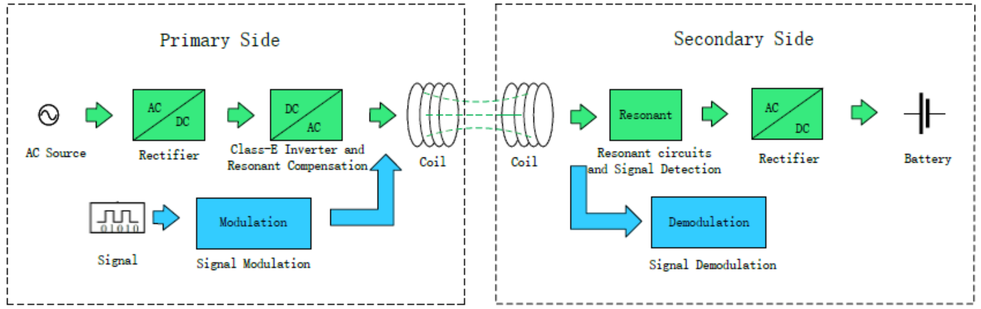
Wireless Power Transfer and Signal Transmission via Common Inductive Coupled Link

Zihao Hu
Advisor: Prof. Dariusz Czarkowski
Department of Electrical and Computer Engineering, New York University

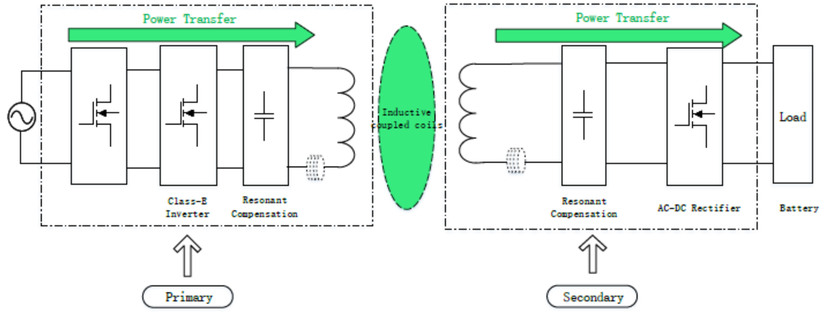
PRESENTED AT

1. Introduction



- To provide a stable wireless power transfer and battery charging
- To provide signal transmission via the same coil link with power transfer, modulation at primary side and demodulation at secondary side.

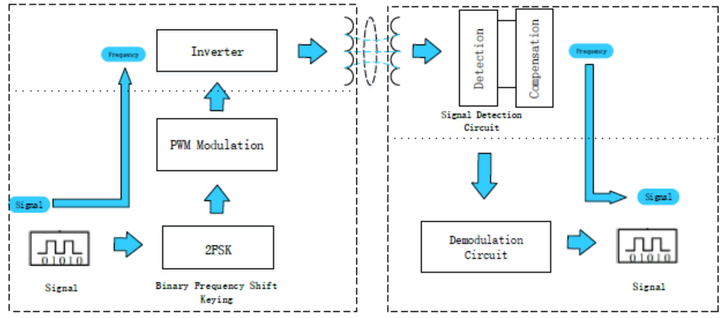
2. Power Section



- Primary Side
Class E inverter is chosen for this application because Class E inverter operates in high frequency with high efficiency
The resonant compensation topology is designed in S-S topology to achieve high efficiency

- Secondary Side
Resonant circuits are designed to isolate the frequency used for signal transmission to maintain stability of power transfer

3. Signal Section



- Primary Side
Signals 0/1 are modulated by 2FSk and PWM modulation technology into specific frequencies.

- Secondary Side
After detection circuits, the frequencies are demodulated back into signals 0/1. The signals are demodulated based on the voltage differences.