Low Cost Ion Generator To Combat Covid-19 or Similar Highly Infectious Diseases

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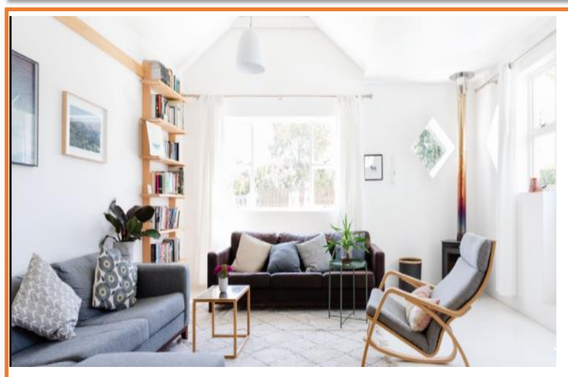
Introduction

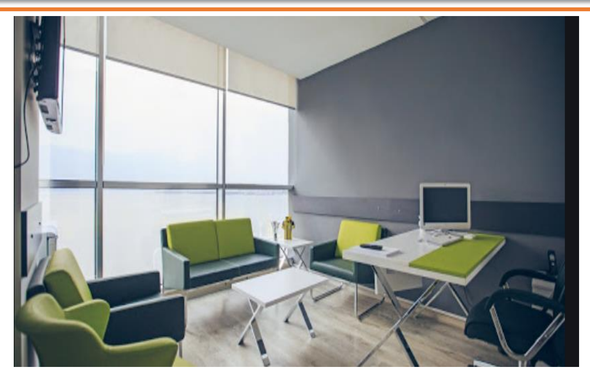
- Ions are molecules that have gained or lost an electrical charge. They are created in nature as air molecules break apart due to sunlight, radiation, and moving air and water. You may have experienced the power of negative ions when you last set foot on the beach or walked beneath a waterfall

- Many other systems were developed by different scientists, but they had various drawbacks like cost so, that's why I want to do this project that generation negative ions which is of low cost and eco-friendly(no ozone and unwanted gasses).

Application Areas



Living Room



Office

Specifications and Design Requirements

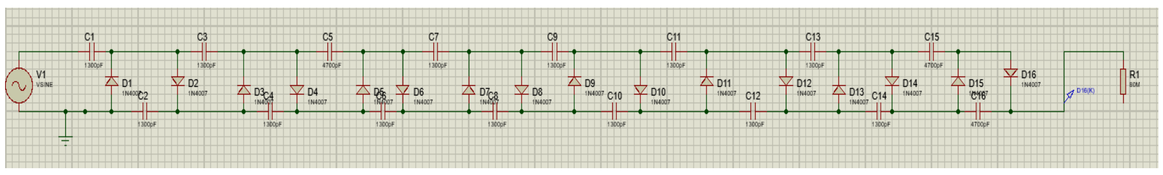
The Capacitors:
1.3nF and 4000V

The Diodes:
16000V

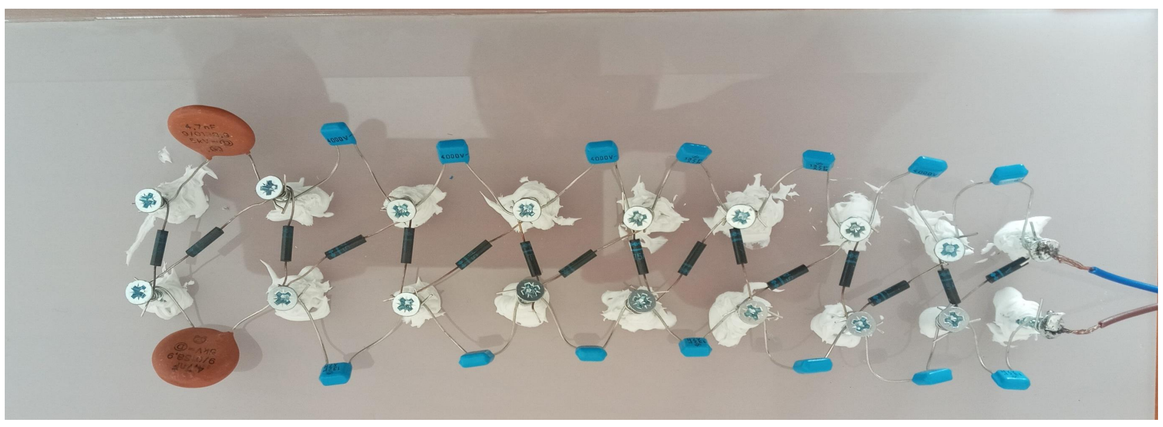
Rechargeable Small Fan
5-7 V Output

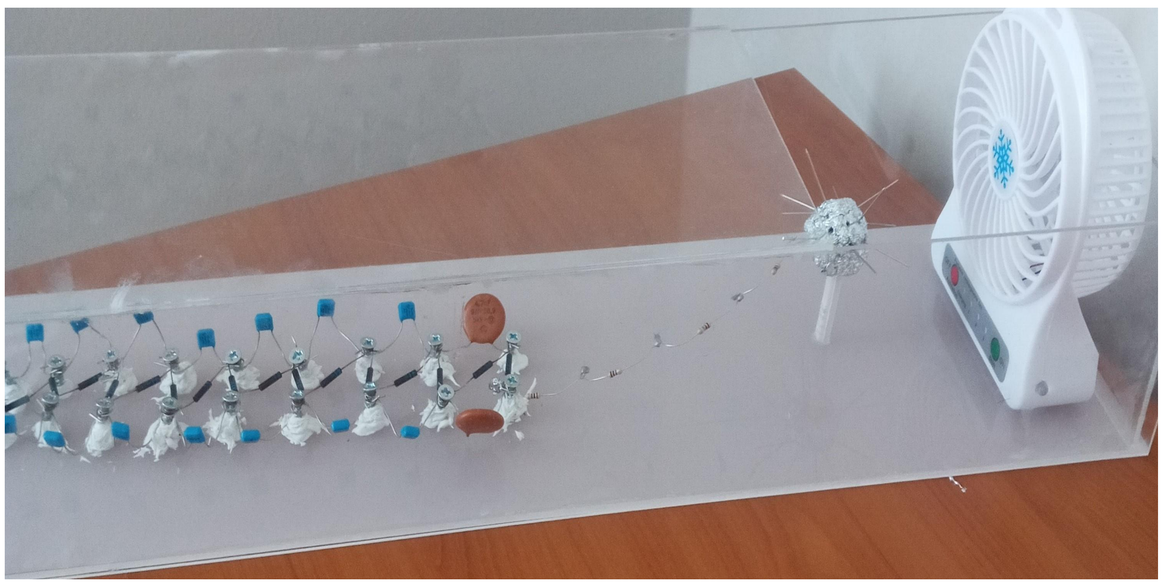
Solution Methodology

Volatege Multiplier Schematic:

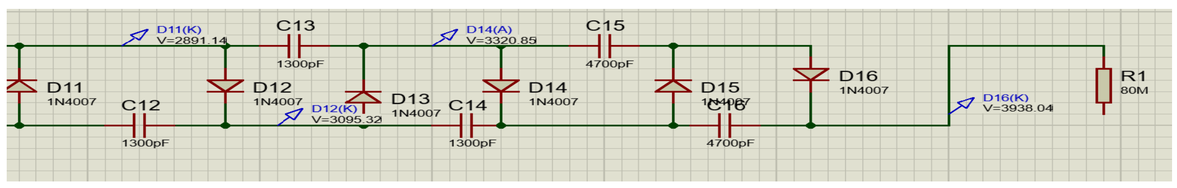


- There are 8 stages(every stage contain 2 diodes and 2 capacitors). For every stage we almost get 500V. So, 500V*8=4kV which we desire to get.





Results and Discussion



This show us that we achieve to produce almost 4000V

- As we are engineer, we want to create something but also we must think about its price. So, the cost of this ion generator is 230 ₺. It is so cheap when we compare with others.

- With this system we can create 4000V. We connected electrode to 4000V output to create negative ions. After negative ions crated by electrode, they transfer to the air with a small fan.

- On possible future, an ozone sensor can be added to detect whether undesired ozone gas will not be produced.

References

- EPA, Guide to Air Cleaners in the Home, 2nd edition, August 2018
- Wikipedia, https://en.wikipedia.org/wiki/Voltage_divider

Acknowledgements

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