

# Adapted roads let electric cars recharge on the move

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In demonstrations, electric cars can now be charged during transit by driving on specially adapted roads that can wirelessly power vehicles.

A prototype system, developed by Politecnico di Torino in Italy, could solve many of the issues apparent with electric vehicles such as their limited range and long charging times between trips.

This technology would eliminate the need for recharging stops on journeys to far flung destinations and provide enough charge so that they can operate on secondary roads where the system is not installed.

It could also allow for a reduction in the volume and capacity of batteries when a certain network of roads and highways is equipped.

The developers are to trial the system on a test circuit in Susa close to the city of Turin.

The prototype is based on a technology called Inductive Power Transfer (IPT) that works thanks to the inductive transmission of electric energy through the use of resonant inductors.

The principle is similar to induction cooktops and therefore, does not require any electrical contact which makes the system safe and ease of use.

It also reduces maintenance needs, eliminating external installations such as charging columns, which are often subject to accidents or vandalism.

A further step with these systems has been made through the Susa prototype, which does not require that the charge has to be carried on a stationary vehicle during stops or during parking: this application, called dynamic IPT, is based on the same technology extended during vehicle movement.

The basic unit of an IPT system for automotive applications consists of a fixed coil, placed underneath the road surface, designated as a transmitter, and a coil installed on the vehicle, called a receiver.

In the Susa test circuit, 50 transmitting coils have been installed, which will send power to a receiver installed on a light commercial vehicle.

In the short term, the diffusion of the dynamic IPT would completely eliminate the need for recharging stops and greatly reduce the capacity of batteries installed on board the vehicle.

In applications on fixed routes, such as public transport, the use of dynamic IPT could lead to almost total elimination of batteries whose presence would be solely for backup reasons.

Earlier this month another group involving Renault, Qualcomm and Vedecom demonstrated dynamic wireless charging in France as part of the EU-funded Fabric project. Two Renault Kangoo ZE cars ran on a 100-metre test track at Satory, Versailles, built by Vedecom and fitted with Qualcomm's inductive charging technology.

Further studies in the Fabric project will look at vehicle identification and authorisation on entering the track, power level agreement between track and vehicle, and speed and alignment of the vehicle on the track.

Electric cars in the UK are still struggling to gain prominence due to the limited number of charging stations around the country.