MARA UNIVERSITY OF TECHNOLOGY

PENANG BRANCH

DEPARTMENT OF ELECTRICAL ENGINEERING

FINAL REPORT FOR KEU 380

TITLE: SOUND ACTUATED SWITCH

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ABSTRACT

This project is about a switch that will function to the sound. The basic idea is to help the user in using their electrical appliances. Now we already has the remote control that always been used in many appliances. So, here we are trying to introduce the other way that of using or controlling the electrical appliance.

The sound as a switch now has been using in many future technologies. The scientists have tried to use the sound especially the human voice. We can see this in the mobile phone technologies. Now we can have the mobile phone that can dialed just by said the name that we want.

We can get the basic idea of that technology from this project. In this project we not using the human voice as the switched, but the hand clapping so that we can more understand this technology.

May be this project can be uses due to others kind of sound such as our own voice. Anyway we feel very great to finish this project.

ACKNOWLEDGEMENT

Bismillahhirrahmanirrahim. With the name of Allah S.W.T the most gracious and merciful, and to our prophet Muhammad S.A.W. Thanks to Allah for giving our opportunity to complete this project successfully.

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1.0 INTRODUCTION

This project is about the switched that will ON/OFF just by he sound of hand clapping. To determine the sound of the hand clapping, we, at first must know the frequency of this sound. This means that in this project we can change the sound that we want to be as the 'trigger' to the switched.

We use the dual Op Amp IC as a band pass filter and dual D-flip flop IC. Relay is use as the automatic switched. This project can be used as a switched to any electrical appliances that has a minimum power 300W. This project will use the power supply of 12V dc. So we are using the 9V battery.

1.1 The basic operation of the circuit

This project operates on 9V DC voltage. The input is the sound of the hand clapping and the output is the LED will light on and the relay will connect.

The main idea of this project is it will be a switched to any appliance that we want. So as we can see in the circuit, we used the condenser microphone to detect the sound. The problem is that we want the switched to operate on hand clapping. To achieve this, we used the Dual Op Amp IC that will detect the frequency of hand clapping.

The first Op Amp that we have in the circuit is high pass filter, and the second one is low pass filter. The combination of these two Op Amps will form a band pass filter. As the clapping sound has a frequency of 5 kHz, we set the frequency of the band pass filter between 4.5 kHz to 5.5kHz.

This makes the Op Amp possible to detect only the sound of hand clapping. The output of the Op Amp will go to the D flip flop and become as the input.