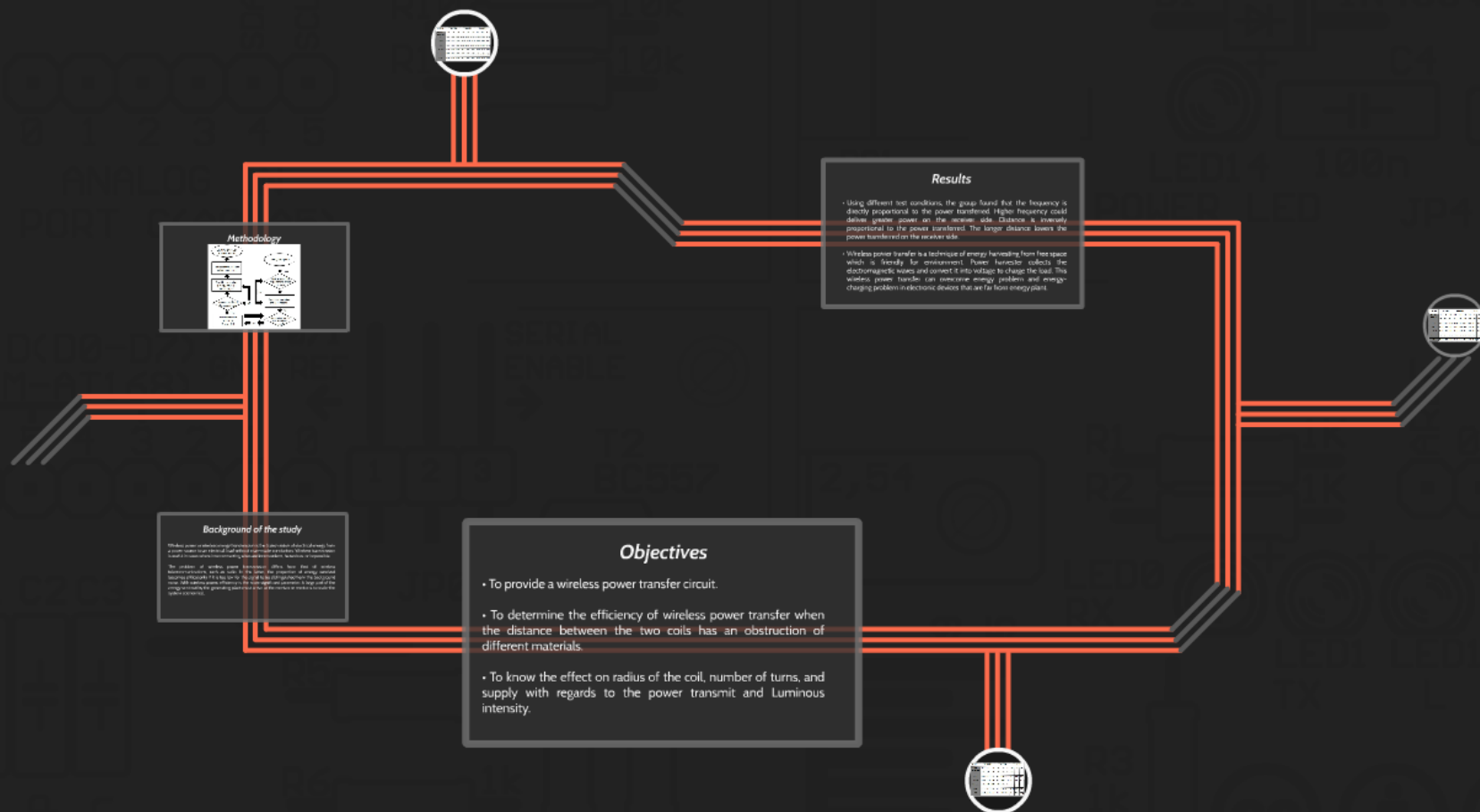
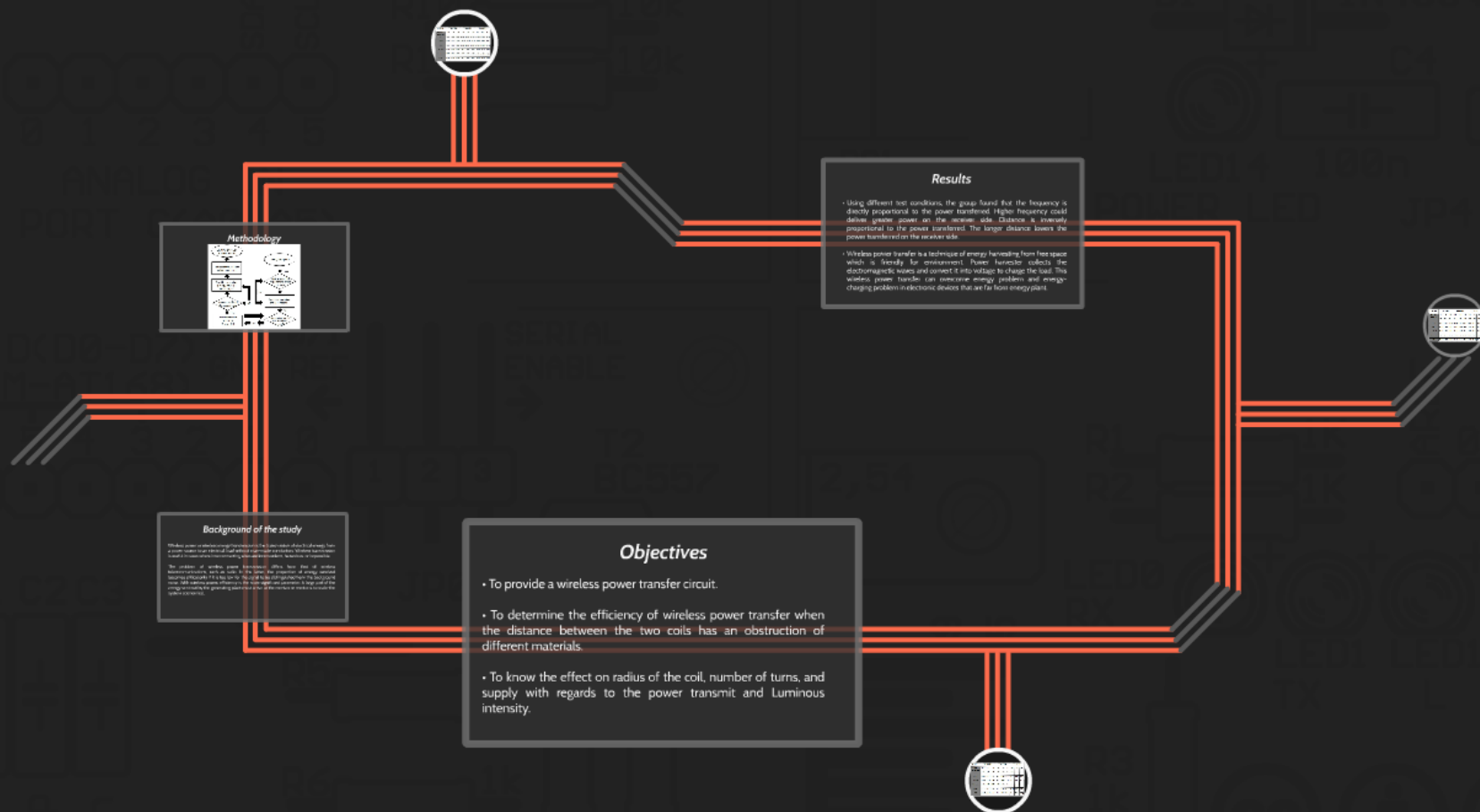


Wireless Power Transfer Harvard Case Solution & Analysis



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Objectives

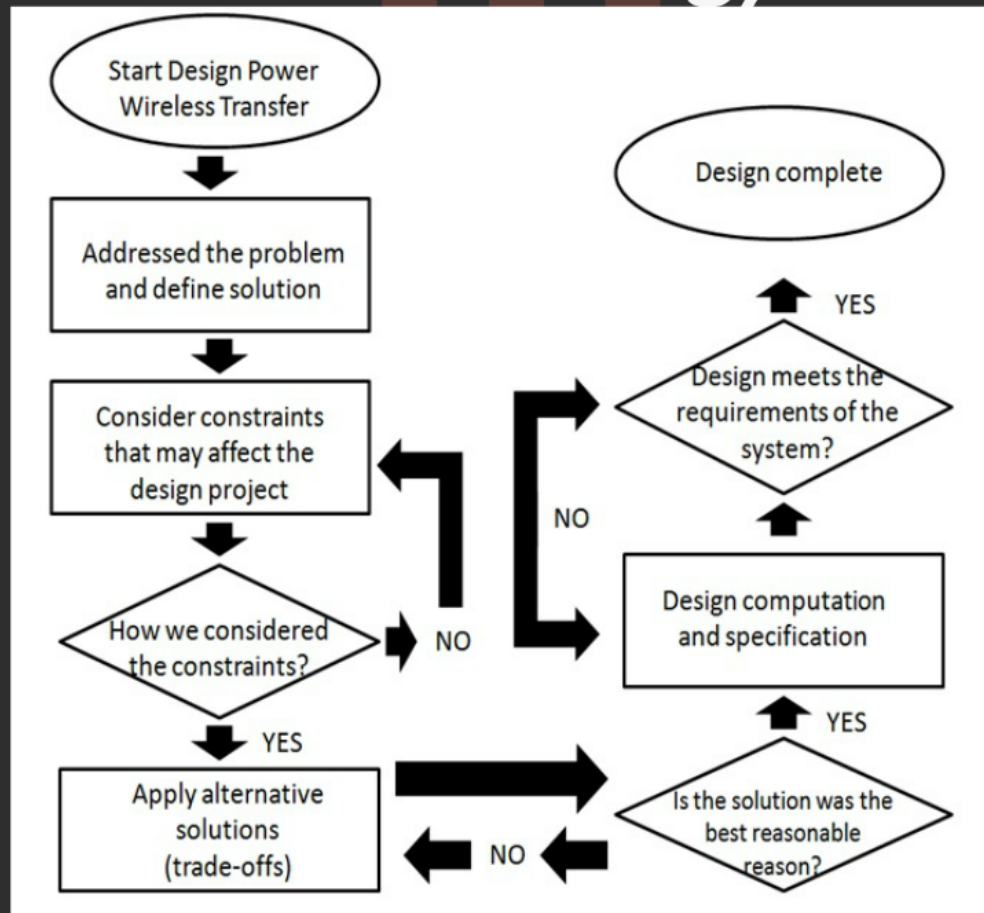
- To provide a wireless power transfer circuit.
- To determine the efficiency of wireless power transfer when the distance between the two coils has an obstruction of different materials.
- To know the effect on radius of the coil, number of turns, and supply with regards to the power transmit and Luminous intensity.

Background of the study

Wireless power or wireless energy transmission is the transmission of electrical energy from a power source to an electrical load without man-made conductors. Wireless transmission is useful in cases where interconnecting wires are inconvenient, hazardous, or impossible.

The problem of wireless power transmission differs from that of wireless telecommunications, such as radio. In the latter, the proportion of energy received becomes critical only if it is too low for the signal to be distinguished from the background noise. With wireless power, efficiency is the more significant parameter. A large part of the energy sent out by the generating plant must arrive at the receiver or receivers to make the system economical.

Methodology



Results

- Using different test conditions, the group found that the frequency is directly proportional to the power transferred. Higher frequency could deliver greater power on the receiver side. Distance is inversely proportional to the power transferred. The longer distance lowers the power transferred on the receiver side.
- Wireless power transfer is a technique of energy harvesting from free space which is friendly for environment. Power harvester collects the electromagnetic waves and convert it into voltage to charge the load. This wireless power transfer can overcome energy problem and energy-charging problem in electronic devices that are far from energy plant.

3.5cm(r)	10 volts			13 volts			15 volts		
Blocking Materials	10t	13t	15t	10t	13t	15t	10t	13t	15t
Air	.006v	.006v	.006v	.006v	.007v	.007v	.006v	.007v	.008v
Plaster	.006v	.006v	.006v	.006v	.006v	.006v	.006v	.007v	.007v
Plastic	.005v	.005v	.006v	.005v	.006v	.007v	.005v	.007v	.008v
Chocolate	.004v	.006v	.006v	.004v	.006v	.006v	.004v	.006v	.007v
Concrete	.005v	.006v	.006v	.005v	.006v	.006v	.005v	.006v	.006v
Wax	.005v	.006v	.006v	.005v	.006v	.006v	.005v	.006v	.006v

5cm(r)	10 volts			13 volts			15 volts		
Blocking Materials	10t	13t	15t	10t	13t	15t	10t	13t	15t
Air	.005v	.006v	.009v	.006v	.008v	.010v	.007v	.008v	.011v
Plaster	.004v	.006v	.008v	.005v	.007v	.009v	.006v	.008v	.010v
Plastic	.005v	.006v	.008v	.006v	.008v	.009v	.007v	.008v	.011v
Chocolate	.005v	.006v	.008v	.006v	.008v	.009v	.006v	.007v	.010v
Concrete	.004v	.006v	.008v	.007v	.007v	.008v	.006v	.008v	.009v
Wax	.004v	.006v	.009v	.006v	.008v	.007v	.006v	.007v	.010v