

May Google cars on the move one day roll over transmitters in ground for juice?

February 8 2016, by Nancy Owano



The finalized prototype of Google self-driving car. Credit: Google

Self-driving cars may one day take a direction away from wires that are needed to plug in for charging.

The wireless wish has turned into an action plan, with its [wireless charging](#) system now having reached the testing stage. *IEEE Spectrum* reported that there have been documents filed at the FCC on that note.

The documents suggest Google would like to explore cutting the charger cables.

Mark Harris in *IEEE Spectrum* said the filings reveal they have in mind wireless [charging systems](#) for the prototype electric [self-driving cars](#) in California. ("All the prototype cars currently being tested in public are recharged using traditional conductive charging cables," wrote Harris.)

In discussing wireless charging, he explained the principle of [resonant magnetic induction](#). "In this process, an alternating current passing through a tuned [electrical circuit](#) creates an oscillating magnetic field. That field then induces another alternating current in a second, nearby circuit tuned to the same [resonant frequency](#)."

The systems transfer power from a transmitter embedded in the ground to a receiver on the underside of an electric vehicle. One of the prototypes, Alpha, from HEVO (Hybrid & Electric Vehicle Optimization) Power, can deliver 1.5 kilowatts of power from a transmitter embedded like a manhole cover in pavement. Also, multiple chargers from Momentum Dynamics are being tested in California.

No types of company partner announcements have been made, however; both HEVO Power and Momentum Dynamics, said *IEEE Spectrum*, declined to confirm Google involvement.

Google itself noted only that it tests many different technologies for its self-driving vehicles, Harris added.

If electric self-driving cars are able to thrive on wireless charging systems, that would carry major advantages and could possibly ease people's reluctance in taking an electric self-driving car out on the road.

Smaller, lighter batteries for electrical cars could be used in this manner;

the car would be continually recharging as it travels along the road. Smaller and lighter batteries would also carry more design freedom for car makers; even the price for electric cars could come down.

Charging systems that are wireless will continue to be a focus of research and development across borders. Last year, the *International Business Times* reported that the UK was to begin tests on a [system](#) for charging electric cars while the cars drove along roads.

In Germany, Fraunhofer (an application-oriented research organization) reported in August that "researchers at Fraunhofer institutes built a 25-meter-long test route along which coils were set into the road.

The project, according to the announcement, was stated to have been a success: the demonstrator, a sports car converted into an electric vehicle, managed to travel the strip at a moderate speed while simultaneously charging its [battery](#).

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