

ABSTRACT

A metal detector is a type of instrument used to detect the presence or absence of metal in the test area. Making metal detectors has been carried out in many previous studies using various methods, such as using the BFO method or also using the magnetic field induction method. In this research, the coil was formed octagonally to obtain a larger coverage area and to identify the presence of metal in the soil at 8 points with a radius of 10 cm from the transmitter coil and a depth of 1.5 cm. This test was carried out by varying the distance between the transmitter and receiver coils so as to obtain maximum distance results using the magnetic field induction method. The test was carried out by looking at 2 conditions, namely the presence of an anomaly in the form of a 1000 metal coin fragment under the Transmitter coil and whether there was an anomaly under the receiver coil. The results of this research are that it can identify whether or not there are anomalies embedded in the ground to a depth of 1.5 cm with a radius of 10 cm from the transmitter coil. And in this study the largest EMF value at the maximum distance was found in coil 3 with an EMF value of 206.6 mV.

Keywords: *metal, transmitter, receiver*