International Journal of Advanced Technology in Engineering and Science
Vol. No.5, Issue No. 01, January 2017
www.ijates.com
ijates
ISSN 2348 - 7550

AUTOMATIC LIGHTS MONITORING AND DOOR OPENING SYSTEM

T. Hayagreevan[1], J. Rohith Reddy[2], T. Aditya Venkatesh[3], M. Saritha[4]

[1, 2, 3] B.Tech (ECE), [4] Working as Asst. Professor, Department of (ECE)
Visvesvaraya College of Engineering and Technology, M.P Patelguda,
Ibrahimpatnam (M), Ranga Reddy (D), Affiliated to JNTUH, (India)

ABSTRACT

This project "Automatic lights monitoring and door opening system" is advanced technology for reducing power consumption. The appliances control with wireless sensors networks has a great revolution but it has manual action need, so this project can be developed on AT89S52 based controller. Home/office presentation is developed greatly in science field: The goal of this automation is controlling the house elements lights in order to save energy and raise the quality of living. Staging is done using wireless technologies. System is developed with automatic door opening using IR and PIR sensors. Door opening is system is based on IR sensor performance and also lights and fans are dominance through PIR sensors.

Key Words- AT89S52 Micro Controller, PIR Sensor, IR Sensor.

I. INTRODUCTION

Our benefaction to the society is reducing the human effort to automatic control of appliances in home/office. The need for automation has come to stay and this time over to 1500 years. The automation world is growing tremendously now a days. Machines are working automatically in present world. Thereby merging several separate elements of the production process into a unified whole. Automation in the electrical, electronics and computing world has grown rapidly of which it dates back to 1940 when the first electronics computing machine was developed.

II. LITERATURE REVIEW

In our world different types of digital home security system solutions are available. Most of them are very expensive. We have studied different individual components separately and integrated them together with some more innovative features to make a digital home. Digital homes are expected to be the standard in the near future when all aspects of the home can be monitored and controlled remotely by the home owner. "Controlling and Securing a Digital Home using Multiple Sensor Based Perception System Integrated with Mobile and Voice Technology" research are not uncommon and a few successful example would be the "Digital Home: An Allin-one Device to Control most everything", "eyeOS", "Video surveillance and Recording", "Kaseya Remote Desktop Management" from the different developer or software development firms.

III. PROPOSED SYSTEM

In this proposed system home lights are automatically control through PIR sensor and when any person enter into the chamber IR sensor is activated to count the persons and that can be displayed on LCD. Persons want to leave the chamber IR 2 sensor activated and reduce the count in LCD display. It is so advanced compare to the existing systems.PIR sensor is activated if persons are living in the chamber.

IV. HARDWARE DESIGN

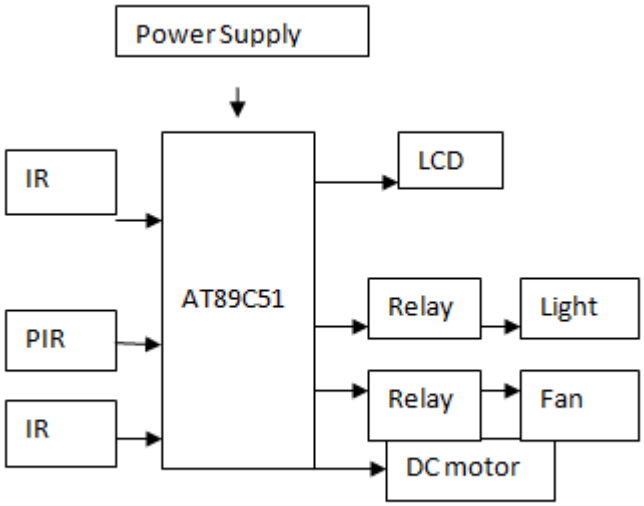

Fig 1: Block diagram of the project

4.1 AT89C51 Micro controller

AT89C51 micro controller mainly consists of 40 pins. In those 40 pins 32 pins are I/O pins and remaining 8 pins are special function pins. It mainly consists of four ports they are P0, P1, P2 and P3. In 8051 micro controller crystal oscillator and reset circuits are hearts of the 8051 micro controller.

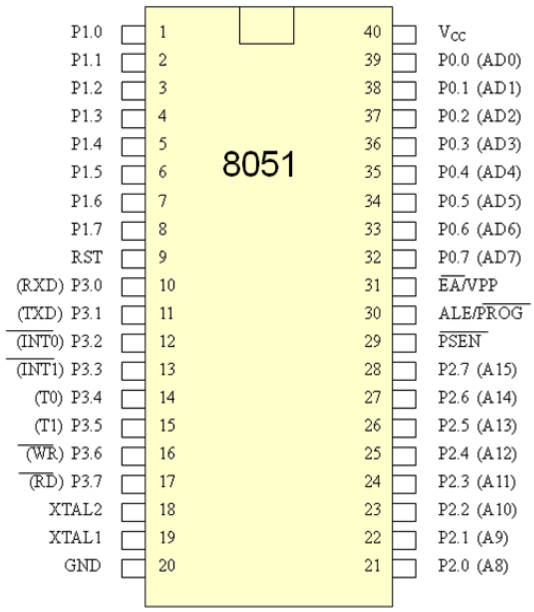

Fig 2: Pin diagram of 8051 micro controller.

4.2 Liquid Crystal Display

Liquid crystal display is a 16X2 fluid precious stone alphanumeric showcase, implies that it will show 16 characters for every line and there are two such lines. Amid this LCD each character is shown in 5x7 part grid. LCD consists of two registers; to be specific command and data register i.e. information register. The register brings the data and charge headings given to the LCD. A summon is partner degree direction given to LCD to attempt and do a predefined undertaking like introducing it, clearing its screen, setting the marker position, prevailing show and so on the information register stores the data .

Fig3: 16x2 LCD

Pin No	Symbol	Details
1	GND	Ground
2	Vcc	Supply Voltage +5V
3	Vo	Contrast adjustment
4	RS	0->Control input, 1-> Data input
5	R/W	Read/ Write
6	E	Enable
7 to 14	D0 to D7	Data
15	VB1	Backlight +5V
16	VB0	Backlight ground

Table 1: LCD each pin description

4.3 PIR Sensor

PIR sensor can activated when a human or animal body will get in the range of the sensor it will detect a movement because the human or animal body emits heat energy in a form of infrared radiation. The term "passive" means that sensor is not using any energy for detecting purposes. It just works by detecting the energy given off by the other objects.

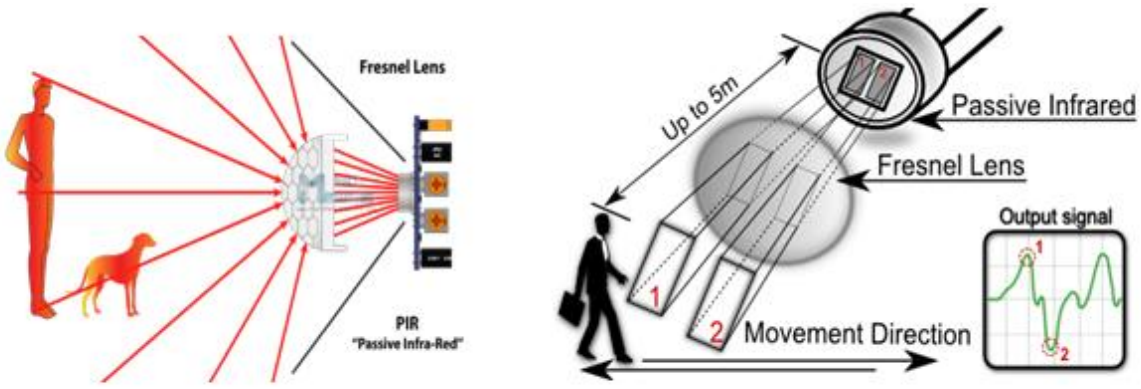

Fig 4: The above figures show how PIR sensor can sense the human body.

4.4 IR Sensor

IR means "Infrared" and its actual work is an detecting the objects. When Ir transmitter emits radiation, it reaches the object and some of the radiation reflects back to the IR receiver. When the light emitted by the IR LED is incident on the photodiode after hitting an object, the resistance of the photodiode falls down from a huge value. When the incident radiation is more on the photodiode, the voltage drop across the series resistor will be high. In the IC, both the threshold voltage and the voltage across the series resistor are compared. If the voltage across the resistor series to photodiode is greater than that of the threshold voltage, the output of the IC Op – Amp is high. As the output of the IC is connected to an LED, it lightens up. The threshold voltage can be adjusted by adjusting the potentiometer depending on the environmental conditions.

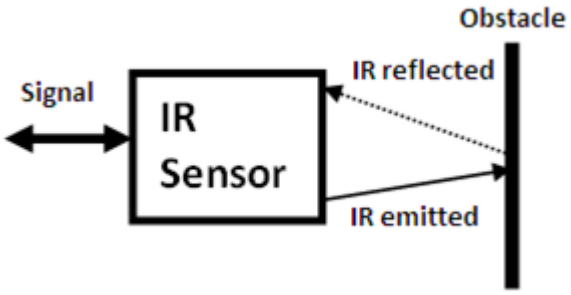

Fig 5: IR sensor reflection when object detected.

4.5 Relay

A transfer is relating electrically worked switch. A few transfers use partner magnet to consequently work a switch, however elective in operation standards are utilized, similar to strong state transfers. Transfers territory unit utilized wherever it's essential manage a circuit by a low-power signal. Working of relay is easy, once power is provided to relay current begin flowing through the management coil as a result magnetism starts energizing. Hear points A, B, C area unit used as management points. once power is applied to input terminal attributable to magnetism result, B and C area unit connected so closes the contacts inflicting a brief circuit for the ability to the load. If the relay was already de-energized once the contacts were closed, then the contact move opposite Associate in Nursingd create an electric circuit. once power provide is interrupt purpose A and C area unit connected. This force is especially provided by 2 factors they're spring and gravity.

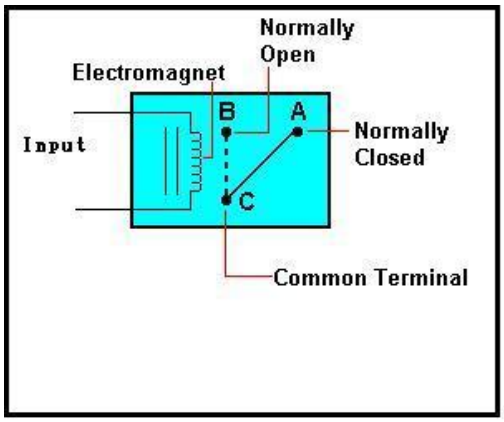

Fig 6: RELAY

V. SOFTWARE DESIGN

To finish the undertaking on equipment need to installed programming on to the controller utilized as a part of this venture for that reason we need programming's similar to Kiel u vision and glimmer enchantment those are examined in given beneath

Compiler that keeps running on one pc however delivers PC code for an unmistakable sort of pc. Cross compilers square measure usual produce PC code which will keep running on PCs with a substitution plan or on exceptional reason gadgets that can't have their own compilers. Cross compilers square measure extremely in vogue for implanted improvement, wherever the objective more likely than not couldn't run a compiler. Normally relate degree inserted stage has limited RAM, no plate, and confined I/O ability. Code are frequently adjusted and accumulated on a brisk host machine, (for example, a tablet or working framework workstation) and in this way the resulting feasible code will then be downloaded to the objective to be tried. Cross compilers square measure helpful at whatever point the host machine has a ton of assets (memory, circle, I/O and so on) than the objective. Kiel compiler is one such compiler that backings a gigantic assortment of host and target blends. It underpins as an objective to eight piece microcontrollers like Atmel and Motorola and so forth. Streak Magic is partner application created by Embedded Systems Academy to allow you to just get to the choices of a microcontroller gadget. With this project you'll have the capacity to delete individual squares or the entire nonvolatile stockpiling of the microcontroller.

VI. WORK DESCRIPTION

In our project 8051 micro controller can work effectively and its I/O pins are played a main role to connect any devices or ICs related to the project. LCD data pins are connected to port 2 and at the same time RS and enable pins are connected to P3.6 and P3.5 respectively. PIR sensor output pin is connected to P0.3. IR sensors output pins are connected to P0.0 and P0.1 respectively. Relays are connected to the P3.0 and P3.5 port pins and it c.L293D input pins are connected to P3.1 and P3.2 port pins.

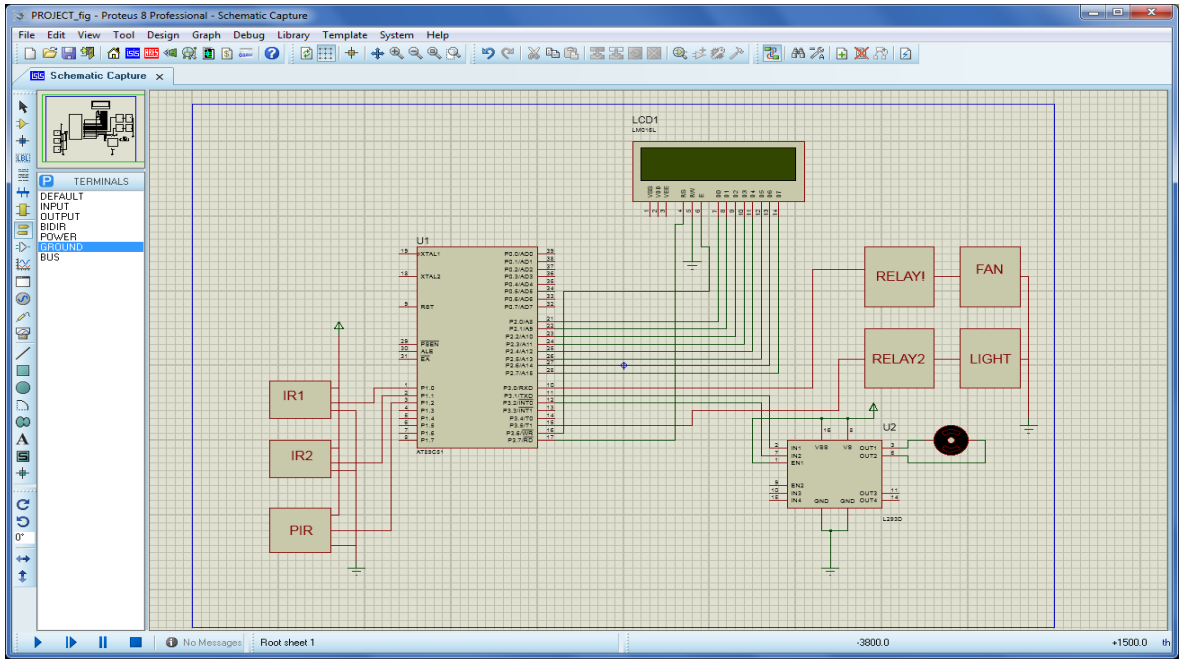

Fig: Proteus schematic diagram of the project

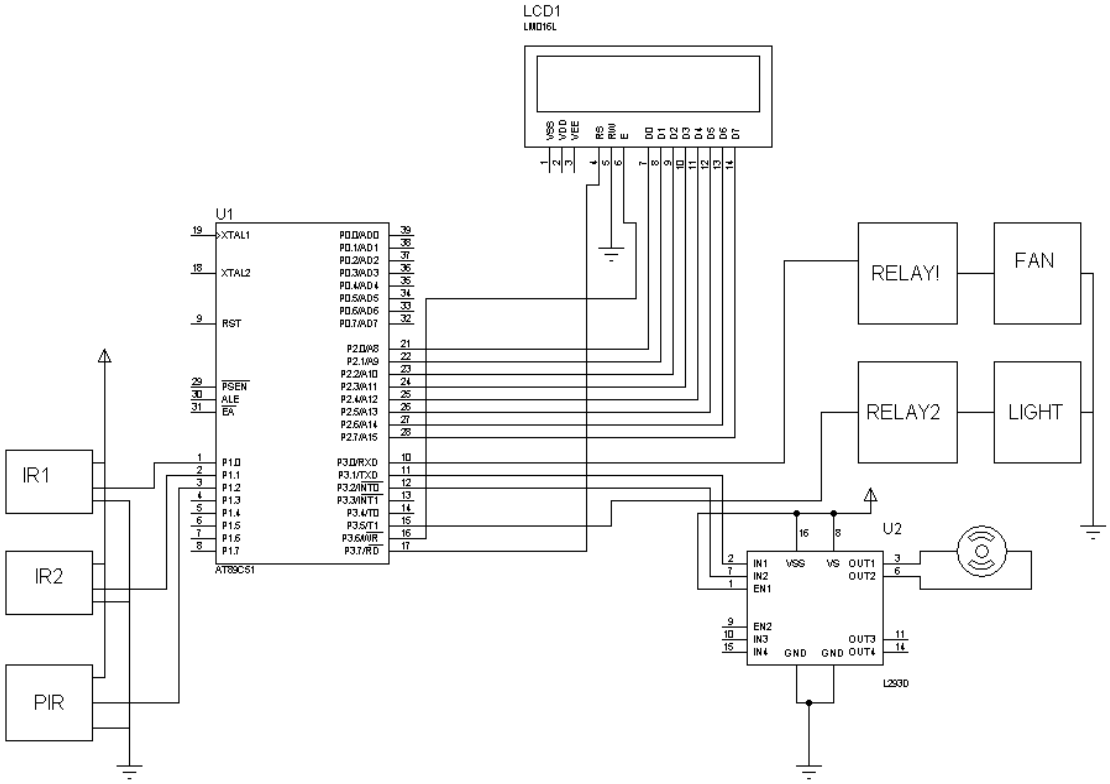

FIG: Schematic diagram of the project

VII. RESULTS

Here the results are shown our project "Automatic lights monitoring system and door opening" without human efforts lights are operated through PIR and IR sensor. In the chamber human can required for switch off/on the lights but our proposed system can be used to save the power. IR sensors are placed on inside and outside of the door. If anyone reaches near IR sensor it will count the value in LCD and also door can open automatically by using L293D.

PIR sensor can detect any person or an animal signal can send to lights through microcontroller and relay. If someone leaves from the room another IR sensor is activated to reduce the count in LCD. If no one staying in the room PIR sensor can deactivate and also lights are in OFF state.

VIII. CONCLUSION

Prototype for automatic appliance control using PIR and IR sensor is successfully researched and designed. Automatic door opening and device monitoring is implemented using PIR, IR sensors and driver circuit. Along with automatic door control this prototype can control various devices using driver circuit. By using this methodology one can build secure automation system. This system developed for controlling lights so there is minimum power consumption using PIR sensor.

IX. AUTHOR DETAILS

T. HAYAGREEVAN

B.Tech (ECE) from Visvesvaraya College of Engineering and Technology, M.P Patelguda, Ibrahimpatnam (M), Ranga Reddy (D), Affiliated to JNTUH, India.

J. ROHITH REDDY

B.Tech (ECE) from Visvesvaraya College of Engineering and Technology, M.P Patelguda, Ibrahimpatnam (M), Ranga Reddy (D), Affiliated to JNTUH, India.

T. ADITYA VENKATESH

B.Tech (ECE) from Visvesvaraya College of Engineering and Technology, M.P Patelguda, Ibrahimpatnam (M), Ranga Reddy (D), Affiliated to JNTUH, India.

M. SARITHA

Working as assistant professor, from visvesvaraya college of engineering and technology, patelguda, Ibrahimpatnam, Rangareddy dist., Telangana, INDIA.