Docket #: S11-336

Wireless energy transfer with the presence of metal planes

Stanford researchers designed a charging system to make electronic vehicles (EVs) a convenient alternative to gas powered vehicles. Instead of time-consuming stops at the gas pump or a charging station, EV owners could wireless charge their vehicle while driving down the road. The technology is capable of transferring 10kW of electric power to an EV moving at highway speeds. This method of continuous charging could solve a plug-in EV's limited driving range, which is a major obstacle to wide spread EV adoption. Since the proposed technology is embedded in the road as well as on the vehicle, there is potential synergy with autonomous vehicle control and tracking.

Caption: A video that explains the new technology.

Stage of Research
Computer simulations

Applications

- Wireless power transfer to electric vehicles
- Wireless power transfer to autonomous electronics
- Assist with autonomous vehicle control and tracking

Advantages

- 97% power transfer efficiency
- Enables charging as you drive

- Increases driving range of electronic vehicles

Publications

- Xiaofang Yu, Sunil Sandhu, Sven Beiker, Richard Sassoon, and Shanhui Fan, Wireless energy transfer with the presence of metallic planes, Applied Physics Letters 99, 214102 (2011), doi: 10.1063/1.3663576
- Wireless power could revolutionize highway transportation, Stanford researchers say, Stanford Report, February 1st, 2012.

Patents

- Published Application: 20140021907
- Issued: 9,142,998 (USA)

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