

VISVESVARAYA TECHNOLOGICAL UNIVERSITY
Jnana Sangama, Belgaum-590018



PROJECT REPORT
ON
“WIRELESS POWER TRANSFER FOR
CHARGING ELECTRIC VEHICLES”

*This report is submitted in partial fulfillment of the requirements for the award
of the degree*

Bachelor of Engineering
In
Electrical & Electronics Engineering

Carried out and submitted by

ANIRUDHA R RAO
ANOOP S
VINEETH MUTT

(1MV11EE011)
(1MV11EE014)
(1MV11EE121)

Under the guidance of
MR. HARSHA A R
Assistant Professor, Department of E&EE



DEPARTMENT OF ELECTRICAL & ELECTRONICS ENGINEERING
SIR M. VISVESVARAYA INSTITUTE OF TECHNOLOGY
BANGALORE-562157
KARNATAKA

ABSTRACT

Wireless transmission of power is the process of transmitting electrical power without the use of conductors. This project demonstrates wireless power transfer through resonant inductive coupling. Resonant inductive coupling is the near field wireless transmission of electrical energy. The transmitter and receiver coils having LC circuits are separated by a certain distance. The L and C values are tuned corresponding to the operating frequency so as to achieve resonance. The secondary receiver coil picks up most of the energy from the primary transmitting coil.

The operating frequency has been chosen to be 40 kHz. A rectifier and inverter circuits have been developed to bring the frequency up to this value. A gating circuit for firing the MOSFETs of the H-Bridge inverter has also been developed. The primary and secondary coils have been designed and realized physically. Many parameters that affect power transfer have been considered in the implementation of the project and have been discussed in this thesis.

Electrical power of about 5W has been successfully transferred over a distance of 10cm. The efficiency of the entire operating apparatus, that is, including the rectifier, inverter and gating circuits, the primary and secondary coils is about 60% for a distance of separation of 10cm. This model can be demonstrated as a prototype for wireless charging of electric vehicles where the primary coil lies embedded in a charging station or garage and the secondary lies in the car.