555 Timer

- First introduced around 1971 by the Signetics Corporation as the SE555/NE555 and was called "The IC Time Machine"
- Highly stable device for generating accurate
  - **Time delay**
  - **Oscillations**
- Supply range: +5V to +18 V

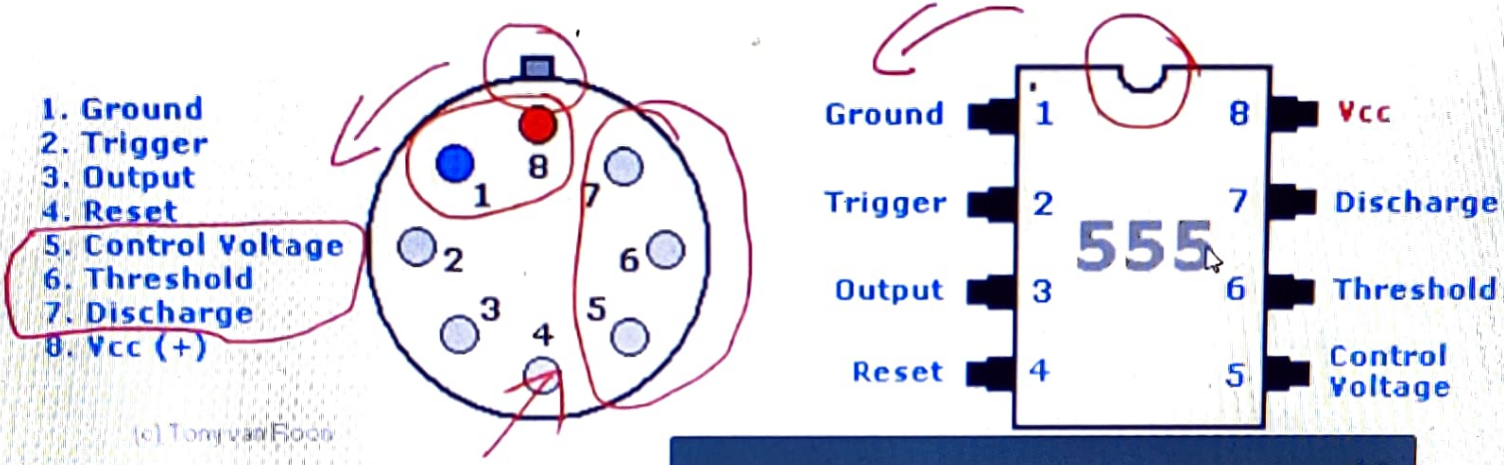

fig. 1. 8-pin T pack

Are you talking? Your mic is off.
Click the mic to turn it on.

Functional diagram of 555 Timer

- Resistive divider n/w
- Two comparators
- Two transistors
- One SR FF
- Inverter

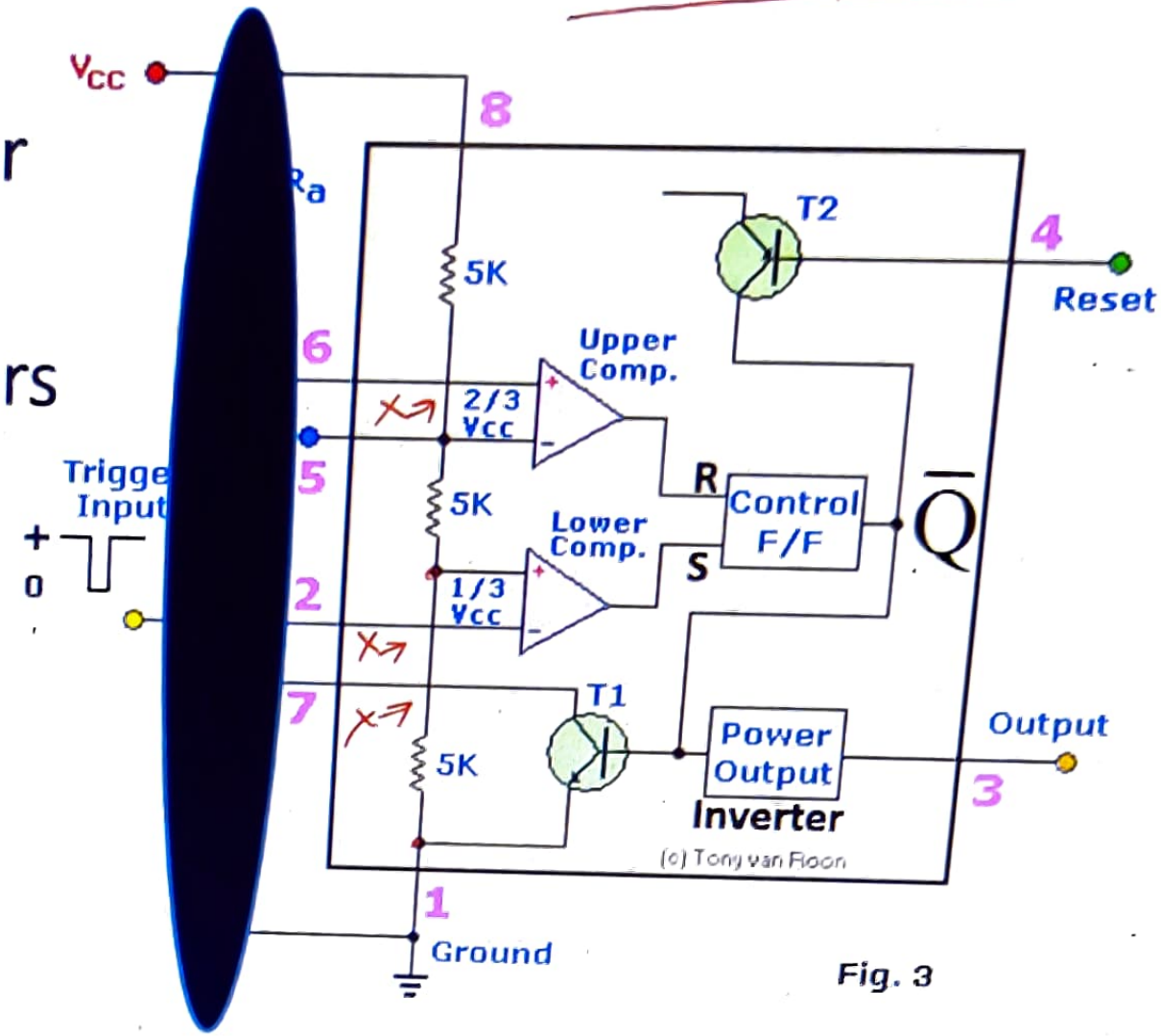

Fig. 3

Operation of 555 Timer

- In the standby/stable state
  - The output of FF $\bar{Q}$ is high
  - Output is low
- Negative going trigger pulse is applied to pin 2
  - As it goes less than $V_{CC}/3$, output of LC goes high, Q = high and $\bar{Q}$ is low
- Threshold voltage at pin 6 as it passes $(2/3)V_{CC}$, the output of UC goes high, and resets FF. Q = low and $\bar{Q}$ is high

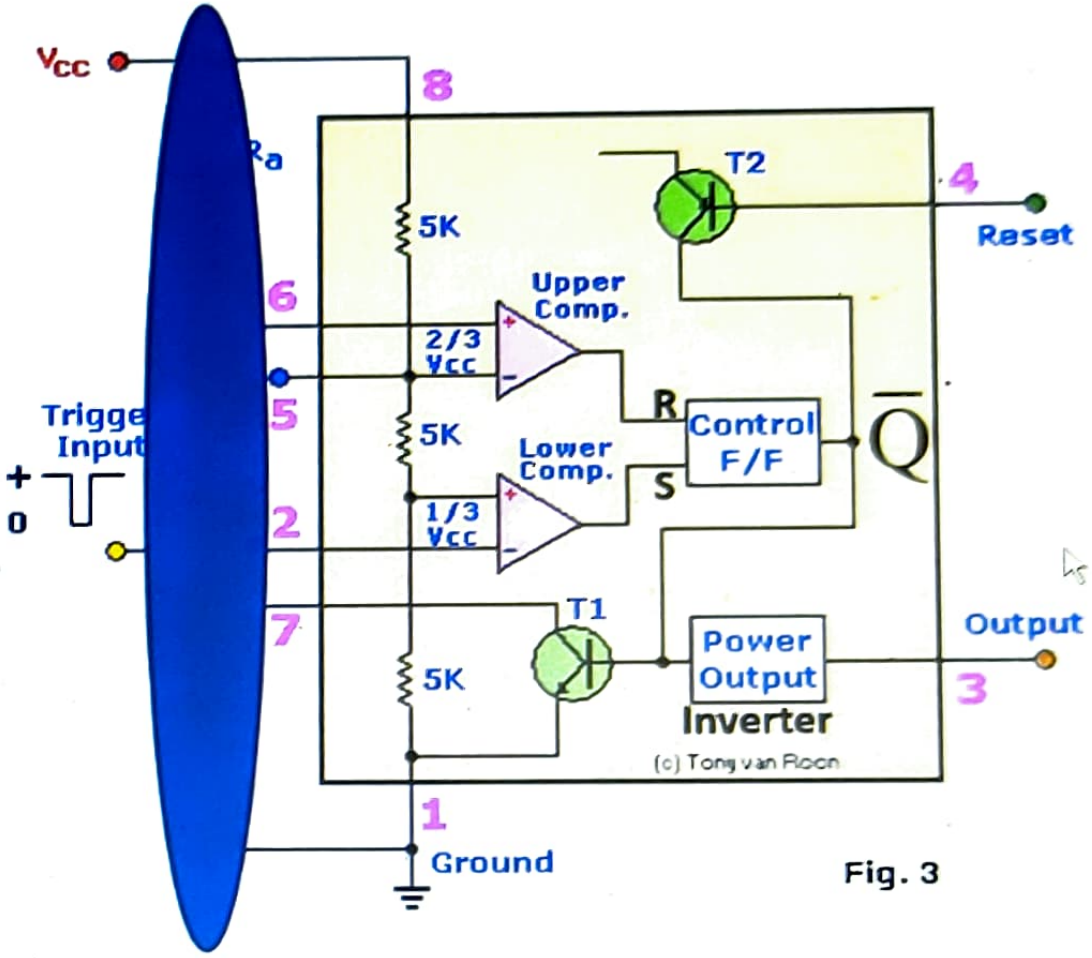

Fig. 3

Operation modes of 555 timer

- Monostable mode
  - circuit generates a single pulse of a fixed time duration each time it receives an input trigger pulse
  - Duration is controlled by RC network
- Astable mode
  - simply an oscillator
  - generates a continuous stream of rectangular on-off pulses
  - The frequency of the pulses and their duty cycle are dependent upon the RC network values.