

Stroke your car seat to pump up the volume

IMAGINE swishing a fingertip along the fabric of your car seat to control the radio volume. Or impressing guests by dimming your living room lights with a languid swipe along the arm of your sofa. These ideas could soon become reality thanks to a smart fabric that behaves like the touchscreen on your cellphone. Because you can clean it, the material will be practical for everyday use.

"In essence we are trying to reproduce the smartphone experience in textile form," says researcher Maksim Skorobogatiy of the Polytechnic School in Montreal, Canada. "We are looking for applications where we can weave in sleek, non-invasive control, avoiding blocks of push buttons."

To do this they have created a soft polymer-based fibre you can weave into a fabric, which has electrical properties that change depending on where it is touched.

The team start by rolling conducting and insulating polymer films around a copper wire to create a 2-centimetre-wide cylindrical capacitor (*Smart Materials and Structures*, DOI: 10.1088/0964-1726/21/1/015010). Then they heat the cylinder to 200 °C and stretch it out until it is a soft, elastic fibre just 0.9 millimetres in diameter.

"The resulting fibres are easy to

use in conventional weaving processes," says Skorobogatiy. To prove it, they wove their fibres into a 10 cm by 15 cm piece of material. Finger touches or swipes modified the capacitance of the fabric (a measure of its ability to store charge) when an alternating current was passed through the fibres. That allowed the team to write software that could pinpoint exactly where the pad had been touched. This means that finger movements such as swipes and touches can be logged and used to control the air-conditioning, say, or the volume on the radio.

Crucially, the fibre is easily cleaned, a must for material used everyday in cars or homes. Most smart fabrics to date have fallen at this particular hurdle.

It might not be long before something similar is seen in our cars. BMW already has plans to install touchscreen fabric in future models.

"Touch-sensitive surfaces are a very interesting technology for controlling operations in a car," says BMW spokeswoman Melina Aulinger.

"Swipes and touches can be logged by the touch-sensitive fabric and used to control the air con"

One of the displays in a recent BMW concept car that appeared in March at the Geneva Motor Show, Switzerland, is operated via a touch-sensitive surface and heating and music are controlled by the driver's gestures, she says. Paul Marks ■



ARNOLD MEYER/PICTURETANK

Music, maestro

ONE PER CENT



ED ALCOCK/ALDEBRAN ROBOTICS

Facebook for robots

Being a robot just got a little bit more sociable. People can now sign their automatons up to MyRobots.com, the first social network for bots. Here they can create profiles for the robots and then leave them to update their own status, whether with a simple temperature reading or the results of a face-recognition algorithm. The updates could let robots pool information and make for more intelligent decision-making. For now, the site only works with the Nao (pictured) and devices that run on the Arduino microcontroller.

"GPS is the weakest point. This is where the bird loses its brain"

An unnamed Iranian engineer who claims to be working on a captured US drone tells *The Christian Science Monitor* how it was tricked into landing in Iran

Plastic planes get camera gun

It's tricky to check a carbon fibre plane for problems. Incredibly, engineers still have to tap it with a hammer - or even a coin - to listen for a telltale hollow sound, signifying hidden damage. Now EADS, owner of Airbus, has developed an ultrasonic camera gun that visualises cracks or stresses in 3D. The technology is the first to be geared for composite aircraft and will be available by the end of 2012.

Fire-fighting bot keeps sailors safe

A humanoid robot is being developed to fight fires on board ships, keeping sailors away from danger. The US Office of Naval Research has awarded a multimillion dollar grant to two universities to create the Shipboard Autonomous Fire-Fighting Robot, or SAFFIR. The robot's joints will expand and contract just like a human muscle, allowing for smooth movement through ship corridors. SAFFIR will use sensors to see through smoke and locate fires to extinguish.

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