

CONSTRUCTION OF METAL DETECTOR

BY

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DEDICATION

This work is specially dedicated to Almighty God for making this dream to be a reality. Also to my wonderful Parents, my beautiful Sister and to my friends and well-wishers.

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Firstly, I thank God Almighty for sparing my life throughout the period of my research.

To my dearest parent Mr./Mrs. P.O. Ede, for supporting me morally, financially and spiritually.

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Finally, to my all friend for all their support and encouragement.

ABSTRACT

Metal detectors are electronics sensors that indicate the presence of metallic object without making physical contact with object. They are effective and useful security tools employed in strategic places such as airport, bank, stadiums, government houses and also in production industries to detect presence of metallic object on person luaggages, consignments foods, drugs garments etc. The study present a metal detector comprising a radio frequency oscillator, demodulating unit, triggering unit and output unit. A transistor colpit oscillator is used with its inductor being a toroidal coil, this acting as a transducer converting magnetic variation to voltage level changes through director feedback mechanism. The bank circuit is set such that the feedback outage is just sufficient to maintain oscillation. Magnetic variation caused by metallic object distort the initial set position, automatically cutting of oscillation and hence the transistor due to the biasing techniques employed the trigger section switches to low level and higher level depending on the output of the demodulator, which switches ON and OFF the (Led) light emitting diode and cuases the buzzer to produce and an active toner. It detects both ferrous and metal at a range determined by the type of material and its relative size.

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