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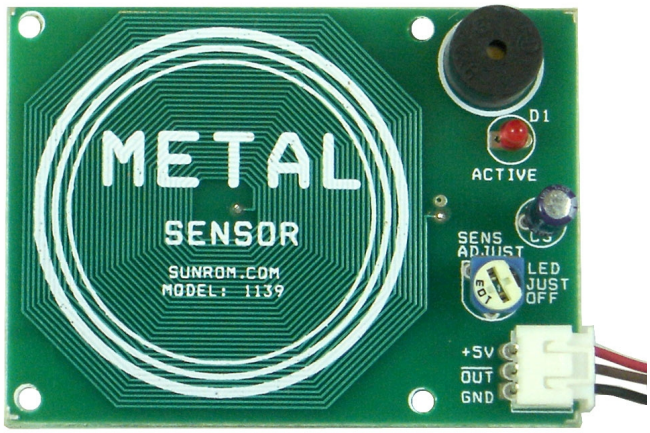
Metal Detecting Sensor

Detects metal objects upto 7 cm giving active low output with LED indication & buzzer on detecting metal.



Applications

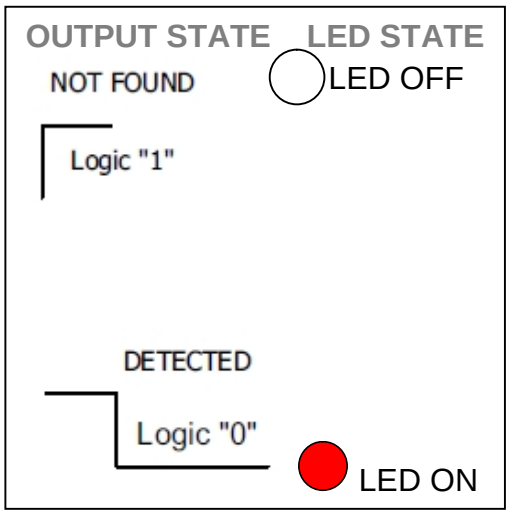
- Detect presence of any metallic object
- Locate pipes, cables, metal studs, …
- Avoid disasters when drilling holes in walls
- Great project for novices
- Your own unique application
- Interface with any microcontroller

Specifications

- Detection range adjustable up to 7 cm
- Operation range varies according to size of the metallic object
- Power Supply : 5V DC Power Consumption: 50mA max.
- Detection Indicator LED and Buzzer
- Digital output. Active with logic "0"
- Dimensions : 52x71 mm
- Full SMD design

Using the Sensor

- Connect regulated DC power supply of 5 Volts. Black wire is Ground, Next middle wire is Brown which is output and Red wire is positive supply. These wires are also marked on PCB.
- When adjusting sensitivity move away from any metal object.
- Turn sensitivity pre-set until the LED is about to light. To set maximum sensitivity, turn preset until the LED is weakly lit and just becomes off.
- To test sensor you only need power the sensor by connect two wires +5V and GND. You can leave the output wire as it is. When LED is off the output is at 5V.
- Bring the metal object nearby the PCB coil and the LED will lit up and output becomes 0V.



- The output is active low and can be given directly to microcontroller for interfacing applications.

Operation

The heart of this sensor is the inductive oscillator circuit which monitors high frequency current loss in coil. The circuit is designed for any metallic body detection by detecting the variations in the high frequency Eddy current losses. With an external tuned circuit they act as oscillators. Output signal level is altered by an approaching metallic object.

Output signal is determined by supply current changes. Independent of supply voltage, this current is high or low according to the presence or the absence of a close metallic object. If the metal object is near the searching coil, the output current will flow more. On the other hand, the current will be decrease when the object is far from the searching coil.

Dimensions (mm)