Circuit Simulation Project

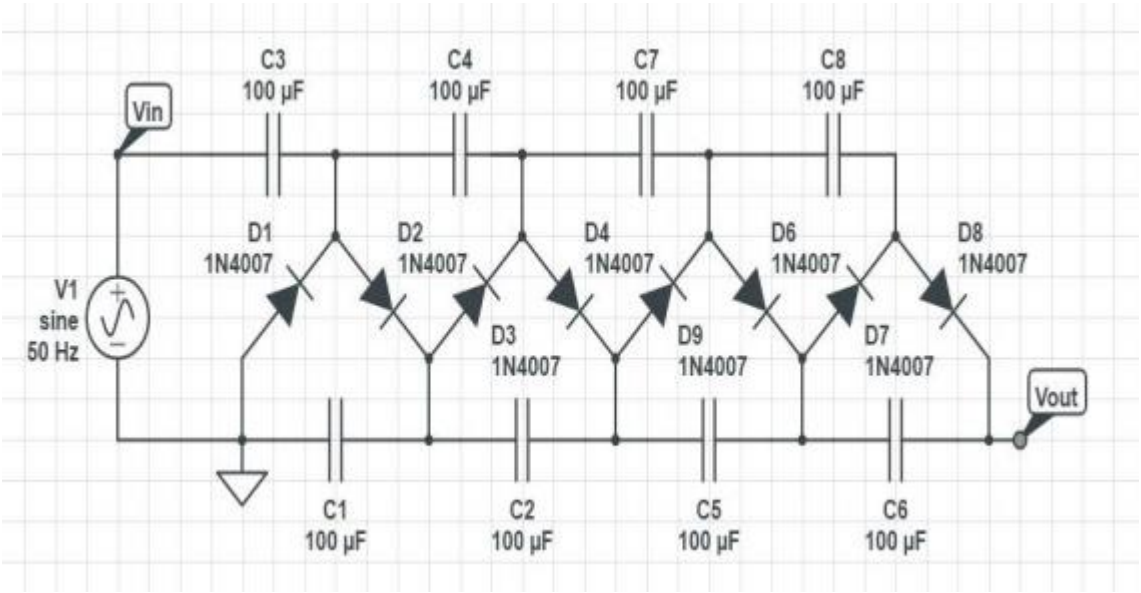
https://esim.fossee.in/circuit-simulation-project

Name of the participant : Tharun D

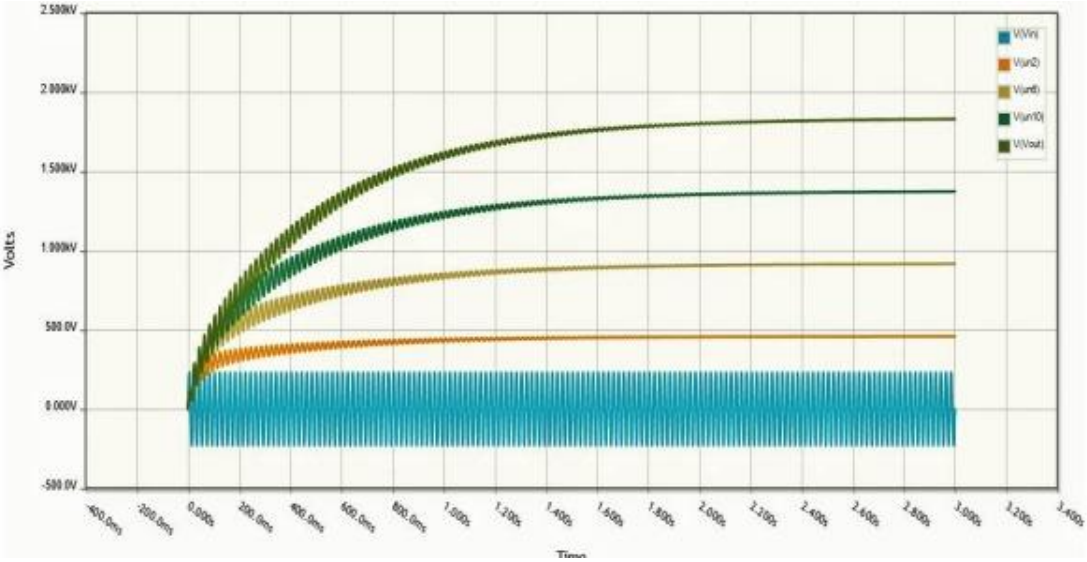
Title of the circuit : Cockcroft Walton Voltage Multiplier

Theory/Description : The Cockcroft–Walton voltage multiplier is an electronic circuit designed to generate high DC voltages from a relatively low AC or pulsating DC input. It uses a cascade arrangement of capacitors and diodes to progressively multiply the voltage in multiple stages, storing and transferring charge during each half-cycle of the input signal. This design allows the circuit to produce output voltages several times greater than the peak input voltage without the need for heavy transformers, making it lightweight and cost-effective. Commonly used in applications such as particle accelerators, cathode-ray tubes, X-ray machines, and high-voltage test equipment, the Cockcroft–Walton multiplier offers a simple, efficient solution for producing high voltages from low-power sources.

Circuit Diagram(s) :



Results (Input, Output waveforms and/or Multimeter readings) :



Source/Reference(s) :

https://www.ijareeie.com/upload/2017/march/21_1_Design.pdf
https://www.researchgate.net/publication/312511440_A_Comparative_Study_of_Symmetrical_Cockcroft-Walton_Voltage_Multipliers
https://www.allaboutcircuits.com/textbook/semiconductors/chpt-3/voltage-multipliers/