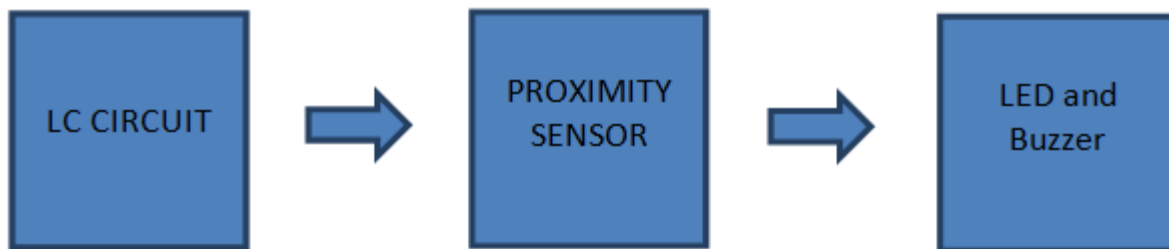


Metal Detector

Code: MDU32

Metal detector is very common devices for checking the person in shopping malls, hotels, cinema halls to ensure that person is not carrying any explosive metals or illegal things like guns, bombs etc. metal detectors can be created easily and the circuit is not that complex.

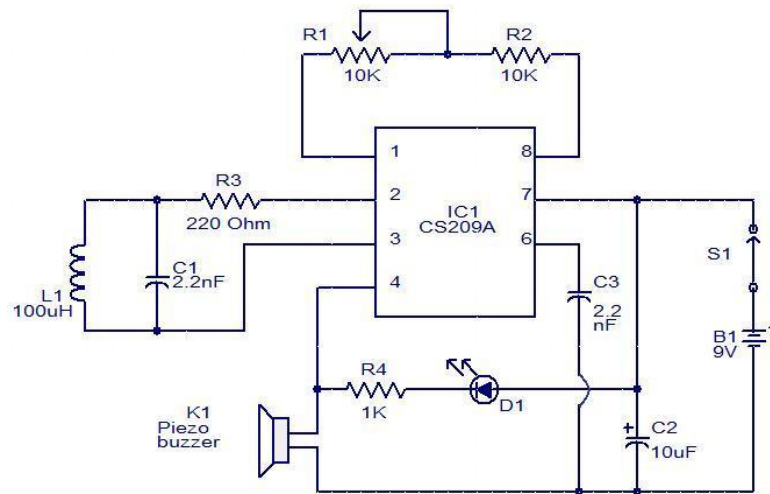


The LC circuit is nothing but inductor and capacitor which is connected in parallel. The LC circuit will trigger the proximity sensor if it detects any metal near to it. Proximity sensor will give glow the led, and also make the buzz with the help of the buzzer.

Main Components in Metal Detector Circuit:

LC CIRCUIT: LC Circuit is a resonating circuit which will resonate when exact same frequency material comes near. The LC circuit consist of inductor and capacitor connected in parallel , when the capacitor is fully charged the charge of the capacitor will be given to the inductor, here inductor will have improve its magnetic field. After some time the capacitor will have no charge and current from the inductor will be given to the capacitor in a reverse polarity and capacitor will get charge and now the inductor magnetic field and current will become nil. Again charged capacitor will give current to the inductor to improve its magnetic field. Note inductor is a magnetic field storage device and capacitor is electric field storage device.

Circuit:



Description:

This is a simple single chip metal detector circuit based on IC CS209A from the Cherry Semiconductors. A 100uH coil is used to sense the presence of metal. The IC CS209A has a built in oscillator circuit and the coil L1 forms a part of its external LC circuit which determines the frequency of oscillation. The inductance of the coil change in the presence of metals and the resultant change in oscillation is demodulated to create an alarm. The LED gives a visual indication too. This circuit can sense metals up to a distance of few inches.

