

# To increase the Efficiency of Power Consumption and the Range of Wireless Power Transmission using a High Frequency Resonant Air Core Transformer.

Team ID: (will be assigned by the co-ordinator)

Extended Abstract:

## ABSTRACT

### INTRO

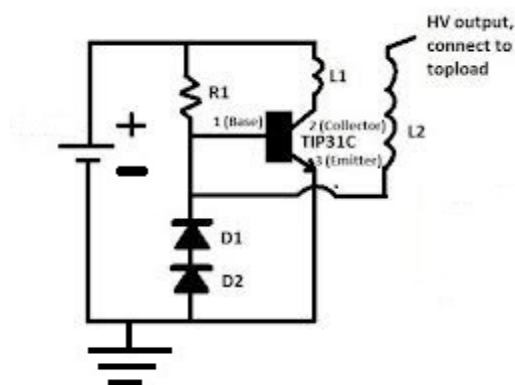
The basis of this project is to light up the dark huts of the poor, providing them the basic needs to survive & live a normal life. The bulb can be used without a filament till breakage or till gases inside escape.

### WORKING

The supply is given as DC and a transistor acts as a switching element and thus producing a varying magnetic flux through the primary and obtaining a transformer action which steps up the voltage by 300-400 times outside the secondary.

### Powering of the light bulb

The air around the coil is ionized and hence the vapor inside the bulb, when near it is ionized, thereby making it glow and wirelessly too! We reduce the electricity consumed by 75%, lighting a 40 watt bulb with 8 watts.



*Circuit - model diagram*

### PROPOSED MODEL

Wireless Power transmission is achieved essentially by a transformer that uses air as its core. By using air as a core, we create distance between transmitter (primary) and receiver (secondary). Instead of using a separate primary as a transmitter and secondary as receiver, hereby using a high frequency resonant air core transformer (coupled closely) we can amplify the voltage of the input power and obtain a large range, around the secondary coil's terminal. By doing this, we have not only obtained an efficient high frequency generator, but also a field around the transmitter of ionized air (stored as stray capacitance). From this breakthrough we have thereby achieved the following:

1. **Same Efficiency, More Luminosity:** By achieving ionized region at high frequency we have obtained a more efficient and economic method to illuminate fluorescent and CFL bulbs in an alternate way compared to the conventional method. We have a theoretical efficiency of 200% when compared to the conventional method. Experimentally, we can illuminate a bulb that consumes 40W by the conventional power supply with as small as 8W using this method. Not only can a normal bulb glow, we can glow any kind of bulb (as long as there are fluorescent gases present in it).
2. **Longer Power Transmission:** Instead of using a primary coil as transmitter and receiving with a secondary coil, we use a closely coupled primary and secondary coil as the transmission unit and use a tertiary coil as a receiving unit. By using two coils in the same transmission unit, we reduce the chances of harmful radiation and amplify the transmission distance.