AHSANULLAH UNIVERSITY OF SCIENCE AND TECHNOLOGY.

DEPARTMENT OF ELECTRICAL AND ELECTRONIC ENGINEERING.

COURSE NO: EEE 2211

COURSE TITLE: MEASUREMENT AND INSTRUMENTATION

PROJECT NAME: METAL DETECTOR.

SUBMISSION DATE: 13/01/2013

GROUP MEMBER:

11.01.05.100

11.01.05.098

11.01.05.095

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11.01.05.079

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COURSE NO: EEE 2211

COURSE TITLE: MEASUREMENT AND INSTRUMENTATION

PROJECT NAME: METAL DETECTOR.

SUBMISSION DATE: 14/01/2013

GROUP MEMBER:

11.01.05.111

11.01.05.112

11.01.05.138

11.01.05.145

11.01.05.146

11.01.05.161

OBJECTIVE: The objective of this experiment is to study on a project of metal detector .

EQUIPMENTS:

1.Breadboard-1 piece

2.Capacitor-

- 2.2 uF-2pieces
- 10 uF-1piece

3.555 chip-1piece
4.Resistor- 47k-1piece

5.Inductor- 10mH-1piece

6.Speaker-10R-1piece

7.DC Power Supply-6 to 12V-1 unit

CIRCUIT DIAGRAM:

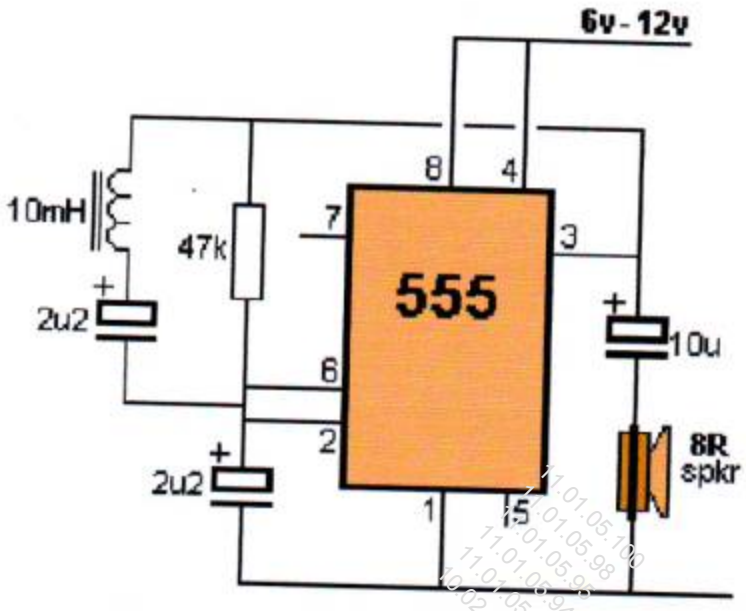

Fig: Metal Detector

Working procedure:

Thisworks as a metal detector. It detects the metal and also the magnets. When a metal or magnet is brought near to the circuit`s inductor. The speaker sounds. Here we use the 555 as an oscillator. Varying the frequency it detects the metal or the magnets.

Advantages:

We can easily detect any thing by using this circuit. We bring anything close to the inductor. If the thing is either metal or magnet, the speaker sounds constantly. We can use it in any kind of protection. We can use it in shopping complex, cinema hall, different kinds of offices, hospitals etc.

Disadvantages:

In this procedure, only we can detect the thing if it is a magnet or if a metal. But, we can not specify it as it is either a metal or a magnet. To specify it, we have to use another metal or a magnet. Here, we use a metal for this. If the thing is metal, it will not attract. And, if the thing is magnet, it will attract.

It works only in DC voltage. So, we can not run this circuit in AC mode.

DISCUSSION:

By variying the output frequency the circuit works. In this circuit, when we supply the voltage by adaptor, the speaker sounds. But, when we bring a metal or magnet, the sound is constant.