



**JEWELLERY DETECTOR BY USING ELECTROMAGNETIC
TECHNOLOGY**

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ABSTRACT

The use of metal detectors to search for archaeological finds is practiced to archaeologist, hobbyists and most importantly is security officer. The objective of this project is to develop a metal detector device so efficient and applying the electromagnetic technology concept for application in daily life. The metal detector also can use as security. So for this situation, one device is developing to solve the problem. Metal detector consists of an oscillator producing an alternating current that passes through a coil producing an alternating magnetic field. If a piece of metal, which electrically conductive is close to a coil eddy currents will be induced in the metal, and this produces an alternating magnetic field of its own. If another coil is used to measure the magnetic field (combining two frequencies) the change in the magnetic field due to the metallic object can be detected. This project is developed to detect metal like iron, coins that lost. This project is based on super heterodyning principle which used the principle of combining two difference frequencies to create new signal equal to the sum and difference of the original pair. This signal is transmitted to speaker by filter and amplifier. Upon contact, the coil range from the metal to be detected is around 1cm maximum range for this project results.