Computerized Electrical Equipment

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Abstract-This project aims on the design and development of electronic "Computerized Electrical Equipment".It is quite clear from the name of the project that we are going to control devices using computer. Now a day we are coming across much of the fascinating fields of control through computer. Extending this facility we are accessing switchboard using computer. This system can provide the facility of turning on and off the devices through computer. Software and the relay circuit play an important role in controlling. There is a software design in visual basic6.0 which has database connectivity. The user can configure it as he likes.
Keywords-AVR microcontroller, Visual basic, Relay driver, Parallel port
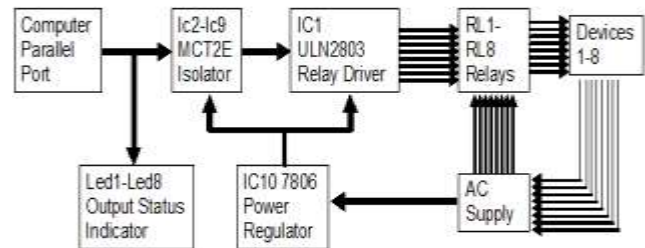
1. INTRODUCTION

It's quiet clear from the name of the project that we are going to control the devices through computer parallel port. Today all the work is computerized or work on computer making work simpler. Now a day's we are coming across much of the fascinating fields of computerized world. Such as satellite control, Radar control etc. and the list go on.Extending this facility of controlling by computer, we are accessing the devices using computer. This system can provide the facility turning on/off the devices with click of the button. Such as tube light, fan, bulb etc. This system has software which allows switching and managing the devices. The software is designed in visual basic 6.0 and has database connectivity with Microsoft access, where one can save the status of the device. For security propose there is a login which require password and username.So only the authorized person can only access. The user can save the format for different rooms and the only select the room and the

device will appear.The hardware consists of a PCB of relay, relay driver and power supply. There are total 8 modules which consist of opto-coupler given to the parallel port.

2. SYSTEM HARDWARE DEVICES AND DESIGNS

2.1 Computer parallel port: In computers, ports are used mainly for two reasons: Device control and communication. We can program PC's Parallel ports for both. Parallel ports are mainly meant for connecting the printer to the PC. But we can program this port for many more applications beyond that.Parallel ports are easy to program and faster compared to the serial ports. But main disadvantage is it needs more number of transmission lines. Because of this reason parallel ports are not used in long distance communications. Let us know the basic difference between working of parallel port and serial port. In serial ports, there will be two data lines: One transmission and one receive line. To send a data in serial port, it has to be sent one bit after another with some extra bits like start bit, stop bit and parity bit to detect errors. But in parallel port, all the 8 bits of a byte will be sent to the port at a time and a indication will be sent in another line. There will be some data lines, some control and some handshaking lines in parallel port. If three bytes of data 01000101 10011100 10110011 is to be sent to the port, following figures will explain how they are sent to the serial and parallel ports respectively. We can understand why parallel port communication is faster compared to that of serial. Eight bits of data are transferred at a time

over PC parallel ports. Data is sent using +5 volts and 0 volts to represent a 1 or a 0 data bit. As you might expect, data can be transferred relatively fast in this manner. The disadvantages of this method are that more wires are needed and that most common parallel ports can only work reliably at distances of under 20 feet.
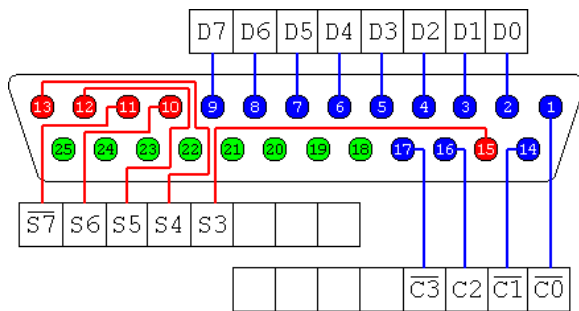
The total 12 digital outputs and 5 digital inputs accessed via 3 consecutive 8-bit ports in the processor's I/O space. 8output pins accessed via the **DATA Port**& 5 input pins (one inverted) accessed via the **STATUS Port** 4 output pins (three inverted) accessed via the **CONTROL Port**. The remaining 8 pins are grounded

HOW IT WORKS

The remarkable element of Inpout32.dll is, it can work with every one of the windows adaptations with no adjustment in client code or the DLL itself. This instructional exercise portrays how it is accomplished, what programming strategies utilized, what are the APIs utilized, and so on. The Dll will check the working framework form when capacities are called, and if the working framework is WIN9X, the DLL will utilize _inp() and _outp() capacities for perusing/composing the parallel port. Then again, if the working framework is WIN NT, 2000 or XP, it will introduce a part mode driver and converse with parallel port through that driver. The client code won't know about the OS form on which it is running. This DLL can be utilized as a part of WIN NT clone working frameworks as though it is WIN9X. The stream outline of the program is given beneath.

VISUAL BASIC

Visual essential is an abnormal state programming dialect developed from the before DOS variant called Fundamental. Essential stands for Amateurs' Universally handy Typical Direction Code. The program codes in Visual Fundamental take after the English dialect. Diverse programming organizations create distinctive renditions of Fundamental, for example, Microsoft QBASIC, QUICKBASIC, GWBASIC, and IBM BASICA et cetera. Visual Fundamental is a genuinely simple programming dialect to learn and it is for anyone who is occupied with programming yet need proficient preparing in programming designing. Learning VB will help youthful kids to enhance their sensible speculation aptitudes and build up their psyches. You can program in VB only for the sake of entertainment and satisfaction or you can make more propelled applications, for example, instructive courseware and business programming. VISUAL Essential is a VISUAL and occasions driven programming Dialect. These are the principle divergences from the old Fundamental. In Essential, writing computer programs is done in a content based environment and the program is executed consecutively. In VISUAL Essential, writing computer programs is done in a graphical domain. In old Fundamental, you need to compose a content based method to plan the interface, yet Visual Essential empowers you to outline the interface by dragging and resizing the articles and additionally changing their hues, much the same as any windows-based projects. Visual Essential is occasion driven in light of the fact that clients may tap on a specific question arbitrarily, so every protest must be modified autonomously to have the capacity to reaction to those activities (occasions). Cases of occasions are clicking an order catch, entering content into a content box, selecting a thing in a rundown box and so on. Thusly, a VISUAL Fundamental Program is comprised of numerous subprograms; each with its own program code which can be executed freely and in the meantime can be connected together in somehow. The fundamental utilization of the venture is to control every one of the gadgets through the PC. As we realize that in any field PC are utilized. So we can control the gadgets on the snap of catch.

APPLICATION

The following are some application:
In Industries: In Industry the work place is larger a person who access switch board has to move considerable distance. But by using computer that man can controlall its equipment. Hence it saves time.
In Hotel: In Hotel there are many rooms, hence to see that the light or tube is off or not is very difficult. Hence by using a computerized control the main in charge of the hotel can control all the devices.
In College: In College the students have very bad habit not to switch off the fan and tube. So the staff can control it through computer. Hence saves electricity.

In Offices: In offices there are heavy work load, so there is no time to switch on the tube or fan etc. but due to this the person can control the surrounding devices on the computer itself.

In Hospital: Same as the above application it can be used in the hospital.There are many rooms and it's hard to control the devices very time so the nurse can operate from its place.

In general: In general it can be installed in many ways as the user decides. A place where there is less man power. E.g. shopping mall, school, house etc.

MERITS & DEMERITS
MERITS:
1. The most important advantages are controlling through Parallel Port.
2. All the switchboard of office, factory, hospital etc. can be replaced and accessed by using computer.
3. It saves time factor by switching it manually and monitoring it.
4. Monitoring is simple in offices, school, industries etc.
5. Operation is simple.
6. Software is user friendly.
7. Low cost.

DEMERITS:
1. Only 8 devices can operate at one computer.
2. 3phase devices cannot work because of low current rating.
3. The pc's requirement is of parallel port.

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