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**DEPARTMENT OF ELECTRONICS AND COMMUNICATION
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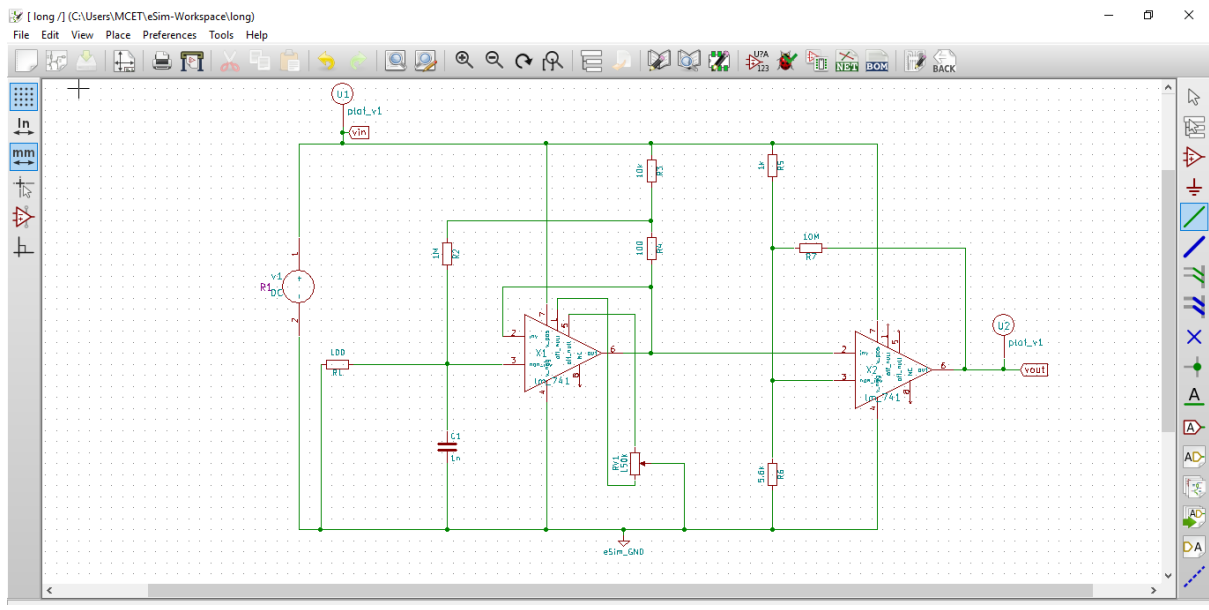
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SIMPLE LONG DURATION TIMER CIRCUIT

This circuit allows the RC time constant of the time up to 100 times over. In principle, reducing the current that uses charge to the capacitor, so will cause the voltage to rise up slowly. In the circuit diagram, when pressing button S1, C1 will be discharged out. It causes the IC1's output to be 0volts. The inverting input IC2 will have lower voltage than other input, because the output of IC2 is higher. The voltage across R4 is about 120mv. Thus the capacitor C1 is getting charged through R2 by the current about 120 nAmps. Then C1 is charged fully and then a constant voltage of 120mV appears then it stops charging. Consider the below part of R4 to return to the output of IC1 higher. And while the voltage across C1 increases, it makes the output voltage and R2's voltage increase until the output of IC1 is higher than 7.5V. According to the set to the non-inverting input of IC2 by R6 and R7, it makes the output of IC2 as 0. As the output voltage will be a constant one.

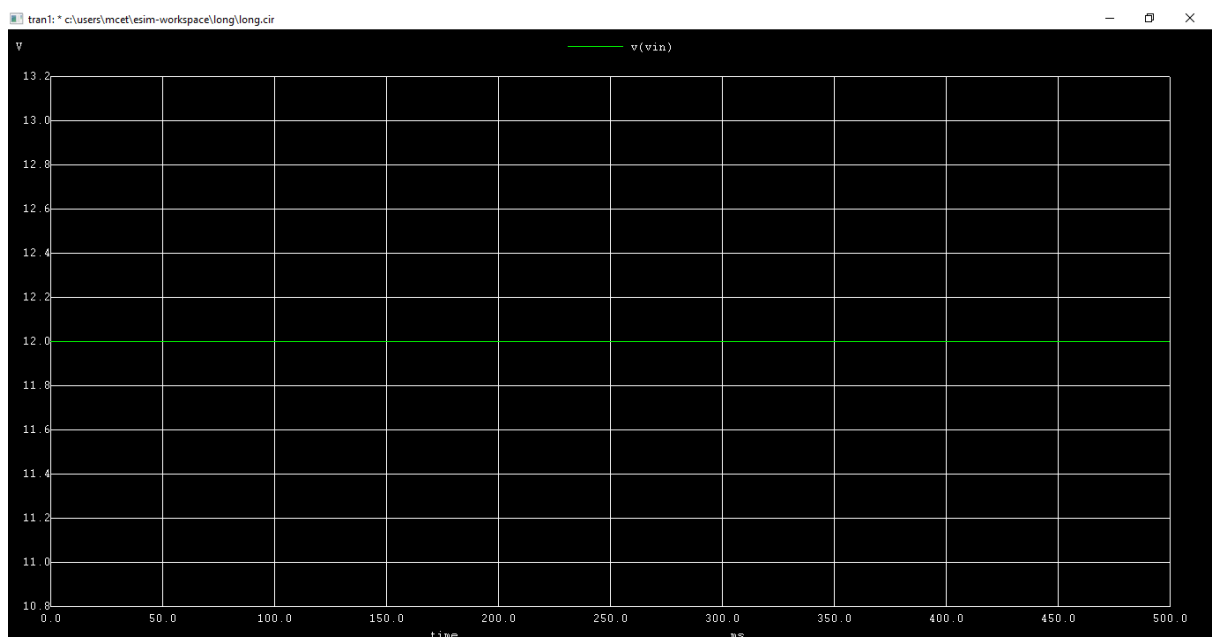
REFERENCE: <https://www.eleccircuit.com/simple-long-duration-timer-using-op-amp-ics/>

CIRCUIT DIAGRAM:

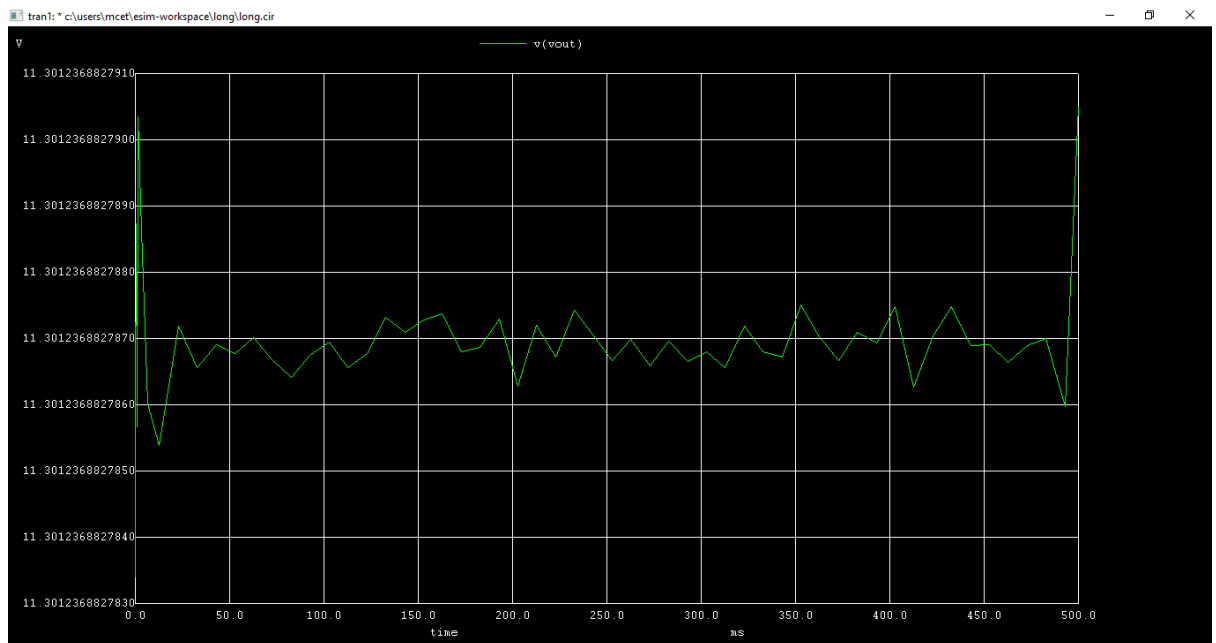


NGSPICE GRAPH:

❖ INPUT



❖ OUTPUT



PYTHON PLOT:

