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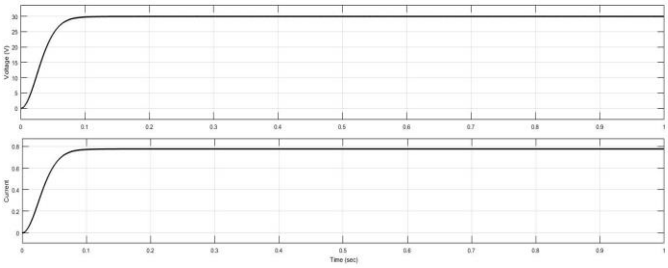

Fig 6. Waveform of output voltage and output current of the ZSRC

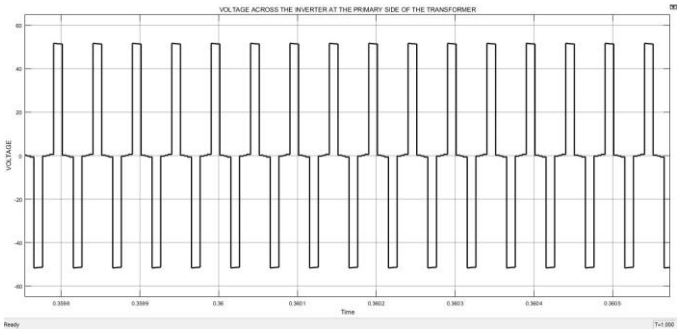

Fig 7. Voltage across the H bridge at the primary side

IV. HARDWARE IMPLEMENTATION

The main circuit diagram consists of four sections, converter section, control section, driver section and power circuit. The converter section consists of four IRFP460N MOSFETs. Even if there is any fluctuations in the input the output will be maintained constant by the program stored in the microcontroller. Microcontroller sends the corresponding signals which will be too feable to drive the MOSFET switches, so a driver circuit consisting of TLP250 Driver are used which boosts the amplitude of the signals enough to drive the switches.

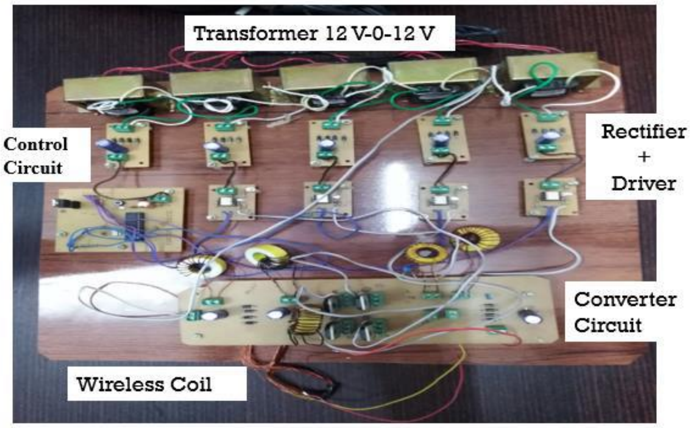

Fig 8 Complete Hardware Setup

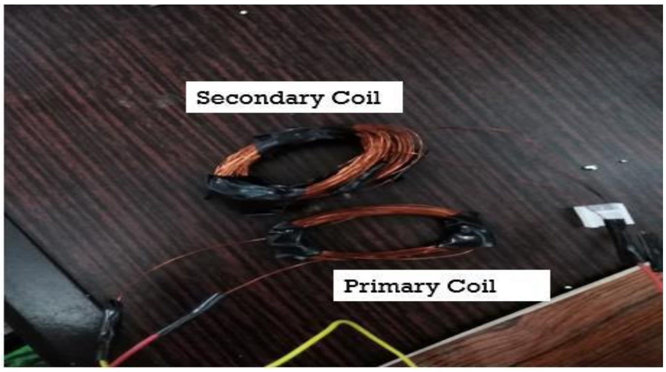

Fig 9 Wireless Power Transfer Setup

Fig 10 Output Obtained

V. CONCLUSION

A new circuit topology for high power WPT applications using a full bridge Z-source resonant inverter has been developed and simulated. The control methods in the system with the insertion of shoot-through modes of the Z-source inverter have been investigated. In simulation, ideal MOSFETs and diodes were used. The output voltage of 27 V and output current of 0.9 A, i.e output of 23.5 W is obtained for the coupling coefficient k of 0.2. In the experiment, an output current of 0.9 A, and output voltage of 16 V was obtained. The slight difference between the simulation and experimental results is due to the following reasons: Core losses, simulation-ideal diode and MOSFET switches were used. Nevertheless, in both the simulation and experiment, the results obtained are very close to the analytical design value. This, in turn, validates the designed parameters.

VI. REFERENCES

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