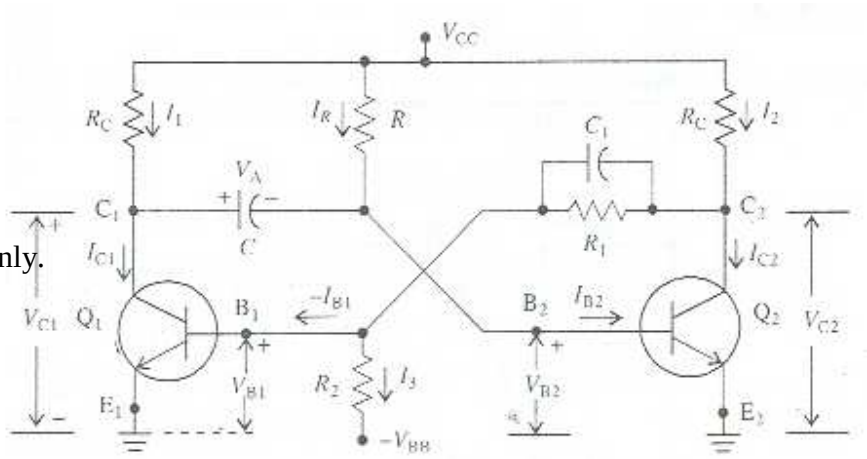
Monostable multivibrator:

It is also named as a Univibrator, a one-shot , a single-cycle , a single-step, gating , delay circuit.

It has one stable and one quasi stable state.

There is no need of triggering to make a transition from quasi stable state to stable state.

The circuit diagram of a monostable multi is shown in figure below.



Here output of Q1 is coupled to the Input of Q2 through the capacitor C, And output of Q2 is coupled to the input Of Q1 through the resistors only. Where as in binary both the stages are coupled By resistors only.

The resistor R at the input of Q2 is Returned to the supply voltage V_{CC} .

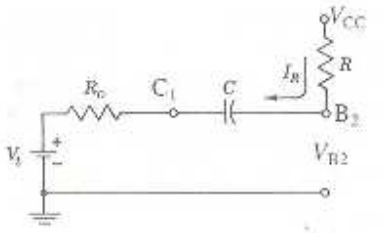
Operation:

Case(i): initially we shall assume that the circuit parameters have been adjusted properly So that the multi finds itself in its stable state with Q1 OFF & Q2 ON .

Case(ii): to make a transition from stable state there is a need of negative triggering at The collector terminal of Q1(OFF transistor). As a result of trigger applied ,Q2 goes OFF and Q1 conducts. This is considered as a quasi stable state.

Case(iii): now let us see how can we induce a transition from quasi stable to the stable state without using any triggering.

Now Base circuit of Q2 is shown below,



In this circuit the stage Q1 has been replaced

By a thevenin's equivalent generator V_t (the

Voltage at C_1 with C disconnected) and a

Resistance R_o, which represents the amplifier

output impedance including the presence of R_c.

here capacitor tries to charge towards V_{CC} with a time constant $(R + R_O)C$ since V_t is negligible.

So Voltage at the base terminal of Q2 is also increases. When ever voltage at the base terminal of Q2 reaches its cutin voltage then Q2 starts conducting and Q1 stops conducting. So now the state of the device is Q1 OFF & Q2 ON.