

# Enhancing Drone Technology with Wireless Power

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How can wireless power transfer (WPT) systems be integrated into drone networks to support autonomous, continuous flight without human intervention for recharging?

## How WPT works:

- Using AC through 2 sets of coils, changing magnetic field from the first coil induces current in the second coil.

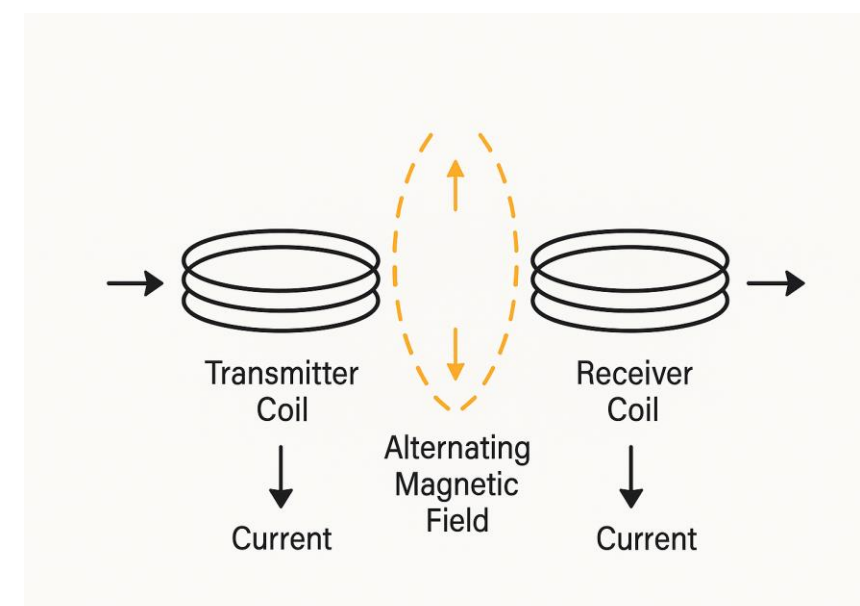


Figure 1.

- Drone lands and start charging the battery.

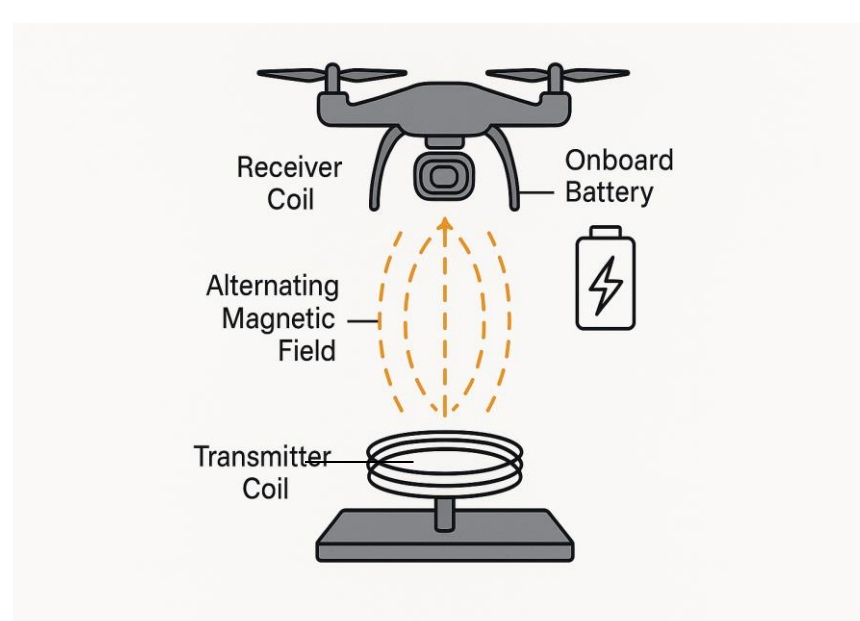


Figure 2.

- Inductance of Coils ~80 mH

- Frequency 100 kHz

- Mutual Inductance 20 mH

## Data:

### -Circuit Diagram:

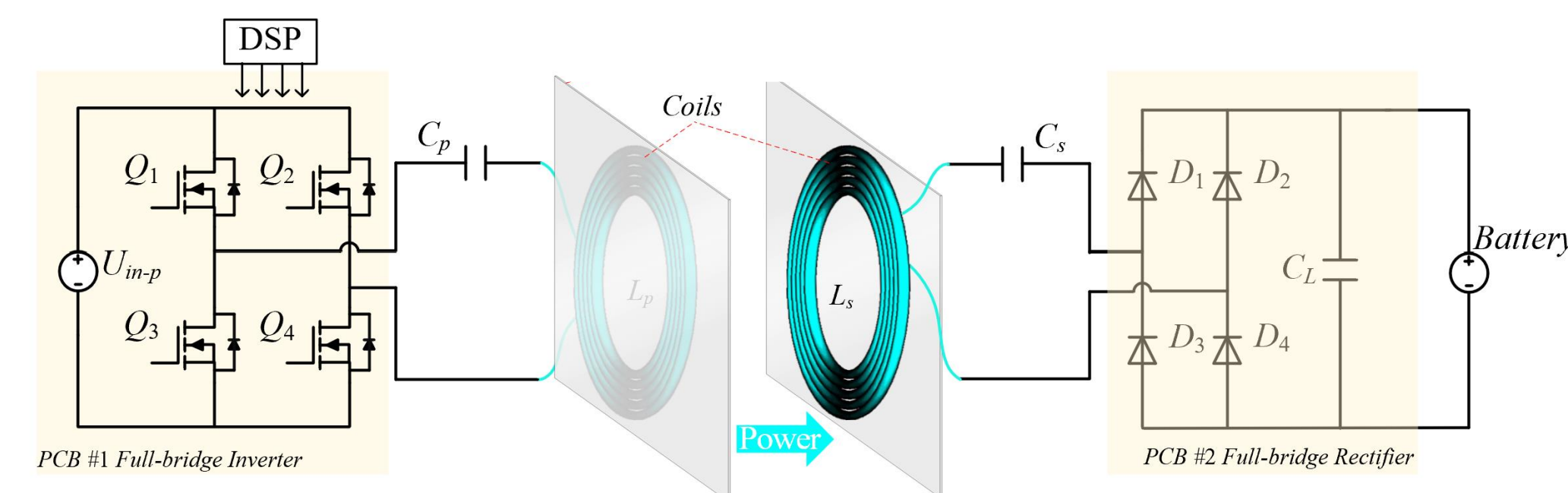


Figure 3.

### -Rectifier Data:

- Voltage Output: ~12v DC

- Current Output: ~1.6 Amps

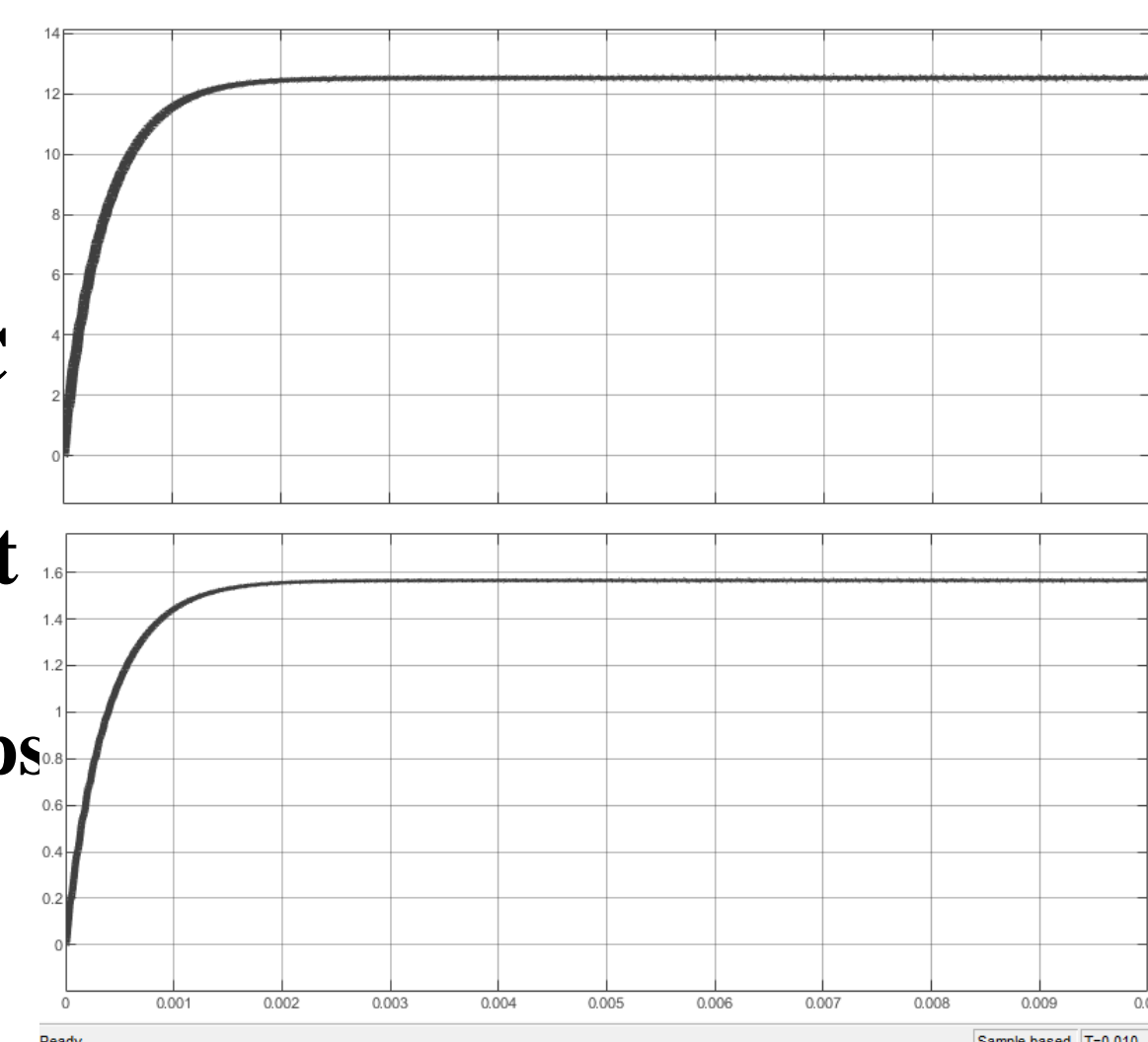


Figure 4.

Uses an inverter and a rectifier to switch AC/DC power.

- Input 48V DC (Pre-switching)
- output 12V DC (Post-rectification)

**Acknowledgements:** I would like to thank Dr. Guo and the members of PEEC Lab for the assistance and contribution that made this project successful.



## Inverter Data:



## Results on Hardware:

### -Double Pulse Test:

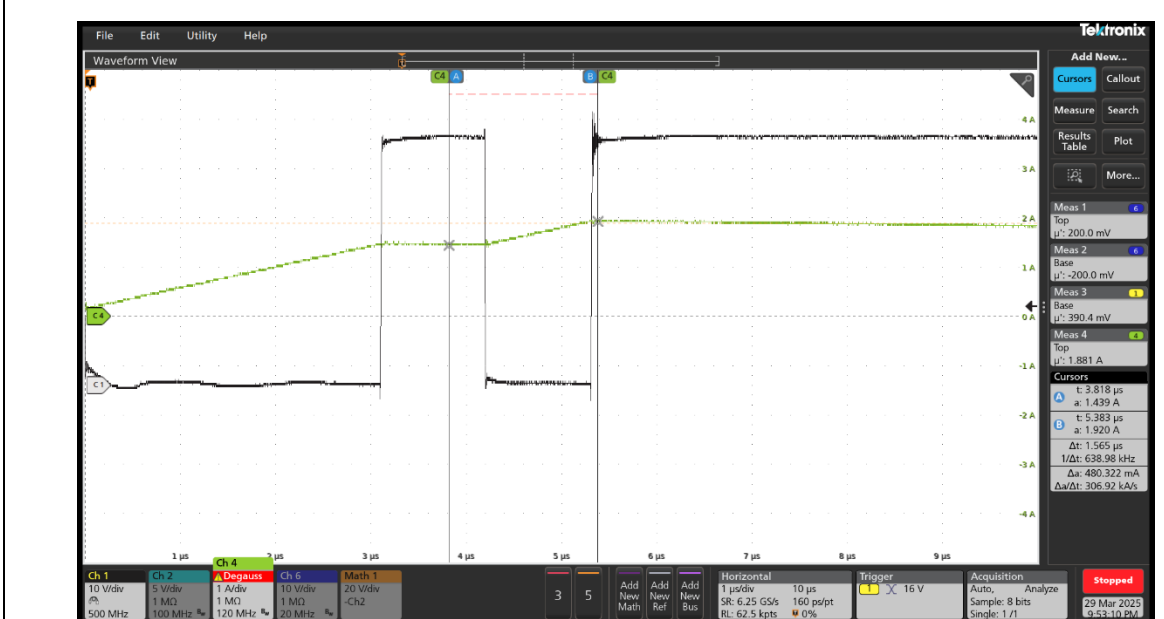


Figure 5.

### -CAD Assembly:

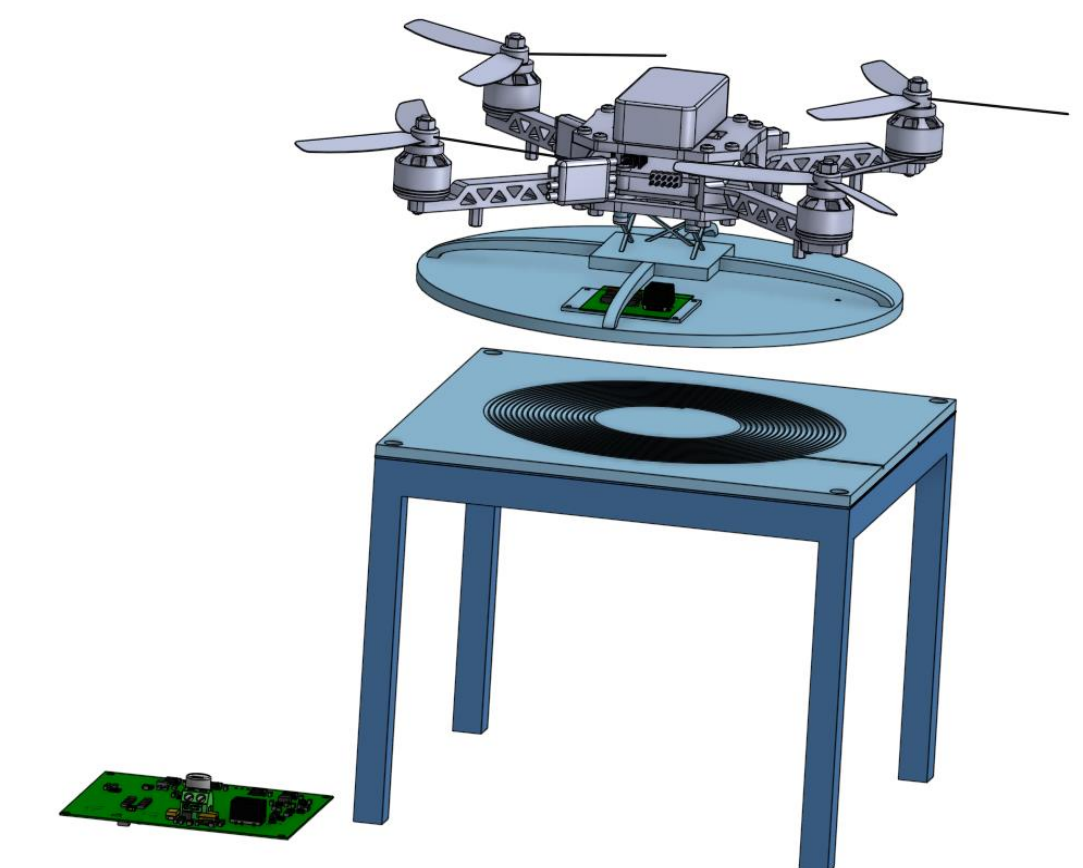


Figure 6.

### Output Waveform(Inverter):

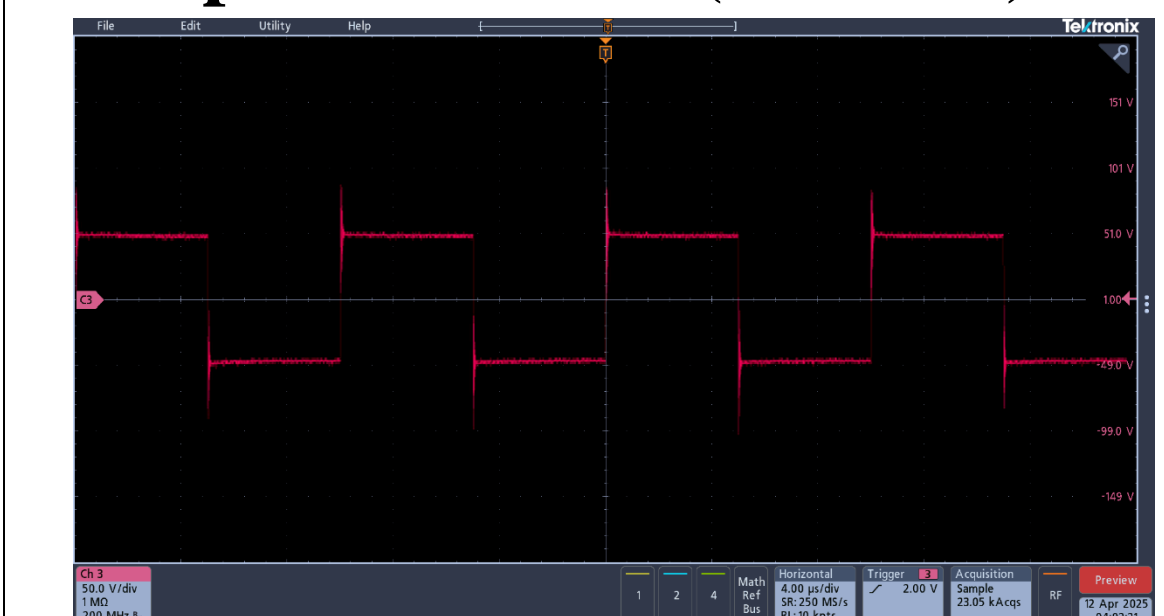


Figure 7.