



The Tesla Coil

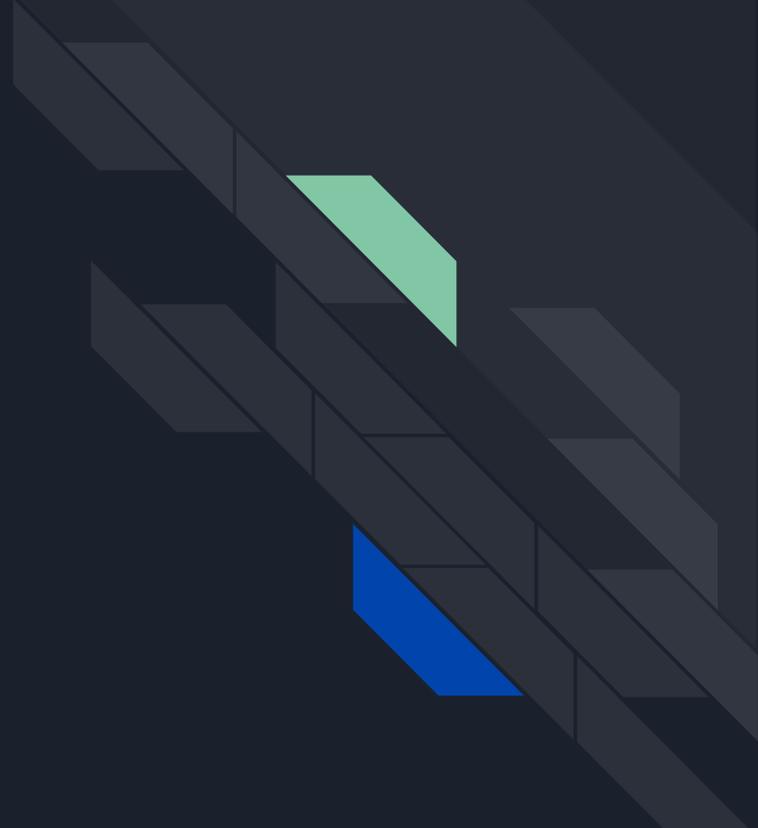
By Yousof Almghari

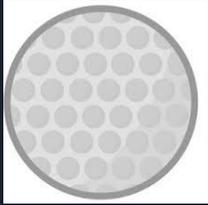


What is the tesla coil?

The tesla coil is a device that produces high voltage at low current. They're used in radios, televisions, x-rays, phones, other electronics, and used for wireless transmission. You can also use a light bulb around the tesla coil. However I got a question to answer.

What light bulb lights up when it's close to this device?





Materials



- A 20 cm base
- A hot glue gun
- A pvc pipe
- Copper wire (secondary coil)
- A 2n2222 transistor
- A 22k resistor
- White wire (primary coil)
- An on/off switch
- A 9 volt battery
- A battery connector
- Aluminum foil
- A golf ball
- A cfl 12-13 watt light bulb and another light bulb of your choice (I use an e27)

Able to be ordered from amazon prime.

The foil can be found at home.





Procedure

1. You need a 20 cm base (a wooden plank or a piece of cardboard box) to use a hot glue gun on the materials so they won't fall during this experiment. (Note; hot glue guns are dangerous, you also need a parent's help with the hot glue gun because if someone under the age of 13 uses it and they're not careful, they could burn themselves).
2. Get a 9 cm long pvc pipe and use a 16 gauge wire to wind it 300 to 350 times.
3. Tape the rest of the copper wire to the end of the pvc pipe. Then glue it to your base.
4. Get a 2n2222 transistor to produce primary switching. then glue it to your base.
5. Get a 22k resistor so it can end up getting the most voltage on the inside. (if you don't have a 22k resistor, you are 100% going to burn your transistor). Then solder it to the base (the middle) of your transistor and glue it to your base.
6. Get your primary coil and wind it 3 to 5 times. then get one of its ends to the collector (the right end) of your transistor.
7. get an on/off switch to turn on/off your transistor. Then glue it to your base.
8. Then solder the primary coil's other end to the right pin of the on/off switch.
9. get a 9 volt battery so your tesla coil can get a massive amount of voltage. Then glue it to your base.
10. Get a foil wrapped ball that is bigger than the pvc pipes hole and put it on the top of the pipe.
11. Get a 9 volt battery connector. solder the black wire's end to the emitter end (the left end) of your transistor, and the red wires end to the left pin of your on/off switch.
12. Finally turn your tesla coil on and use it to wirelessly turn a light bulb on (use a 12-13 watt cfl light bulb). (It is advisable NOT to have your tesla coil on for more than 30 seconds otherwise you might burn your transistor and it will not work anymore).

Variables

My independent variable is the type of light bulb from an cfl 12-13 watt to an e27.

My dependent variable is the amount of volts.





Hypothesis support

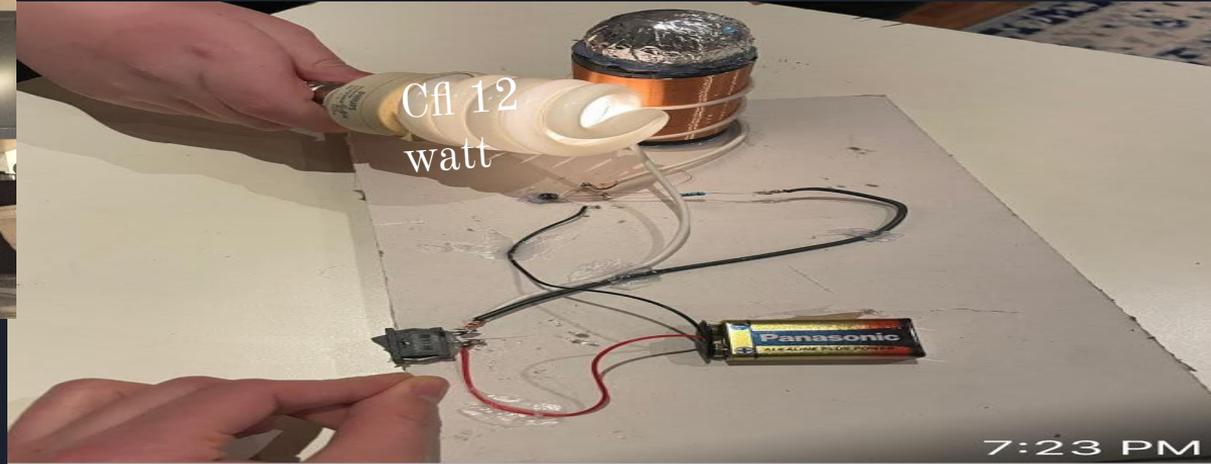
I think this is what's going to happen because...

I think an e27 can't work because it doesn't have neon gas. Neon gas are able to work with the tesla coil because the tesla coil excites the neon gas in the light bulb.

Variables that may affect the outcome...

- Type of light bulb (e27)

Test 1



As you can see, there is light shining in the light bulb, which means the cfl 12 watt light bulb works.



Test 2



As you can see the e27 didn't work.

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Now we see the amount of volts.

As you can see, the tesla coil produces 10 volts

Sorry is the picture is blurred. The red line says the amount of volts. The black arrow is pointing at the red line





Conclusion

Looks like I was right. If a light bulb has neon gas, it would work with a tesla coil because when a tesla coil produces an electric field, it commonly excites the gas inside the light bulb.



Thank you for hearing my presentation.

I HOPE YOU ENJOY and good bye for now

