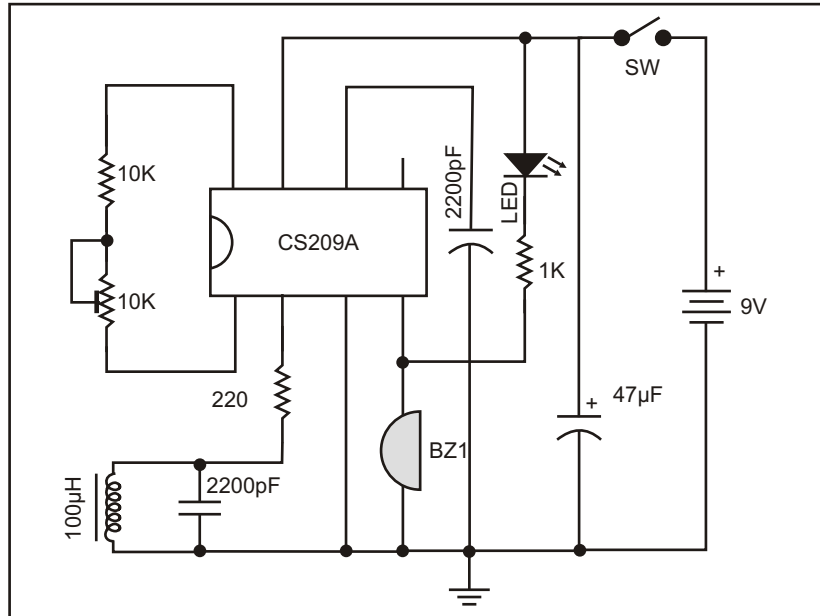


# Metal Detector



Anil Madaan

Here is the metal detector with a range of a few inches. This is useful for detecting nails or screws in walls and floors, or for locating buried mains cable. The heart of the circuit is the CS209A (proximity detector) made by ON Semiconductor. The CS209A is a metal detector circuit which operates on the principal of detecting a reduction in Q of an inductor when it is brought into close proximity of metal. A single 100uH choke is used as a detector. The IC has an integral oscillator. The choke forms part of an external LC circuit, its inductance being altered by the proximity of metal objects. It is the change in oscillation that is amplified and demodulated. Led 1 will light and the buzzer will sound when the choke changes inductance. Set up is easy, VR1 is adjusted with the choke away from any metal source so that the LED lights and buzzer sounds. The control is backed off so that the LED goes out and buzzer stops. Now when the choke



comes into contact with any metal object that alters its inductance, LED 1 and the buzzer will activate.

The maximum distance range the circuit is capable of detecting is around 0.3 inch.

