

# Wireless Power Transfer System

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## Efficient wireless transfer system which can transfer both data and power

Inventors at Georgia Tech and Florida International University have developed an innovative approach for transferring power wirelessly using resonant embedded loops. This series of technologies allows for efficient magnetic resonant power delivery by using specific geometric loops in the design of the resonators. This design also allows for radially and axially misaligned resonators to retain charging efficiency, which is an issue for both inductive and resonant power delivery techniques. These loops can be placed in any number of devices or could even be embedded into other materials. Multiple resonating elements can be combined to allow for both data and power to be transmitted simultaneously.

## Summary Bullets

- **Small in size** - Resonators are compact geometric shapes, aiding in volume or weight limited applications
- **Resistant to misalignment** - Retains comparable efficiency levels regardless of relative angles of transmitter and receiver
- **Versatile** – Both data and power can be simultaneously transmitted

## Solution Advantages

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## Potential Commercial Applications

- Wireless power delivery and charge to consumer electronics
- Power delivery to medical implants and other scenarios where physical contact is impractical
- Electric vehicle charging, resonator can potentially be embedded in vehicle body material

## Background and More Information

This technology was developed to enable efficient wireless power transfer. Wireless charging of consumer devices, such as phones and tablets, has become common while other applications (electric vehicles, medical implants) have active development underway. Many wireless charging systems have drawbacks over traditional

wired power such as inefficiency, slower charge rate, and short range or precise placement to charge. However, the convenience and potential safety features of wireless power transmission still generates demand for commercial applications.

## **Inventors**

- Dr. Emmanouil Tentzeris  
Professor - Georgia Tech School of Electrical and Computer Engineering
- Dr. Stavros Georgakopoulos  
Assistant Professor - Florida International University

## **IP Status**

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## **Publications**

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## **Images**

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<https://s3.sandbox.research.gatech.edu//index.php/print/pdf/node/3739>