VERSATILE INTERCOM SYSTEM

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ACKNOWLEDGEMENT

First of all, we would like to praise and thankful to our Al-Mighty God, Allah s.w.t. because with his help and charity we can finish our " Versatile Intercom " project. With His blessing, we can do our project smoothly.

Special thanks to our supervisor, Cik Linda bt Md. Kasim for her commonsense, help, concern and guidance to us along we did this project. Thank you for her cooperation and satisfied to spend her time for us to discuss about any problem. We would like to express thanks to UiTM lecturer's for their help and information about our project.

Lastly, we would like to give a big appreciation to our parents and families for their help, support and understanding. Thank you to our friends and all people that give their help and support to both of us to finish this project report. Thank you very much.

ABSTRACT

The Versatile Intercom System is refers to an electronic communication system by means of wires/cables between various individuals situated at comparatively distant locations within a certain premises. The various location are known as stations.

In this project, the intercom is designed in full duplex mode by replacing master-substation. Master-substation system refers to a system that using only one amplifier and installed at the master controller's location. An audio amplifier and an auto ringing facility (buzzer) are incorporated in this intercom.

The Versatile Intercom works without a handset which means the operator merely can speak into intercom from the front. The need of a handset in any such full duplex intercom circuit is obviated by a mic-speaker pair. A detail description of the components used to implement the circuit together with explanation of how the circuit operates is also included.

The proposed project will provide a better solution in 'point-to-point' communication which means the operator can communicate directly to one and another.

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CHAPTER 1

INTRODUCTION

1.1 Background

The Versatile Intercom System is described as 2-station intercoms which functions in full duplex mode and the necessary modifications to convert it into a 3-station intercom where one station can call and converse in full duplex mode to any of the other two. Here, with full duplex operation there is no master-slave relationship between two station. It is possible to transmit and receive audio signal simultaneously, but not necessarily between the same two locations, one station can transmit to a second station and receive from a third station at the same time.

In order to implement this circuit, a background knowledge is required before the operation of the circuit can be understandable. The complete circuit diagram of one station incorporated 2 units. They are audio amplifier and auto ringing facility (buzzer). At the other end, station 2 should have a similar one.

Audio amplifier consist of condenser mic, IC1(741), two transistors (SL100 and SK100), two diodes (IN4148), capacitors, variable resistor and resistors. While buzzer circuit comprises two 555 ICs, IC2 and IC3, speaker capacitors, resistors and switches.

In audio amplifier circuit, IC1(741) is used as a preamplifier which amplifies the audio signal coming from the condenser mic. The output of the preamplifier is amplified by a complementary pair power amplifier comprising T1 and T2. The amplified signal is taken through point A in station 1 to point b in station 2. Diode which is connected to IC (741) protects the circuit from reversed polarity. In buzzer circuit, IC2 (555) is wired as 1 kHz astable and IC3 (555) as 1 Hz astable. Both ICs have been used to generate beeps in the speaker.