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TV Remote Controller For Home Appliances Using 8051 Microcontroller

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Abstract —*We operate all the electrical and electronic appliance such as light, fan, motor etc through switches of the regular switch board. This manual switching of any home appliance is very hard method for those people who are physically disabled. So, this manual switching helps them to operate all home appliances using single TV remote. This project has integration of TV remote technology and embedded system.. Then he/she can give command using the buttons on that TV remote. For this you have to turn on the IR of your remote, so the main wireless controlling technique used in this project is IR technology. IR receiver will be connected to the project. This microcontroller device is connected to the circuit which has a decoder. It sends out a code for respective command sent by user. Then the respective device connected to the circuit will be turned on or off depending on the command given. For example: Turn on motor, Turn off motor, Turn on buzzer etc. Such that by giving commands from TV remote you can control home appliances.*

Keywords-*Power Supply (5 volt) using USB, microcontroller 8051, ICTSOAP1738, and Micro C PRO for 8051, Proteus designs Suit.*

I. INTRODUCTION

Program on the microcontroller serially communicates with TV remote to generate respective output based on input This project is designed to use of controlling home appliance using 8051 microprocessor. The data to operate a set of relay through a relay driver IC. In the receiver section, IR and relay board interfaced with microcontroller. IR is an open standard specification for a Infrared frequency based short communication. There are number of home appliance control system are proposed. Each one has featured some new parameters and usability. It has been shown that various devices can be controlled without the change of the core of system but it cannot be implemented in the IR technology. The proposed appliance control mechanism that has been designed is mainly based upon the IR service of the TV remote device in which the application would be installed. The TV remote platform includes support for a IR network stack.

II. LITERATURE SURVEY

One of the earliest examples of remote control alert was developed in 1893 by Nikola Tesla. With invention of relays previously in 1835 by joseph henry it became possible to use remote controls to drive other devices .This is because of the ability or relays to serve as a switch that can control devices when energized by electricity. Again with the invention of integrated circuits like 555 timers and microcontroller, more functionality was added to whole concept of remote control alert.

III. SYSTEM DESCRIPTION

IC-TSOAP1738: The TSOP1738 is a member of IR remote control receiver series. The output of TSOP is active low and it gives +5V in off state. Lights coming from sunlight, fluorescent lamps etc. may cause disturbance to it and result in undesirable output even when the source is not transmitting IR signals.TSOP module has an inbuilt control circuit for amplifying the coded pulses from the IR transmitter.This input signal is received by an automatic gain control (AGC). The collector output of the transistor is obtained at pin 3 of TSOP module .Members of TSOP17xx series are sensitive to different centre frequencies of the IR spectrum. For example TSOP1738 is sensitive to 38 kHz whereas TSOP1740 to 40 kHz centre frequency. The 40 pins make it easier to use peripherals as the functions are spread out over the pins.

A. BLOCK DIAGRAM

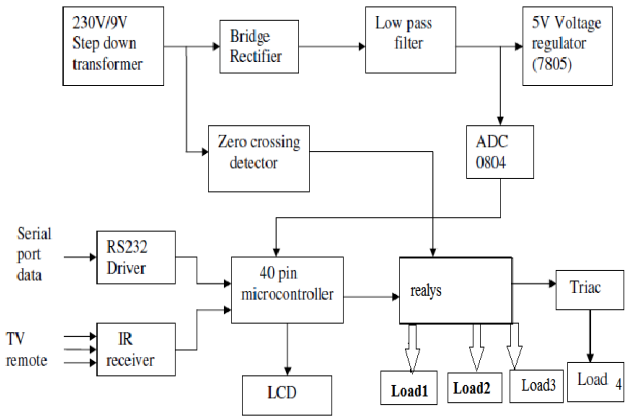

Fig. 1 Block diagram

Figure 1. Block diagram of TV remote control home appliances using 8051 microcontroller

The block diagram of the IR remote control for home appliances is shown in the figure on that consists of the power supply block with the transformer, rectifier, and regulator. Relays that are interfaced to the 8051 Microcontroller using relay driver, IR receiver which is also interfaced to the microcontroller TV remote or IR remote is used for controlling all the home appliances remotely.

The power supply block converts the 230V into 5V DC for providing required 5V DC supply to the Microcontroller circuit the user can assign the TV remote buttons for each home appliance and thus whenever the particular button is pressed, and then the coded infrared data is transmitted to the receiver circuit. coded data is decoded at the IR receiver circuit and the signal is fed to the microcontroller.

B. CIRCUIT DIAGRAM

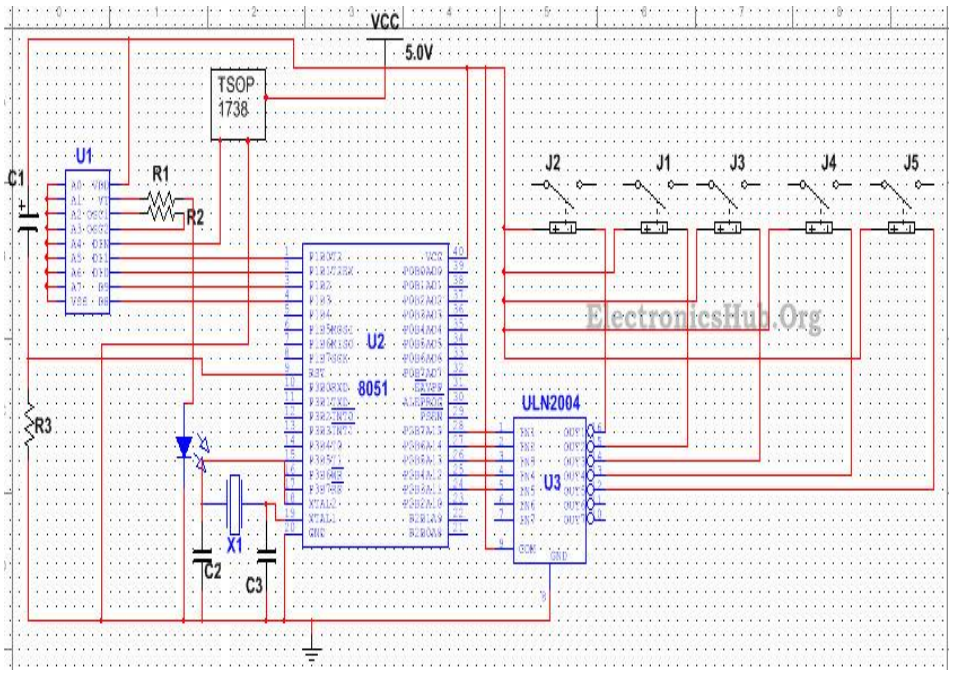

Figure 2. Circuit diagram of TV Remote Controlled in Home Appliance Using 8051 Microprocessor

IV. ADVANTAGES & DISADVANTAGES

The proposed system is portable and easy to use. Simple in construction, efficient and low cost design Low power consumption. Add many loads gets system hangs or not work properly. This system is works only in specific area or distance. At a time maximum seven loads can be attached.

V. APPLICATIONS & FUTURE SCOPE

It can be used in various industries, photography, home appliances. In hospitals. It saves time. Due to use of microcontroller the work presented in this project can further be extended for web interfaced control application using Ethernet module like ENC28J60, RTL8019 etc.

VI. CONCLUSION

In the coming days, as demand of single control is increasing every moment, it will prove a great boon to the world, since it will save a lot of manual work and time which is useful for disable people. Any country can only develop when it uses electricity for actual time. Now times comes when these types of innovative ideas should be brought into practice. This project can also be modified by using Bluetooth technology on android phone which help to increase the area of controlling home appliance.

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