Electronics Devices and Circuits Lab

Project report on

Mobile Phone detector

Submitted by-

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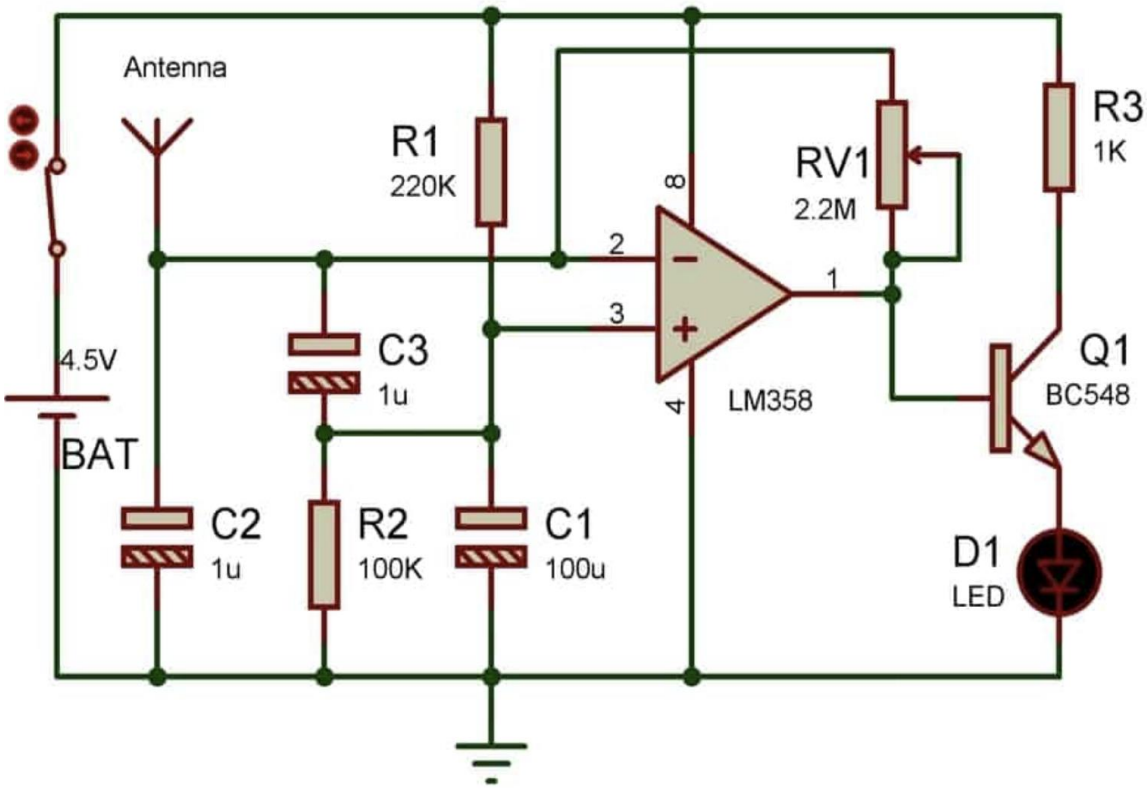
- **Aim-**
  To make a circuit that detects the phone when an incoming call or outgoing call is made or when an SMS is sent or received using **LM358 Op-Amp IC** and **NPN Transistor BC548**

- **Components Required-**
  1. LM538- Dual Op-Amp IC
  2. BC548- NPN Transistor
  3. Resistor- 1 kΩ, 100 kΩ, 220 kΩ
  4. Potentiometer- 2.2 MΩ
  5. Capacitor- 1 µF*2, 100 µF
  6. LED
  7. Antenna
  8. Power supply- 4.5V Battery

- **Circuit Diagram-**



- **Theory-**
  This circuit consists of an op-amp with some active-passive components. A LED is used for an indication of the presence of a cellphone. Op-amp is configured as Frequency Detector and its output is connected to a LED using NPN Transistor.

  This circuit is built using LM358 op-amp IC which is a dual op-amp IC, which means it contains two independent operational amplifiers in a single package. This makes it convenient for designs requiring multiple op-amps. The primary function of an op-amp is to amplify the difference in voltage between its inverting and non-inverting inputs. The LM358 is designed with low input bias currents and offset voltage to minimize errors in applications requiring precision.

  This circuit also contains NPN Transistor BC548 which is a general-purpose NPN bipolar junction transistor (BJT) that is commonly used in electronic circuits for amplification and switching purposes.

  When a mobile phone is active, it radiates RF signal in the form of electromagnetic radiation. When the mobile phone radiates energy in the form of RF signal, Capacitor C2 absorbs it and used as an input to LM358 IC. The output of LM358 is connected to LED via Transistor which gets turned ON. Then the flashing of LED is observed. The potentiometer RV1 is used to adjust the sensitivity or range of the circuit.

- **Applications-**
  1. The circuit can be utilized to detect phones in the examination halls, conference rooms, etc.
  2. It can be adopted for military purposes.
  3. It can also be employed in phone tracking systems.