A Stable Multivibrator using 555 TIMER

Aim: To design and implement an astable multivibrator using 555 Timer for a given frequency and duty cycle.

Components: 555 Timer IC, Resistors 3.3 KΩ, 6.8Ω capacitor of 0.1 MF, regulated power supply CRO.

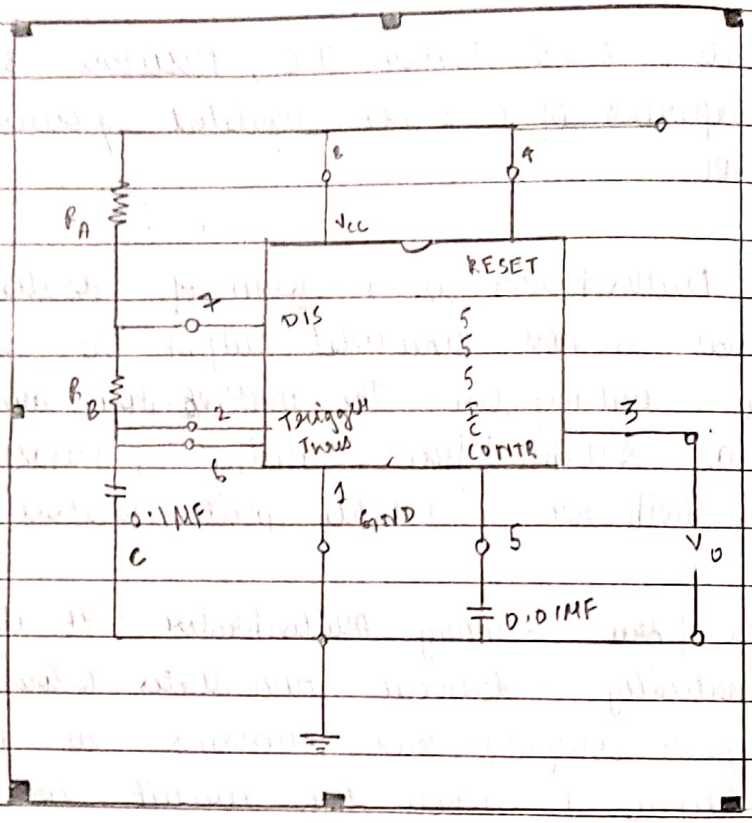
Theory: Multivibrator is a form of oscillator, which has a non-sinusoidal output. The output waveform is rectangular. The multivibrator are classified as Astable / free running, monostable or one shot multivibrator, bistable multivibrators

Astable / free running multivibrator: It alternates automatically between two states (low and high for a rectangular output) and remains in each state for a time dependent upon the circuit constants. It is just an oscillator as it requires no external pulse for its Operation.

Monostable / one shot multivibrator: It has one stable state and one quasi stable. The application of an input pulse triggers the circuits time constants After a period of time determined by the time constant, the circuit returns to its initial stable state. The process is repeated upon the application of each trigger pulse.

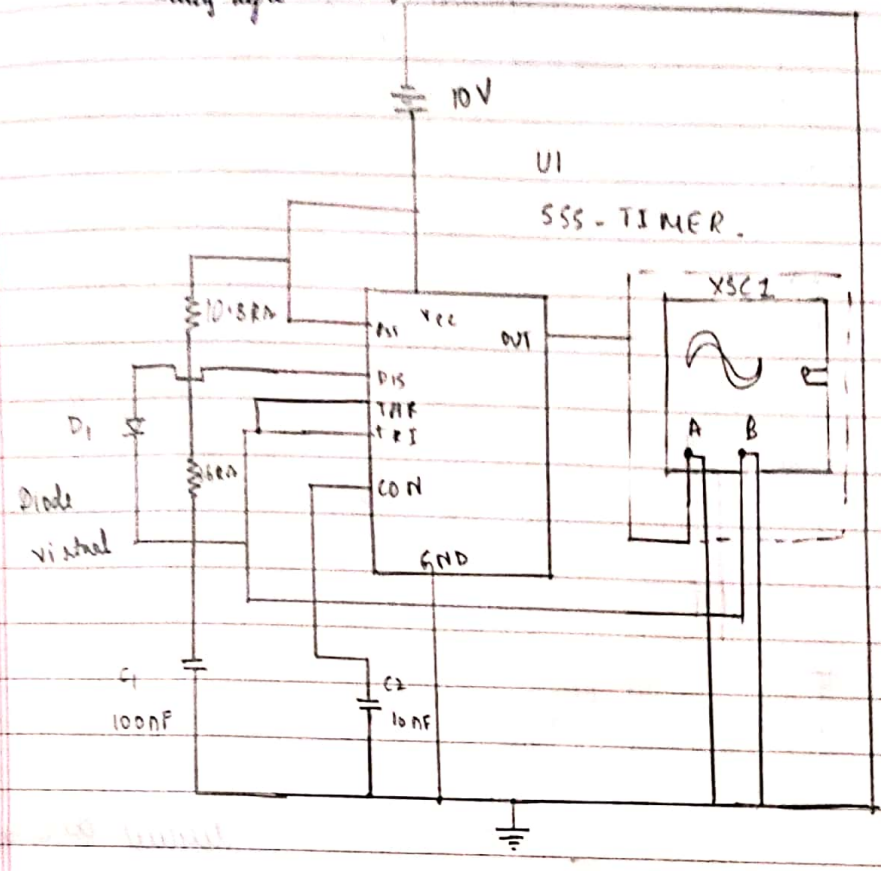
Bistable Multivibrators: It has both stable states. It requires the application of an external triggering pulse to change the output from one state to other

After the output has changed its state, it remains in the state until the application of next trigger pulse. Flip flop is an example.

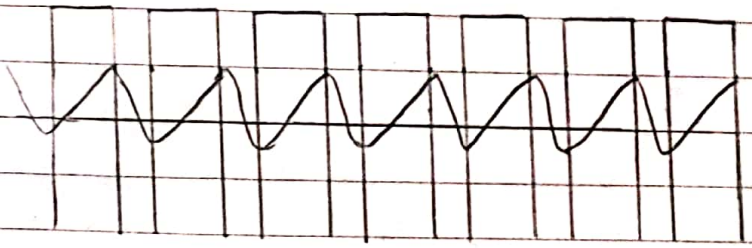


Circuit Diagram and actual connection.

Duty cycle = 75 %

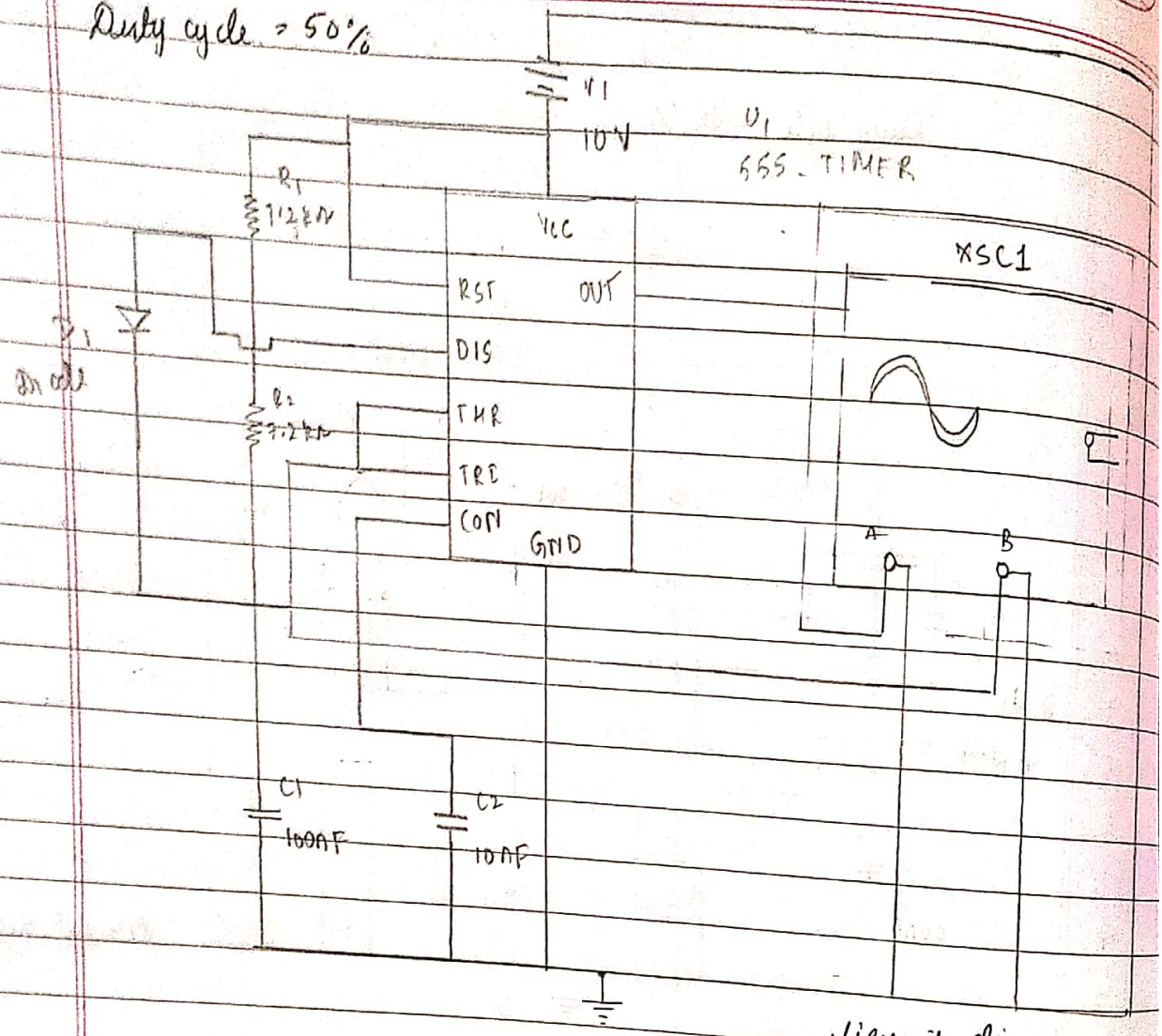


Circuit diagram

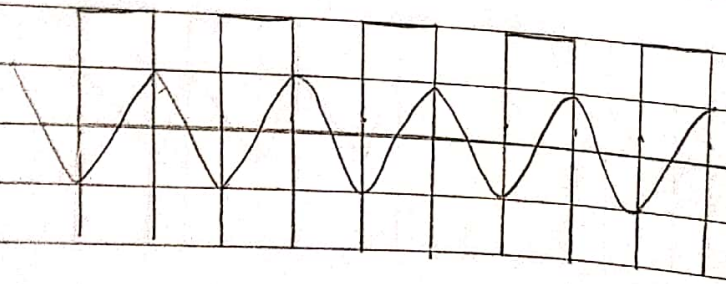


Wave form

Duty cycle = 50%



Circuit diagram



Waveform