



Porsche is helping test the prototype with a drive train designed specifically for the new transistors and cooling methods | Photo source [Fraunhofer](#)

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IMPROVED EV ENGINE EFFICIENCY COULD EXTEND RANGE BY SIX PER CENT

 MOBILITY & TRANSPORT

The prototype is 3D-printed and is being tested by Porsche for commercial use

Spotted: Using silicon carbide semiconductors and flexible copper wires, researchers from the Fraunhofer Institute for Reliability and Microintegration IZM have created a thinner, more resilient electric engine power inverter. By reducing the amount of stress on the engine, and increasing the efficiency of the conversion and transport of power from the battery to the motor, the range of electric vehicles could be extended by up to six per cent.

Silicon carbide semiconductors lose less power than current materials used in EV engines. By increasing the overall efficiency, they also generate more heat. To combat the higher temperatures, the Fraunhofer team used 3D-printing to produce much thinner engine pieces. The reduced width allows the transistors to get closer to the water coolant.

Thin copper wires further enable improved flexibility as the engine heats and cools. The scientists replaced the solid copper tracks used to support the engine with flexible wiring. This reduces the likelihood of cracks and breaks, as all the elements have more latitude to move and adjust as conditions change.

Porsche is helping test the prototype with a drive train designed specifically for the new transistors and cooling methods. The overall development will continue to focus on the goal of commercial production and use.

Other recent innovations Springwise has seen that are working to reduce vehicle emissions through more sustainable transport options include an e-bike parking and charging station designed

specifically for tight spaces, and battery-powered [bicycle carts](#) for cleaner home deliveries.

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Takeaway:

Brands around the world are developing a vast range of electric vehicles. With options ranging from hybrid to all-electric, the growth in demand is further reflected in the increasing availability of charging networks. Experts consider the years **2022 to 2024** to be particularly optimistic for EV sales because of post-COVID government support for renewable energy and improved infrastructure. More sustainable transport is, of course, part of the bigger picture of a more equitable society. The interconnected nature of social challenges requires collaboration across and within sectors, and the public appetite for change appears strong, making this an ideal time for innovators and businesses to pursue their more ambitious projects.