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# WHAT'S THAT SOUND? SILENCE

Electric cars need to make a noise to warn of their presence, but striking the right note is a challenge, writes **Stuart McDill** in Coventry, England

**S**hould an electric car go "vroom vroom" like its internal combustion engine ancestors, make a noise like a space ship in *Star Wars*, or emit the tranquil sounds of birdsong?

Researchers in England considering noises to alert pedestrians and cyclists to the presence of oncoming electric cars say legislation to force silent electric vehicles (EVs) to make a warning noise is inevitable.

"It's definitely coming," says **Warwick University** Professor Paul Jennings. "It's being prompted by the fact that there are now real statistics."

Figures compiled by the US National Highway Traffic Safety Administration show pedestrians and cyclists are twice as likely to be hit by a hybrid electric vehicle running silently at low speed than by a car with a normal engine.

The research team at Warwick University's Manufacturing Group (WMG), who have spent years helping the car industry make vehicles quieter, now find their work shifting into reverse gear.

"We want . . . to investigate sounds that are going to be safe, have minimal effect on the environment and are going to give some creativity to the manufacturers," said Prof Jennings.

The team wants to know what kind of noise is the most effective. It has adapted an electric delivery truck on campus to make different noises on different days.

It then canvasses opinion from students.

"If you ask the general public what an electric vehicle should sound like, you're likely to get an answer that relates back to science fiction movies — we've had all sorts of suggestions from *The Jetsons* to *Star Wars* and *Star Trek*," said research team member Seb Giudice.

Prof Jennings said the sound of a normal vehicle tells us if it is idling, accelerating or braking and that the sound of an EV must convey as much information.

"It's possible that you create a sound that is above a certain level, people may

even like that sound, but if you don't recognise it as an oncoming vehicle it is defeating the object."

So classical music or birdsong may be out as possibilities.

"The most pleasant sound might not be the best, most significant as a warning," he said.

Car manufacturers are investing huge sums developing the next generation of electric vehicles and are keen to protect their brands and differentiate themselves from the competition.

Prof Jennings said that years of working with carmakers on interior sounds has

shown researchers that manufacturers are very interested in sound. "It tells you such a lot about the brand and quality of the car. It almost gives it some personality."

Researchers also said the level of refinement of modern cars, electric or not, is such that future legislation may not differentiate between EVs and internal combustion engines.

"Most vehicles are just getting too quiet for most people to hear," said Mr Giudice. "So we may get to a stage where these sound-emitting systems have to be fitted to every [new] vehicle." REUTERS



A Tesla Roadster is charged at the company's plant in San Carlos, California. Researchers are now working on how the usually silent vehicles should sound. REUTERS