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ELECTRICAL ENGINEERING COURSE

DIPLOMA PROJECT

DEVELOPMENT OF A PACING
SYSTEM

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DEVELOPMENT OF A PAGING SYSTEM

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Maria Ch. Loumba

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SUMMARY

DEVELOPMENT OF A PAGING SYSTEM

WRITTEN AND CONSTRUCTED BY: LOUMBA MARIA

SUPERVISED BY: Mr. CHARALAMPOS THEOPEMPTOU

The purpose of this project is to design a system by which the messengers can be called by the 64 managers. The appropriate software must be able to drive the relevant hardware which a part of it, was supplied by CYTA.

The incoming call (when someone calls the messengers) is stored and then this incoming call is sent as an output in serial (RS232) format. Also an output of the incoming call gives a sign in visible and audible format.

RESEARCH

Communication between two rooms in the same building can be achieved in various ways. The most widely method used for communication can be located in the ways bellow:

1. By using telephones
2. By using teleconference cameras
3. By using the intercom system
4. By using data link
5. By using microprocessor

In the first method, by using telephones the communication is established in two ways. This method of communication can be considered as an indirect contact. It's a voice communication and no data can be transferred. This is the most widely used way when someone wants to call someone else in other room.

Considering the next way of communication cameras are required to be installed in the rooms of the building. This is a direct contact with transfer of voice and picture simultaneously. This kind of communication between rooms in the same building is not widely used due to the fact that the expenses are high.

Intercom system is a direct point to point communication. Intercom system is usually one of the systems installed in offices. By using intercom system someone can call anybody else in other room.

In data link, data is transferred by a fax or network.. It's principle is based on the fact that all computers are connected to a common server so a network exists and in this way the data can be transferred from one room to the other. This way of

communication is not used in the case that someone wants to call someone in the others rooms.

Another way of established communication between rooms is by using microprocessor based central unit. This is a rather non economical way.

NOTES

This project is constructed by using a microprocessor since the Telecommunication Authority will finance this project. Another reason for which this method chosen is because it was a requirement of CYTA to use a microprocessor. Although this is not the best solution the constructed system is design according to the requirements of the Authority.

INTRODUCTION

System description

The system is a device for the paging of the messengers. The system incorporates a Decoder circuit with which it can check the state of the 64 inputs. The paging system sends two signals:

Logic "0" at normal operation which nobody of the managers calls

Logic "1" when someone of the 64 managers calls

The system scans the changes of line status, and produces an output at an RS-232 port which can be connected on a terminal or on a printer in order to stored the calls so to keep records.

System operation

When system is switch ON, pulses are sent to all output units such as LEDS ,buzzer, and serial port in order to check if the appropriate units are working correctly. With this method the two main cards existing in the system, CPU and INTERFACE card, are being checked. After the checks have finished and the results appear in the port C of the 8155 IC (green led flashing) then the main operation of the system starts.

On power on, the system immediately sends in the output port (RS232) some specifications about this system. Then the main operation starts. The microprocessor scans the 64 inputs if a change in the logic occurs. If there is no change, the system continues scanning. If however, a change in state exists, then this is detected and is sent serially through the RS232 port. At the same time both LED's connected to the main unit (messengers room) and the LED existing in the office of which the call is taken, flash for a programmable time and then stay on. In the same time for which the LED's flash the buzzer rings and then stops.

Project Requirements

A summary of the basic project requirements is:

- a) System must be microprocessor controlled
- b) System must scan 64 inputs
- c) Produce a serial output