Control Methods and Systems for Simultaneous Wireless and Wired Power Transfer

THE UNIVERSITY OF ALABAMA | Research & Economic Development
Office for Innovation & Commercialization

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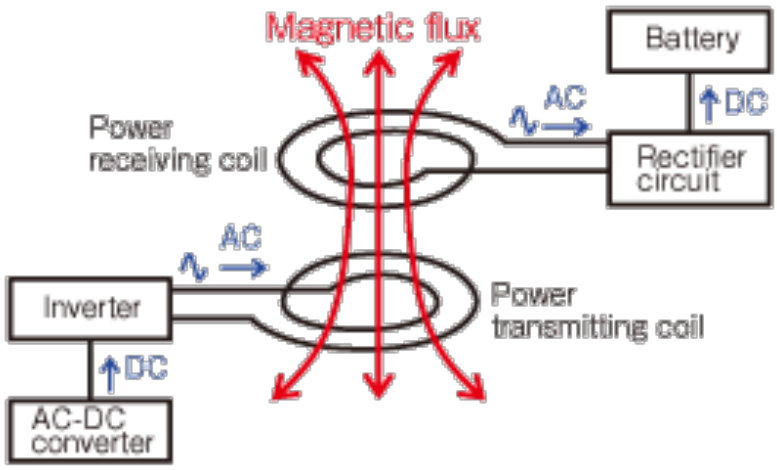
The Problem:

While there are many inductive chargers being develop to be used for applications such as charging electric vehicles, phones, and other electronic peripherals, none appear to be focused on harnessing the residual ripple energy of an operating transformer in this type commensalism. On the other hand, convention converters focus on minimizing the ripple energy to reduce waste but do not put it to any other beneficial purpose.

The Solution:

Researchers at The University of Alabama have developed an invention that will function to recapture the residual energy (ripple energy) which may then be transmitted directly or wirelessly through inductive charging. Because the existing architecture of many converters already use an inductor, this existing component may be employed to produce the inductive charging with little modification to the rest of the circuit.



Benefits:

- Simple circuit addition to traditional circuit architecture
- Potential applications include:
  - Electric car charging
  - Gaming consoles
  - Other wireless charging applications

INVENTOR

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Dr. Jaber Abu-Qahouq received is Bachelors of Science degree from Princess Sumaya University for Technology/Royal Scientific Society and his Masters and Ph.D. from the University of Central Florida in 2000 in Electrical Engineering.

His research interests include power electronics topologies and systems, digital/analog control of power electronics systems, power management, and energy systems.

He is the author or coauthor of more than 100 refereed publications and holds 31 U.S. patens.

He was elected a Senior Member of the National Academy of Inventions in 2020.

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