

Mobile Phone Detector

OBJECTIVE

When the circuit detects an RF signal from an activated mobile phone, it gives an indication by switching ON an LED. The LED will start blinking and continues to blink until the Incoming/outgoing signal stops.

ABSTRACT

Mobile Phone Detector is a Circuit that detects the presence of **Mobile Phone** up to a certain range like 1.5 meter. It detects the phone when an **Incoming call or outgoing call** is made or when an **SMS** is sent or received or any **GPRS** used.

When the circuit detects an RF signal from an activated mobile phone, it gives an indication by switching ON an LED. The LED will start blinking and continues to blink until the Incoming/outgoing signal stops. **Mobile Phone detector** can also be called as a **Frequency Detector**. **Frequency Detector** is simply a **Current to Voltage Converter Circuit** which detects the frequencies in between the range of about 800 MHz to 3GHz.

INTRODUCTION

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. This is how you can make a Simple Phone Detector Circuit.

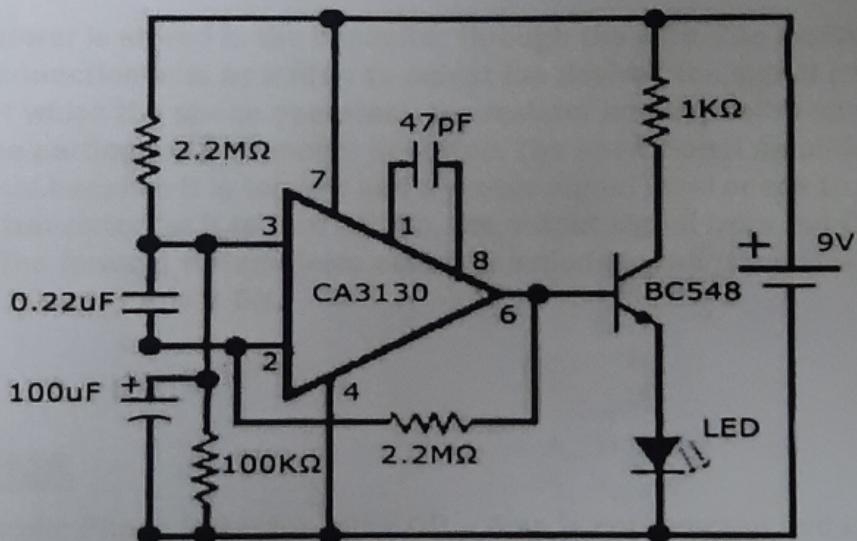
HARDWARE REQUIREMENT/DESCRIPTION

CA3130, Resistor (1 K Ω , 100 K Ω , 220 K Ω), Potentiometer/Trimmer (2.2 M Ω), Capacitor (1 μ F, 0.22 μ F, 46 pF), BC548, LED, etc...

CIRCUIT/COMPONENT SPECIFICATIONS

Supply voltage (V_{CC})	
Supply current ($V_{CC} = +5 \text{ V}$)	
Output current (maximum)	
Power consumption (minimum operating)	
Operating temperature	

CIRCUIT DIAGRAM



DESIGN

DESIGN ISSUES

- Maximum supply voltage should not exceed 15V
- Humidity should not exceed 85% relative humidity.
- Timing tolerance should not exceed +10 sec for 1 min.

WORKING/PRINCIPLE

The signal power is stored in the capacitor through the wire. The resistor and capacitor connection acts as a filter to select the desired the signal (the RF frequency at which the phone operates). the resistor and capacitor value are chosen such that the particular frequency is detected. The operational amplifier amplifies the capture signal because it is too low and a proper signal level needs to be applied to the base of transistor for it to turn ON. So, the output signal from the OP-AMO with a 0.7 V drop (The forward voltage from across the diode in the transistor) forward biases the LED and turns it ON.

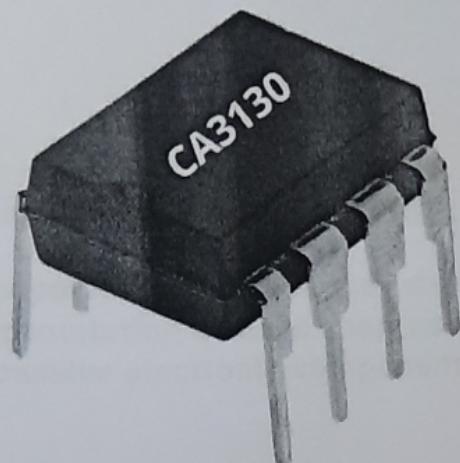
CONCLUSIONS

Thus, the Mobile Phone Detector using OP – Amp is constructed and LED blinks upon any receiving phone calls.

REFERENCES

<https://www.nextpcb.com/>

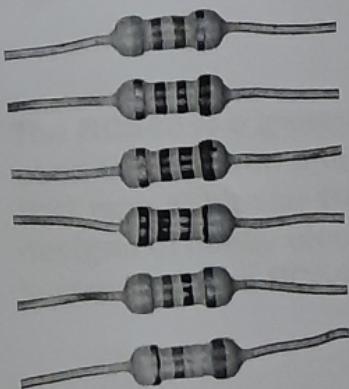
CA3130



 udvarhely

An operational amplifier (often op amp or opamp) is a DC-coupled high-gain electronic voltage amplifier with a differential input and, usually, a single-ended output.
Op amps are used widely in electronic devices today, including a vast array of consumer, industrial, and scientific devices.

Resistor



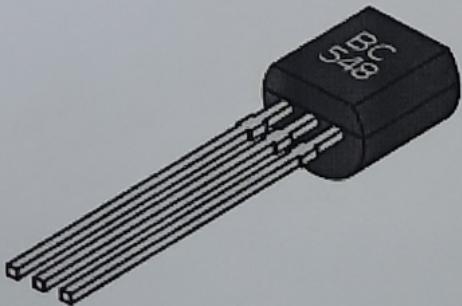
A resistor is a passive two-terminal electrical component that implements electrical resistance as a circuit element. In electronic circuits, resistors are used to reduce current flow, adjust signal levels, to divide voltages, bias active elements, and terminate transmission lines, among other uses.

Capacitor



A capacitor is a device that stores electrical energy in an electric field by virtue of accumulating electric charges on two close surfaces insulated from each other. It is a passive electronic component with two terminals.

BC548



The BC548 is a general-purpose NPN bipolar junction transistor commonly used in European and American electronic equipment. It is notably often the first type of bipolar transistor hobbyists encounter and is often featured in designs in hobby electronics magazines where a general-purpose transistor is required. The BC548 is low in cost and widely available.

LED



LEDs are Light Emitting Diodes. They are super compact and do not emit heat ; most commonly used in emergency lightings, automotive tail lights

✓ **GROUP PHOTO:** Take a GEOTAG group photo of your batch with working model and paste at the end of the report (Try to take the group photo in college lab)