



**MARA UNIVERSITY OF TECHNOLOGY
PENANG**

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ABSTRACT

A metal detector is an important unit for several sectors. This unit is designed to produce a beat that can be heard through headphones when it is taken near metal. The report summarises the introduction and application of metal detectors. The main parts such as a +9V voltage supply, coil (inductor), capacitor and a lot of other components used to run the circuit. Basically the metal detector concept is largely used in the factory, airlines, immigration, defence dept and also custom to find things referring to its application.



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May Allah bless all of you.

Thank you.



1.0 Introduction

Multi- purpose of these metal detector to hunt hidden treasures such a metal coin, iron core, aluminium or silver and gold buried under the earth. The instrument can be used by TNB technician to detect any cable buried in the ground before they start their digging task for troubleshooting work. It also is used to detect buried conceal wiring. This simple metal detector comprises two oscillators, one working at 455 kHz and other at slightly lower frequency of 452 kHz. Three oscillators are used and the others are an inductor in the form of the searching coil. The two oscillators are coupled together through a capacitor of 120pF value. A beat frequency of 3 kHz is produced if the search coil is taken near the metal. The beat frequency is amplified and beard through headphones, the search coil oscillator is tuned by the 0-22p trimmer. Transistor T3 is used an amplifier to make beat frequency obtained through the two oscillators built around T1 and T2 audible. The circuit operate on 9V DC.