

# FULLY AUTOMATED APPLIANCES CONTROL IN SHOPPING MALLS WITH RESPECT TO THE DENSITY AND INTENSITY WITH SMART DOOR LOCKING SYSTEM

Muppidi Tejasri<sup>1</sup>, M.Akhila<sup>2</sup>, G. Ravindranath Kumar<sup>3</sup>

<sup>1</sup> Pursuing M.Tech (ES), <sup>2</sup> Assistant Professor, <sup>3</sup> professor

<sup>1,2,3</sup> Visvesvaraya College of Engineering and Technology

Patelguda, Ibrahimpatnam, Ranga Reddy Dist. Telangana, (India)

## ABSTRACT

*In the shopping malls regularly we are utilized more of power consuming devices like as lights and fans so when we have to control the usage of lights by providing & controlling these lights it leads to reduce the power consumption and also we will increase life span of the devices in order to control these devices by developing this project. Here we are using IR sensors to calculate the density in the shopping mall. How means we are placing two IR sensors at entry and exit of the shopping mall so by using IR sensors we can count the members entered into the mall using entry IR, and also count the members leaving from the mall using exit IR . By counting the entered and leaving members we can also calculate members in the mall by subtraction of entered members to leave members from mall and we switch on the lights depending the upon the density in the mall .if the density was high all lights need to switch ON if the density was below some level need to switch ON some lights. For that we know the total members in the mall by using the density in the mall we can assign the lights using LPC2148 microcontroller depends on code using. And also another advantage of this project it can be controlled automatically using LDR night time lights will be on and day time lights will be off using the property from LDR, the LDR was interfaced to our LPC2148 micro controller. Here we are using the keypad using to security purpose. Door open and close enter the password door will be open, all person are exiting automatically light will be off and at the same time door will be closed.*

**Keywords:** Arm7 BOARD, IR SENSORS, LDR SENSORS, MOTOR, LCD, KEYPAD.

## I. INTRODUCTION

In the shopping malls regularly we are utilized more of power consuming devices like as lights and fans so when we have to control the usage of lights by providing & controlling these lights it leads to reduce the power consumption and also we will increase life span of the devices in order to control these devices by developing this project. In this project we are using the two IR sensors for counting purpose, one IR for entry and one IR for exit. If you subtract from entry persons for exit we can get the total count and depending on the count we will write the code how many number of lights need to be switch ON. And LDR will depend upon the light. If sun

light is there no light will be on in the shopping mall and if the sun light is not available the lights will be ON depending upon the number of count and our programming. one more advantage in the project is the door will have the keypad if the password will be match than only the door will be open for the security purpose.

## II. EXISTING SYSTEM

The lights and fans are always will be ON condition the shopping malls due to that a lot power was wasting at the same the life span of the also will be decreasing, so to avoid that we are implementing the LDR and density based light controlling system.

## III. PROPOSED SYSTEM

A lot power was wasting in the shopping malls for the continuously lights are in ON condition for the to reduce the wastage of the power we are implementing counting a LDR based project that is “density and LDR based sensor based automatic shopping mall light control and counting” in this project we the two IR sensors for the entry and exit with this we can the total count in the shopping malls, Whenever the LDR detects the light the light lights will be off condition and one more advantage is when the door will be open need to match the password. if the password will be match than only the door will be open otherwise the door will not be open.

### Block Diagram

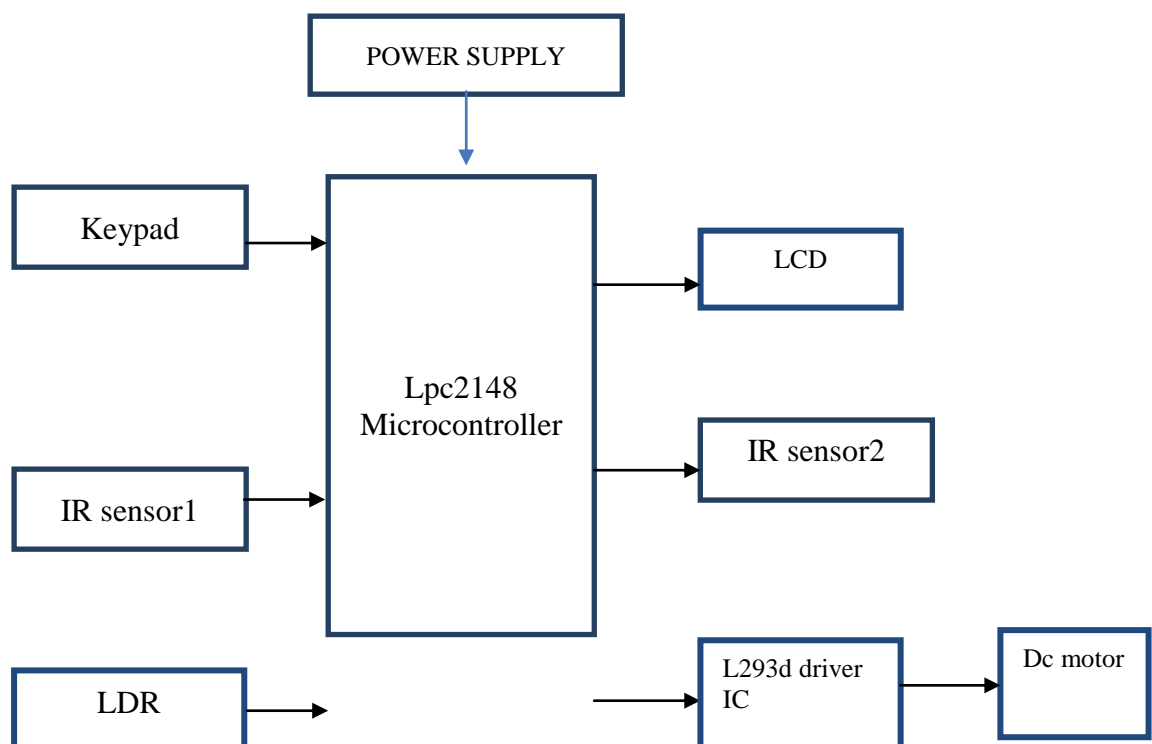


Fig1: block diagram

### 3.1 LPC2148 microcontroller

The ARM7 (advanced RISC machine) processors board primarily based whole on a 16/32-bit ARM7 its method of 16/32-bit ARM7 TDMI-S microcontroller, 8 computer memory unit to forty computer memory

unit of on-chip static RAM and 32 computer memory unit to 512 computer memory unit on-chip flash memory; 128-bit In- system Programming (ISP). 32-bit timers/outside event counters, PWM pulse width modulation unit (six outputs) and watchdog, Low strength of actual-Time Clock (RTC), more than one serial interfaces which has 2 UARTs , rapid I2C-bus (400kbit/. There are sixty four pins of ARM7 processor and 2 ports (port0, port1) 45 pins are input/output.

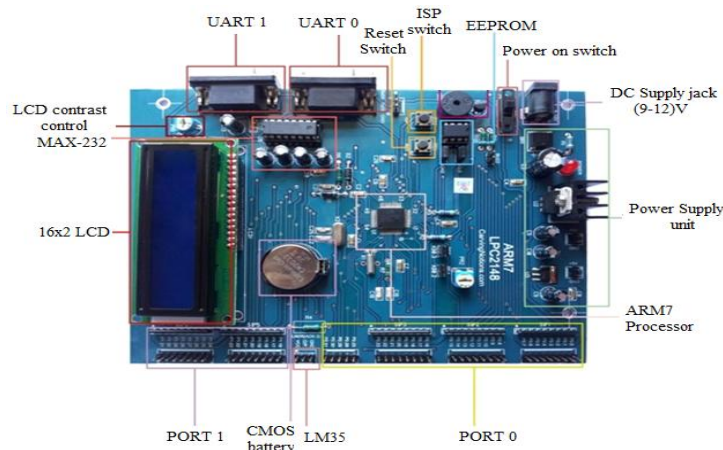


Fig2:-LPC2148 board

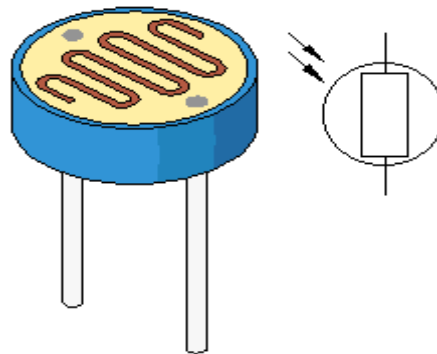
### 3.2 IR Sensors

The main purpose of using IR sensor is to detect the obstacle. When the obstacle was passing the IR sensor will detects the object. The IR will have the two LEDs one for transmitting and one for receiving. The transmitter LED transmits the one signal that signal touches to the objects and reflected to the back receiver, if the object is within the range the obstacle will be detects. In the IR sensor we are using the lm358 as comparator circuit. it is an 8 pin ic, At the first pin we will take the output and 8 pin we will gives the power supply and at the third pin we set the reference the voltage, whenever the obstacle was the detected the it will get the above the reference voltage. The IR sensor contains the three pins one is for controller pin that we can considered as the output pin and power supply pins one is vcc and another one for ground.



### **3.3 LDR Sensor**

The LDR is a photo dependent resistor or CdS (cadmium Sulphide) cell is a resistor whose resistance decreases with increasing the intensity of the light. If the photo resistor is made of high resistance semiconductors, the light falling on the devices is high frequency ,the photons absorbed by the semiconductors give bound electrons enough energy to jump into the conduction band, The resulting free electron (and its hole partner) conduct electricity, thereby lowering resistance. The LDR sensor was used for the detecting the light, if the light is high the resistance will be decreases if the light is low the resistance will be high.in this project if the sun light is there the light will be off and sunlight is not there the light will be ON.



**Fig3: LDR sensor**

### **3.4 L293D**

The L293D is a quadruple high-current half-H drivers, it also called as line driver circuit. The L293d is designed to provide bidirectional drive currents of up to 1 A at voltages from 4.5 V to 36 V. the driver contains totally 16 pins, in that four pins for input and four pins for output. The output pins are connected to the motors and input pins are takes from the controller and l293d contains two power supply pins and two ground pins. The main use of the l293d IC is to boot up the voltage levels to run the D.C motor. Here we are taking the four input pins and four output pins, the D.C motor requires only two pins so we can run two motors at a time by using the l293d driver IC.

### **3.5 MOTORS**

Motors are electro mechanical devices which are used for the to convert the electrical signals into mechanical signals. The all d.c motors are have same internal mechanism, either electromechanically to change the direction of current flow in part of the motor. In project we are used for to move the motor in specific direction. We need to connect the motor to controller through driver IC only.



**Fig4: DC motor**

## 3.6 Keypad

The keypad was used for entering the numbers and alphabets. The keypads available in different sizes here we are using the 4\*3 keypad. That means it will contain the four rows and three columns. The keypads are normally in logic high state whenever the key was pressed the columns and rows get shorted each than the current will be flow. The keypad used for the security purpose for entering the numbers.

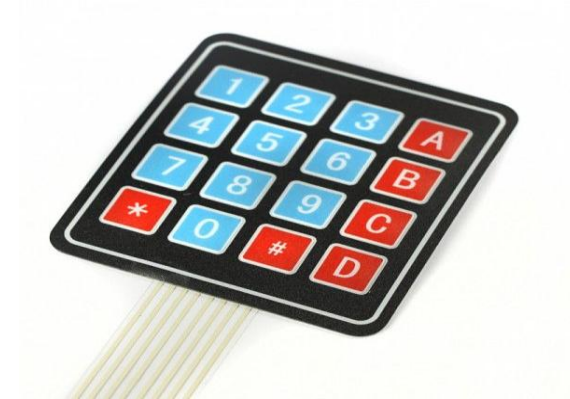


Fig5: keypad

## IV. SOFTWARE DESIGN

In this proposed contrivance, as we tend to used LPC2148 we wish to use following software package instrumentation to program for it.

1. Keil4 Vision
2. Flash Magic

The Keil4 Vision an IDE for Embedded c language. In this IDE, we wish to import the utilities and libraries consistent with the controller. This IDE is very more easily and in user friendly thanks to apply, assemblers, and debuggers in it. It simplifies the manner of embedded simulation and trying entering conjunction with Hex file technology. The flash magic is a programming utility. The C/C++ software written in IDE could be processed into Hex document i.e. in .hex layout. By using hex file we tend to merchandise the code into microcontroller and perform application.

## V. WORKING PROCEDURE

The main object of this project is to reduce the wastage of the power of in the shopping malls and increasing the life span of the lights. In the shopping malls the lights are continuously will be in the ON condition for that a lot of power was wasting and life span of the lights also decreases for that reason we are implementing the “density and LDR based automatic light control in shopping malls.

In this project we are used the two IR sensors, one for entry and another for exit. ThefirstIR sensor will place at the entry point for counting the number of visitors entering into the room. The number of times detecting the IR that number of persons will enters into the room, and one more IR sensor was place at the exit, this also the same concept no.of the IR2 was detected the IR gets decrements . So if subtract the exit persons form the entry



persons we will get the total no.of persons in the shopping mall.by using this total we will write the count how many number of light will switch ON.

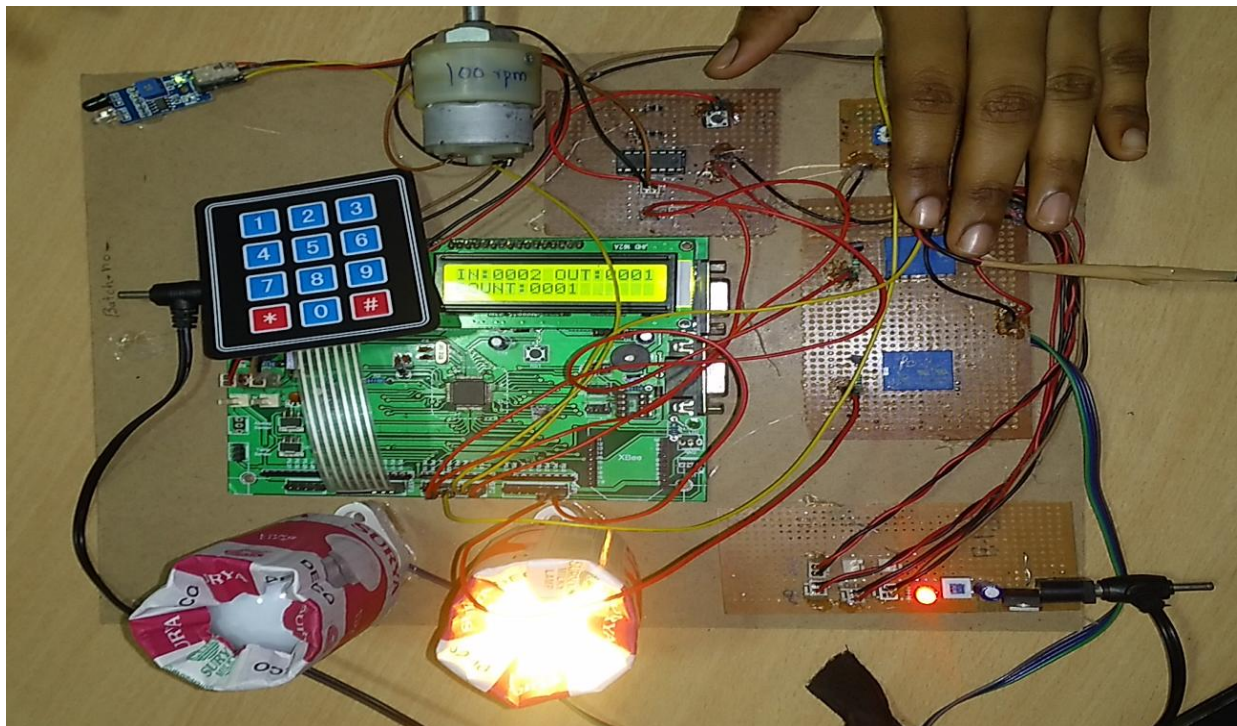
In this project on more concepts is there that is light dependent resistor. When the LDR was detected the light will be off. Whenever the light detects the resistance of the LDR will get low the voltage will be flow. Here whenever the light was detected the all lights in the shopping malls will be switch off, without counting, whenever the LDR was not detected the lights will be switch ON depending upon the count in the shopping mall. If the count reaches that particular level we need to switch ON the some lights that depending upon our programming.

One more advantage of this project is whenever we need to open the door the we need to type the password from the keypad if the password will be than only the door will be opens otherwise the door will not be open this is very useful in security purpose

Here we have two main advantages by using this project one is we can reduce the wastage of the power and we can increase the life span of the bulbs, two IR sensors will be used one for entry one and another one for exit persons by using these two we will get the count if the count will reaches that particular level some lights will be switch on depending upon the our programing for that we can reduce the wastage of the power in the shopping malls and more is we are providing the keypad based password for opening and closing the door.

## VI. RESULT

Here the project was successfully completed when LDR was detected the all lights will switch off condition if LDR was not detected the light will be on depending upon the count, and one advantage of this project is we have to type password for opening the shopping mall door by using the keypad whenever the password will match than only the door will opens.






By using this project we can reduce the usage of the power in this shopping malls and we can increase the life span of the bulbs, whenever the count reaches that particular level some lights will be switch ON that is depending upon our requirement, and it will be very useful for security if we want open the door we need to type the password, if password will be match than only door will be opened.

## REFERENCES

- [1] [www.projectsof8051.com/automatic-room-light-controller-with-visitor-counter](http://www.projectsof8051.com/automatic-room-light-controller-with-visitor-counter).
- [2] [Seminar-projects.net/tags/automatic-counting-system-cIRcuit](http://Seminar-projects.net/tags/automatic-counting-system-cIRcuit).
- [3] [www.academia.edu/.../AUTOMATIC\\_LIGHT\\_CONTROL\\_BY\\_USING\\_MICROCONTROLLER](http://www.academia.edu/.../AUTOMATIC_LIGHT_CONTROL_BY_USING_MICROCONTROLLER).
- [4] <https://www.elprocus.com/motion-detector-cIRcuit-with-working-description>.
- [5] [www.electronicshub.org/microcontroller-based-mini-projects-ideas](http://www.electronicshub.org/microcontroller-based-mini-projects-ideas).
- [6] [www.ijareeie.com/upload/2015/ncreee/7\\_PID131.pdf](http://www.ijareeie.com/upload/2015/ncreee/7_PID131.pdf).
- [7] [fullreport.in/tags/is-any-ppt-is-der-to-download-automatic-room-light-control](http://fullreport.in/tags/is-any-ppt-is-der-to-download-automatic-room-light-control).
- [8] [www.engineersgarage.com/contribution/automatic-room-lighting](http://www.engineersgarage.com/contribution/automatic-room-lighting).
- [9] [www.slideshare.net/.../automatic-roomlightcontrollerwithbidIRectionalvisitorcounter](http://www.slideshare.net/.../automatic-roomlightcontrollerwithbidIRectionalvisitorcounter).
- [10] [www.academia.edu/.../A\\_PROJECT\\_REPORT\\_ON\\_AUTOMATIC\\_ROOM\\_LIGHT](http://www.academia.edu/.../A_PROJECT_REPORT_ON_AUTOMATIC_ROOM_LIGHT).

## AUTHOR DETAILS

	MUPPIDI TEJASRI, Pursuing M.Tech (ES ) from Visvesvaraya College Of Engineering And Technology, Patalguda, Ibrahimpatnam, RangaReddy dist. telangana, INDIA.
	M.AKHILA working as Assistant Professor from Visvesvaraya College Of Engineering And Technology, Patalguda, Ibrahimpatnam, Ranga Reddy dist., telangana, INDIA.
	HOD(G.RAVINDRANATH KUMAR) , working as Professor from Visvesvaraya College Of Engineering And Technology, Patalguda, Ibrahimpatnam, Ranga Reddy dist., Telangana, INDIA.