It's a 6.6 litre V12 twin-turbo. We have a new suspension system that caters for cornering, acceleration, braking. We have a night vision system. We also have new sound systems within the car. We have active cruise control, and we also have a lane departure system.

Richard: What makes Rolls-Royce so special?

Matt: It's the handcraftsmanship. It's how long each car takes to assemble. It's how much detail goes into every single part of the car and it's also just the feel that the car gives you as a customer.

Richard: So are you looking forward to helping design the next big car for Rolls-Royce?

Matt: Well, yeah, we always look to improve our cars on customer feedback, and I would love to be a part of that in the future.

Richard: Well, this is another dream come true, driving a Rolls-Royce Ghost. A quarter of a million pounds these things cost, and it is the height of luxury. The engine sounds really smooth and quiet and I'm really loving this.