AUTOMATIC LIGHT / FAN CONTROL SYSTEM FOR AUDITORIUM

This project report submitted in partial fulfillment of the requirements for the Award of Degree of Bachelor of Science in Electrical and Electronic Engineering

Submitted By

Sujon Chandrasil

ID: 151-33-2568

Zakir Hosen

ID: 151-33-2563

Supervise By

Dr. Md. Rezwanul Ahsan

Assistant Professor

Department of Electrical and Electronic Engineering

Faculty of Engineering

Department of Electrical and Electronic Engineering

Faculty of Engineering

DAFFODIL INTERNATIONAL UNIVERSITY

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CERTIFICATION

This is to Certify that this Project entitled "AUTOMATIC LIGHT / FAN CONTROL SYSTEM FOR AUDITORIM"Is Done By The Following Student Under My Direction Supervision And This Work Has Been Carried By The Laboratories Of The Department Of Electrical And Electronic Engineering Under The Faculty Of Engineering Of Daffodil International University In Partial Fulfillment Of The Requirements For The Degree Of Bachelor Of Science In Electrical And Electronic Engineering .The Presentation Of The Work Was Held On 11 January, 2019.

Signature of the candidates

(Sujon) 15/01/19
.....

Sujon Chandrasil

ID: 151-33-2568

Zakir Hosen
.....
15.01.2019

Zakir Hosen

ID: 151-33-2563

Signature of the supervisor

R Ahsan
----------15/01/19--

Dr. Md. Rezwanul Ahsan

Assistant Professor

Department of Electrical and Electronic Engineering

Faculty of Engineering

Daffodil International University.

Dedicated

To

Our Parents & Teachers

CONTENTS

LIST OF FIGURES

List of Abbreviations

DC	Direct current
AC	Alternating Current
LED	Light emitting Diode
LCD	Liquid Crystal Display
LDR	Light Dependent Resistor
nF	Nano Farad
pF	Pico Farad
mF	Micro Farad
IR	Infrared Ray

ACKNOWLEDGEMENT

First we express our heartiest thanks and to Allah for his divine blessing makes up possible to complete this project successfully. we are grateful and wish our proud our indebtedness to Assistant Professor Dr. Md. Rezwanul Ahsan, Department of Electrical and Electrical Engineering, Daffodil International University, Dhaka. Deep theoretical and hardware knowledge & keen interest of our supervisor in this field influenced us to carry out this project. His endless patience, scholarly guidance ,continual encouragement, constant and energetic supervision, constructive criticism, valuable advice, reading many inferior draft and correcting them at all stage have made it possible to complete this project.

ABSTRACT

A microcontroller is used to obtain values of physical conditions through sensors connected to it. In the automatic lamp system required sensors to detect the light of the LDR (Light Dependent Resistor) sensor. This is because the light intensity received by the existing LDR sensor in the room is blocked by the wall of the house or by other objects. Then for the fan, it can also turn on automatically when the temperature is greater than 27°c,28°C, and the fan speed can also be adjusted. The fan may also turn off automatically when the temperature is less than equal to 27°C,28°C it also can be used automatically fire detector and automatically visitor counter shown in the LCD display controlling by the sensor.

CHAPTER 1
INTRODUCTION

1.1 Introduction.

The principle behind this is very simple that is to turn Manually high and to turn off the fan when temperature is low this is achieved which increases or decreases the resistance value. This method is innovative saves most of the time and energy contr is And this way of using becomes inefficient when the temperature has to be monitored over long time ranges So a new method of automatic control of fan speed using the the wastage temperature sensors. on the fan when temperature can be achieved Conventionally used fans speed can be controlled by using the regulators which is the old and burdensome method. Develop a product that can control the speed of the fan based on temperature the Room . IR and photo diode and LCD.IR sensor is continuously emits the signal and photo diode is observes.

The microcontroller one and when any one leaves the room then the Counter is Decremented by does the above job it receives the signals from the sensors. and photo diode is observes the signal if any obstacles comes in between the IR and PHOTO diode This project consists of micro controller, IR and photo diode and LCD.IR sensor is continuously emits the signal the output of the photo diode is given to the microcontroller the count value is shown on LCD

1.2 Purpose of This Project.

automatic light control and we started our project, our first target was to fix the goal We have been attracted to this project that contribute to the modern society there are many auditorium in Bangladesh where electricity is wasted manual ways as the lights are on but there is no man on the other hand the fans are control by temperature. the fans are automatic ontemperature control fan,visitor countering lcd display Fire detector in a auditorium based such and also used fire detector for fire safety .This project is low cost with effective and on the other hand we used digital visitor counter which is used for counting present visitor shown LCD display competitive usage.to be further This system is designed to be more users friendly and automatic to operate These systems are directed at specific applications is made to rotate at a speed proportional to the power The project has also been designed working vision using minimum hardware at the lower level of processing..

1.3 Project Scope

The smart auditorium .Auto room light with bi directional automatically turn on the light in a room when a person enters the room and turn it when the integral part of the Automatic Room Lighting circuit. We modified the project with LEDs man leves the auditorium. Dubbed the project as a bidirectional visitor counter it is an and as increase the person than the light brightness is increase. Then used an LCD screen to monitor the temperature , visitor counting The coding was design in. microcontroller The reading of microcontroller will be compared to other monitoring system

1.4 Problem Statement

In other words, manual systems are In today's world, many institutions are composed of plenty of commercial buildings in one has to switch the auditorium lights and fan on and off. A person can also forget to put off the which room light and fan are not automatically controlled at all. employed in many buildings where lights and fan when leaving the auditorium to numerous institutions, companies, and government agencies. The ability to automatically control light and fan would allow This In operation to control these,

this project herein, explores an automated auditorium light and fan controlling system to curb the stemming challenge would further aid in the use of such systems by those who are sick, handicapped or elderly the users to feel comfortable without physically controlling them. The use of automated control here

1.5 Expected Project Out come

Temperature At the to monitor the auditorium ,light intensity ,fire detector, visitor counter using Microcontroller. This is an efficient program for a smart auditorium end of this project, suitable coding for Microcontroller can be made. Hence, the user will be able.

CHAPTER 2

OVERVIEW OF THE PROJECT

2.1 Introduction.

carefully . Automatic auditorium microcontroller based project automatic light on and off system and the fan auditorium By using this on or off the lights in a auditorium Electricity, being one of the most important resources, must system, we can intentionally forget about the lights as the system will automatically take care of perform certain tasks. and fans.The most essential electronic device at home or auditorium or any other place automatically reducing human efforts, improving standard of living etc. the auditorium where there is a chance of fire accident is a fire alarm circuit. where by using the fire alarm circuit, we can avoid financial loss and also save people from dangerous fire accidents the microcontroller

2.2 Automatic Light Control

is important as it will determine the functioning of the project .The sensor placed on the row-1 of the sensors is named as Sensor 1 and the sensor, which is placed on the row 2 is named Sensor 2.and IR Sensor and we have used three of them. The placement of the 1 detects the Sensor auditorium The main person first and then Sensor 2.and then sensor 3 This action will indicate the OP-Amplifier that the person is entering in the row 1,2,and 3. the sensor, which is placed on the row-3 is named Sensor 3 When a person tries to enter the room, component of the project is

2.3Automatic Temperature Controlled Fan Using Thermistor

a type of transducer. In a broader In this paper for sensing the temperature Thermistor has been used. Here also described that be controlled, based on temperature sensor.

A sensor is sense, a transducer is sometimes how the speed of a fan can defined as any device that converts energy from one form to another. Besides that, the component that made up the temperature. it can also be used to control the auditorium temperature, depending on the property of Thermistor sensor is known as Thermistor.

Thermistor is a kind of temperature dependent resistor and its resistance varies depending on the temperature

2.4Automatic.Fan Speed Control System Using Microcontroller PIC16F72

Controlling system are main part of the microcontroller.LM35 sensor has been used for sensing.Microcontroller has been used instead of hard wiring a number of logic gates together to perform some function use instructions to wire the gates electronically. The list of these instructions Microcontroller has been used instead of hard wiring a number of logic gates together to perform given to the microcontroller is called a program.

2.5 Fire Detector.

Thermister we can used the simple fire alarm circuit can development on your own a solderless breadboard by following simple steps.fire alarm project is made for developing a temperature control system using thermister.

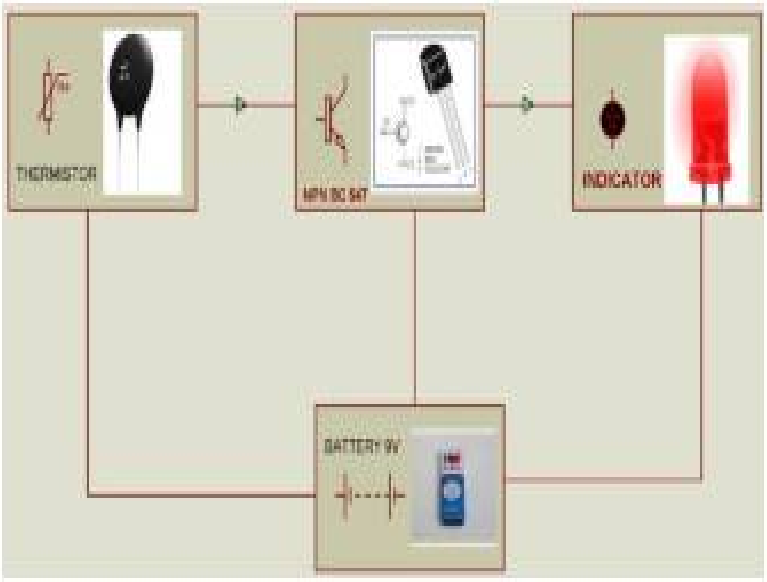

Fig 2.5: Fire Alarm System Block Diagram

2.6 Automatic Visitor counter.

is Decremented by When somebody enters into the Room then the Counter is Incremented by one and when any One.Digital over the task of counting one leaves the room then the Counter visitor counter is a reliable circuit that takes Number of Persons/ Visitors in the Room very accurately.The total number of Persons inside the Room is displayed on liquid crystal displays.. This project consists of micro controller, IR and photo diode and LCD.IR sensor is continuously emits the signal and photo diode is observes the signal if any obstacles comes in between the IR and PHOTO diode the output of the photo diode is given to the microcontroller the count value is shown on LCD.

CHAPTER 3

HARDWARE COMPONENT

3.1 Component and Accessories

- LCD DISPLAY
- MICROCONTROLLER PIC 16F72
- CAPACITORS
- RESISTOR
- DIODE
- BUZZER
- CONNECTOR
- AC POWER SUPPLY
- SOME WIRES
- PCB BOARD
- SWITCH
- LED
- LDR SENSOR
- IR SENSOR
- DC BATTRY
- OP-AMPLIFIER
- TEMPERATURE SENSOR

3.2 Buzzer.

Typical uses of buzzers and beepers include alarm devices, timers, and confirmation of user input such as a mouse click or keystroke A buzzer or beeper is an audio signaling device, which may be mechanical, electromechanical.

Fig.3.2:Buzzer

3.3 Power Supply.

The term is occasionally to others.. Power supply is the reference to a source of electrical energy. A device or a system that Supply electrical or other types of energy to an output load is called a power Supply unit. This power supply section is required to convert AC to dcsignal and also to decrees the amplitude of the signal also decrees 220/50Hz Bridge rectifier, are connected serially and voltage

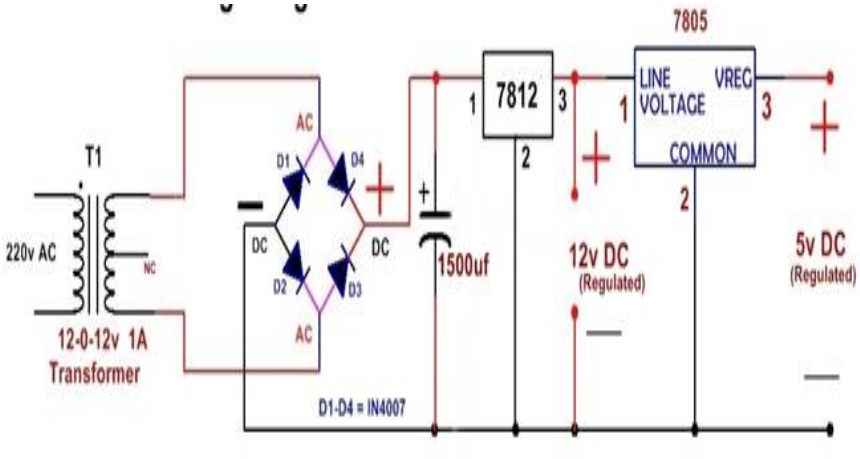

Fig.3.3:AC to DC Converter Power Supply

3.4 Voltage Regulator.

Usually, we start with an unregulated power supply ranging from 9volt to 12volt DC.

To make a 5volt power supply, IC 7805 voltage regulator as shown in figure has been used.

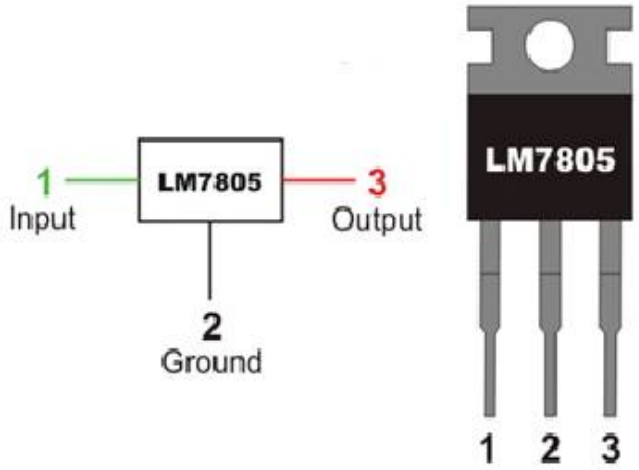

Fig. 3.4: Pin Diagram of IC 7805

ns the output voltage at Voltage sources in a circuit may have fluctuations resulting in not providing fixed voltage outputs. 7805 IC provides +5 volts regulated power supply voltage regulators used to maintain such fluctuations, is a popular voltage regulator integrated circuit (IC). with provisions to add a heat sink.

3.5 Light Dependent Resistor.

The power ratings are usually smaller and are in the range 50mW to 0.5W. Though very sensitive to light, the switching. In the absence of light the resistance can be in the order of 10K ohm to 15K ohm and is called the dark resistance. time is very high and hence cannot be used for high frequency applications the resistance decreases They are used in chopper amplifiers. Light dependent resistors are available as disc 0.5cm to 2.5cm. The resistance rises to several Mega ohms under dark conditions.The below figure shows that when the torch is turned on, the resistance of the LDR falls, Depending on the exposure of light the resistance can fall down to value of 500 ohms.. allowing current to pass through it is shown in figure.

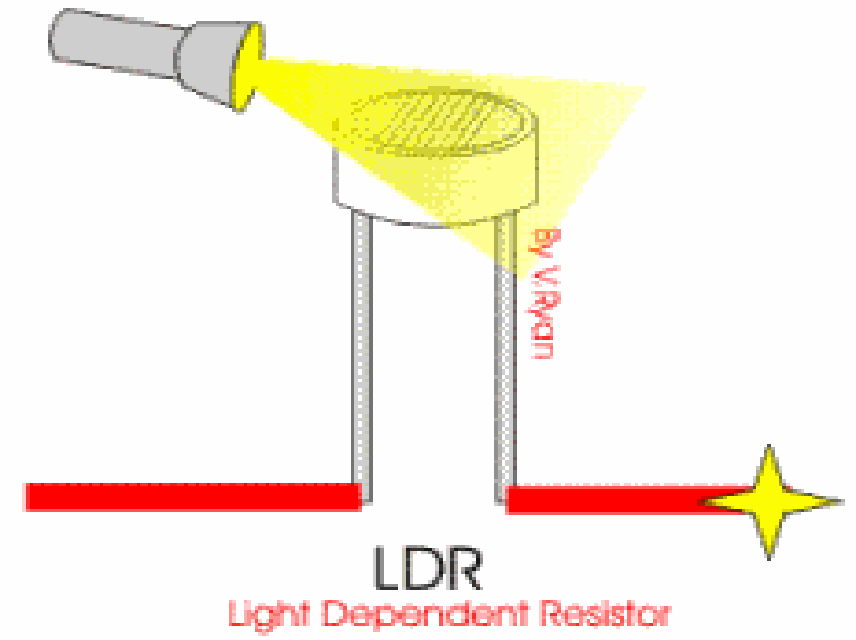

Fig. .3.5(a):LDR.

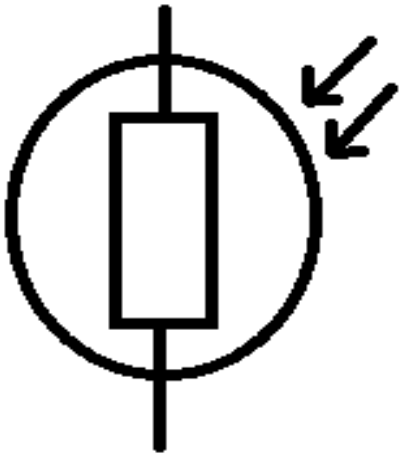

Fig. 3.5(b): Symbol of LDR

The basic construction and symbol for LDR are shown in above figures respectively. The device consists of a pair of metal film contacts separated by a snakelike track of

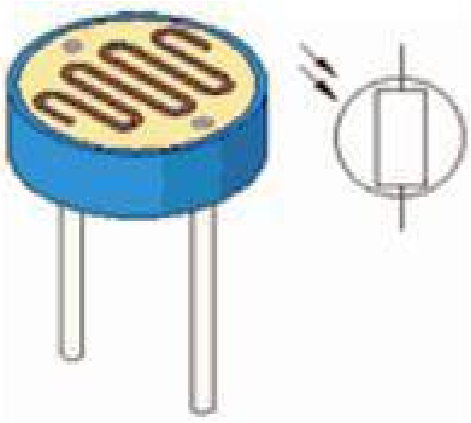

Fig. 3.5(c): Practical LDR

cadmium sulphide film, designed to provide the maximum possible contact area with the two metal films. The structure is housed in a clear plastic or resin case, to

3.6 Resistor.

adjust signal levels, to divide voltages, bias active elements, and terminate transmission lines, among other uses . implements electrical resistance as a circuit element. In electronic circuits, resistors are used to reduce current flow,.

A resistor is a passive two-terminal electrical component that

Fig. 3.6:Resistors

3.6.1 Variable Resistor.

Fig. 3.6.1:Variable Resistor

The resistive material is the first component and is called the element .The second component, called the wiper or brush, is used to set the resistance, and is often controlled with a knob or sliding switch.There are several different kinds of variable resistors. At Future Electronics we stock many of the most common types categorized by Type, Number of Turns,

Variable Resistors can be Potentiometer, Trimmer or Turns Counting Dial type.Variable Resistors can be found in:

- Audio control
- Television
- Motion control
- Transducers
- Computation
- Home Electrical Appliances
- Oscillators

3.6.2Tips for Reading Resistor Code.

- The4 give away the reading direction. Also, the first band is usually the reading direction might not always be clear.) is always the last band. Sometimes the increased space between band 3 and closest toa lead. A gold or silver band (the tolerance
- It is a good practice to be the only way to figure out the resistance; for example when the color bands are burnt off.check the manufacturer's documentation to be sure about the used

  this might even

3.6.3 Resistor Color Code Chart.

The chart below shows how to automatic resistor calculator can be used to quickly find the resistor values. determine the for resistors. The table can also be used to specify the color of the bands when the values are known. An resistance and tolerance

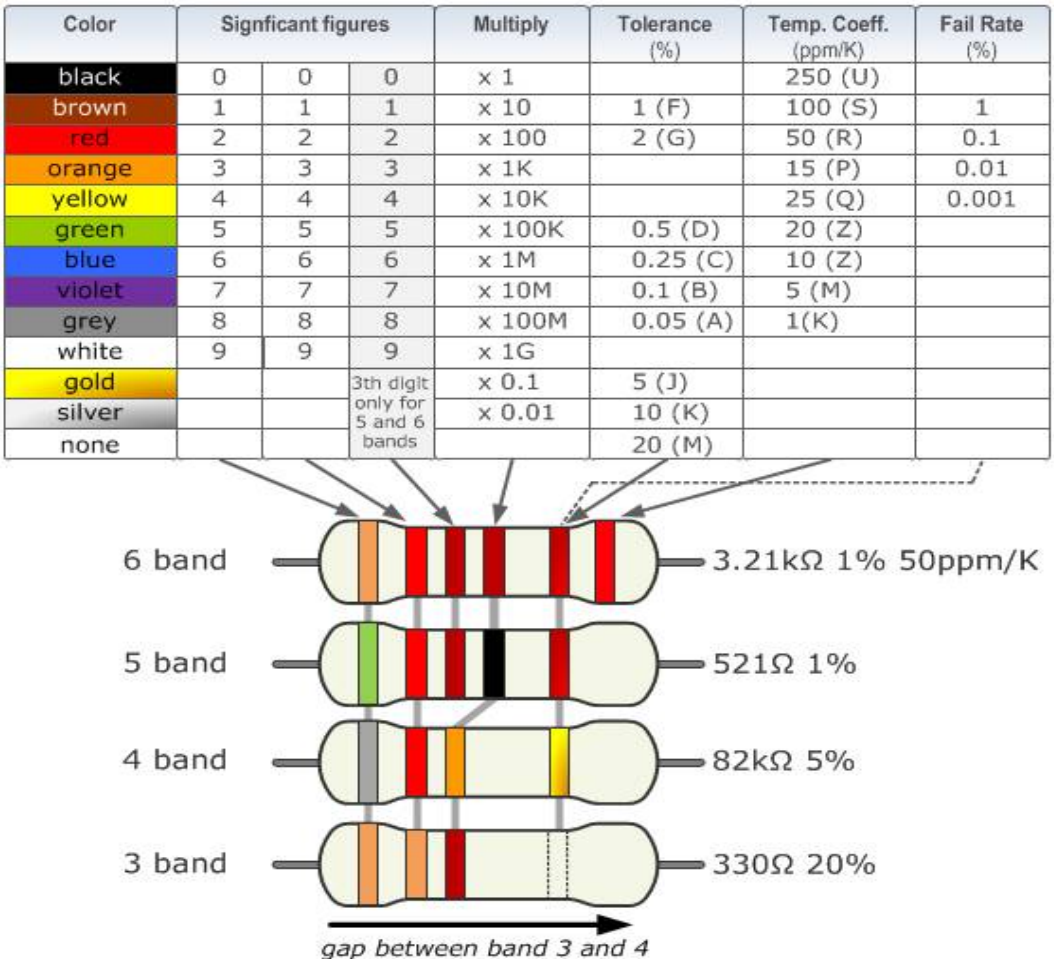

Fig.3.6.3:Color Code Chart of Resistor

3.6.4 Four band resistor color code.

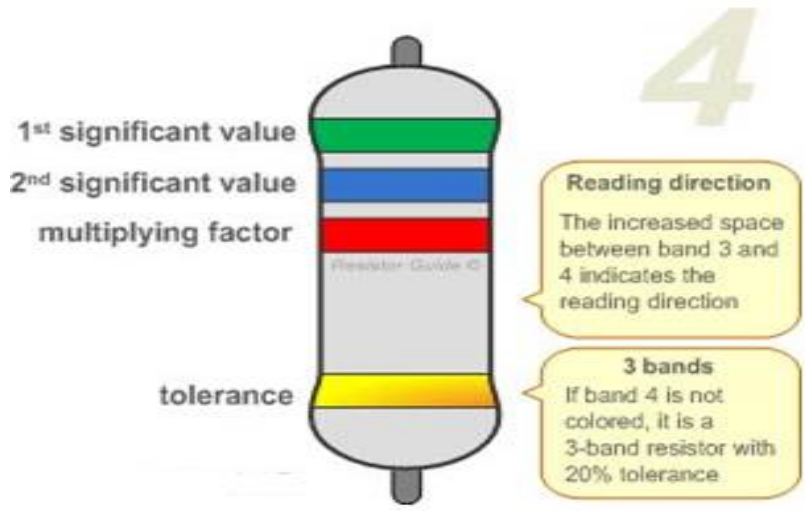

Fig. 3.6.4: 4-Band Resistor Color Code

3.6.5 Five band resistor

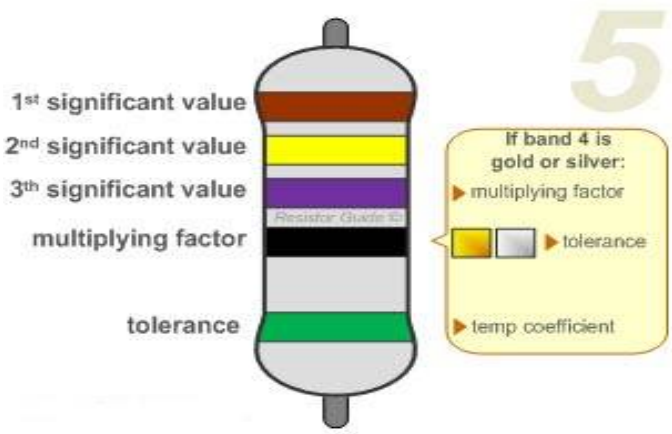

Fig.3.6.5: 5-Band Resistor Color Code

3.7 Capacitor.

There are many in the form of an electrical charge producing a potential difference (Static Voltage) across its plates, much like a small different kinds of capacitors available. The capacitor is a component which has the ability or “capacity” to store energy rechargeable battery.

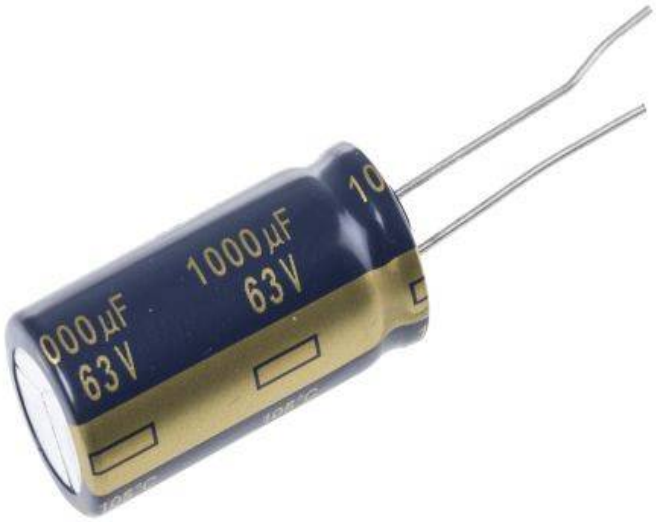

Fig. 3.7: Electrolytic Capacitor

3.8 Diode.

Diode use is flow the current .The diode made semiconductor material such as selenium .some diode is use rectifiers ,signal limiters, voltage regulators,switchand osilators modulators signal

component with two electrodes called the anode and the cathode. are comprised of metal electrodes in a chamber evacuated or filled A diode signal signal demodulators,with a pure elemental gas at low pressure.

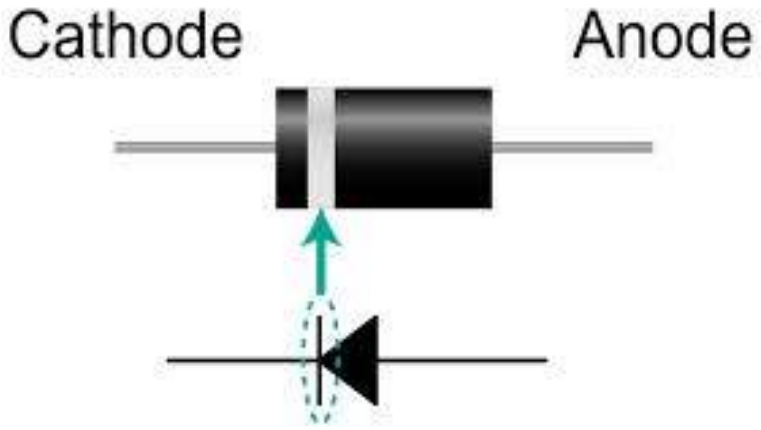

Fig. 3.8:Diode

3.9 Light Emitting Diode(LED).

A light-emitting diode (LED) is a semiconductor device that emits visible light when an electric current passes through it. The output from an LED can range from red (at a wavelength of approximately or longer); such a device is known as an infrared-emitting diode (IRED).An LED or IRED consists . These two elements are placed in direct contact, forming a region called the P-N junction. In this respect, the LED orIRED resembles most other diode types, but there are important differences of two elements700 nanometers) to blue-violet (about 400 nanometers). Some LEDs emit infrared (IR) energy (830 nanometers of processed material called P-type semiconductors and N-type semiconductors. The LED or IRED has a transparent package, allowing visible or IR energy to pass through. Also, the LED or IRED has a large PN-junction area whose shape is tailored to the application.

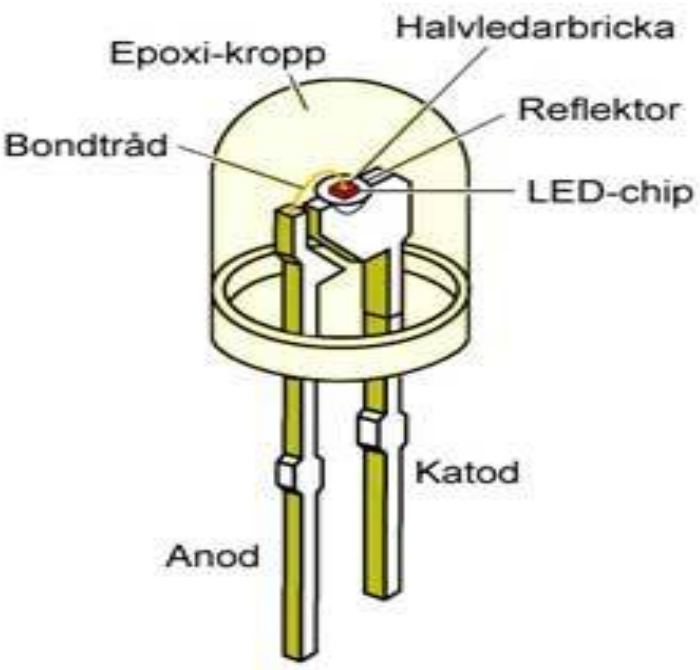

Fig.3.9(a):LED Function

3.9.1 Types of Light Emitting Diodes.

Kinds of LED

- Arsenide gallium
- gallium Arsenide photoshide

There are different types of light emitting diodes present and some of them are mentioned

3.10 LCD.

Many type of LCD but here we use 16*2 display lcd that 16 character and 2 line

.

Fig.3.10:LCD Display

3.11 Battery

3.11.1 Introduction of battery

it to Batteries are often used in PV systems for the purpose of storing energy produced by the PV array during the day, and to supply charge controller is used in these systems to protect the battery from overcharge and over discharge PV systems are to operate (during the night and periods of cloudy weather). Other reasons batteries are used in In most cases, a battery charge controller is used in these systems to protect the battery from overcharge and over discharge PV systems are to operate the electrical loads as needed PV array near its maximum power point, to power electrical loads at stable voltages, and to supply surge currents to electrical loads and inverters..

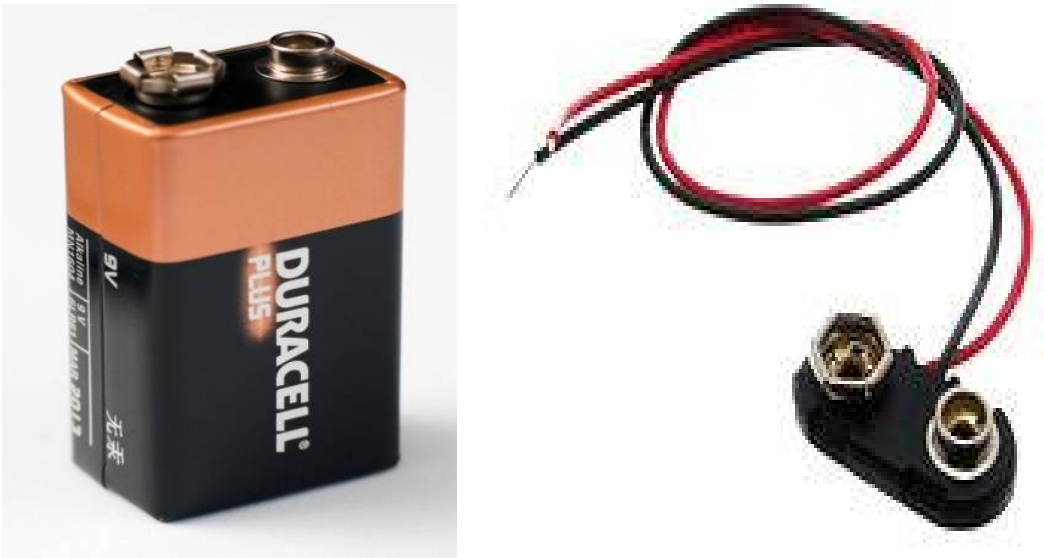

Figure 3.11.1: Battery

3.12 IR Transmitter.

Infrared Transmitter is a light emitting diode (LED) which emits infrared radiations. Hence, they are called IR LED's. Even though an IR LED looks like a normal LED, the radiation emitted by it is invisible to the human eye.The picture of Infrared LED is shown below.

Fig. 3. 12:IR Transmitter LED

3.13 IR Receiver

TSOP17XX receives the modulated Means it detects the IR which is es its output.. switching On and Off at the rate of 38Khz. TSOP's output is active low Infrared waves and changTSOP1740 etc.means its output is remains HIGH when there is no IR, and becomes low when it detects.

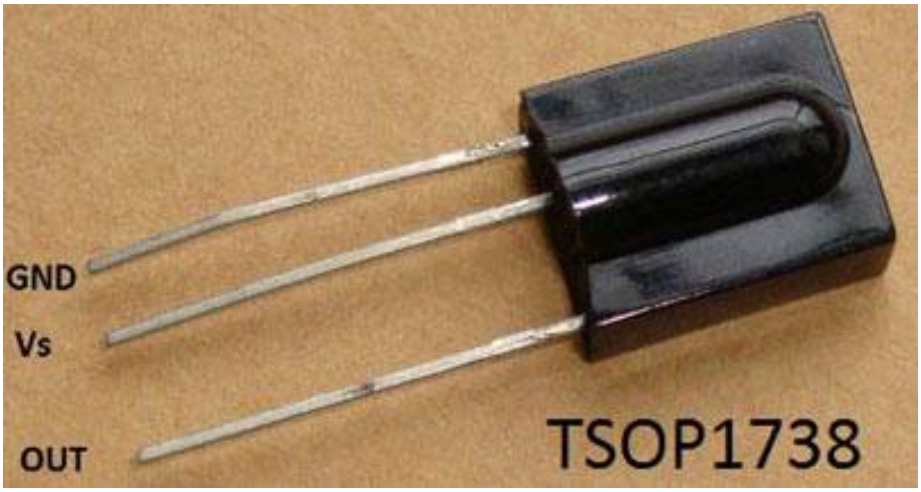

Figure 3.13:**IR Receiver (**TSOP1738)

IR radiation operates on particular frequency so that other IRs in the environment can't interfere, except the modulated IR of particular frequency. It has three pins, Ground, Vs (power), and output pin.

3.14 Temperature Sensor.

Temperature sensor with is proportional to the temperature in zero degree and lm 35 precision ic.

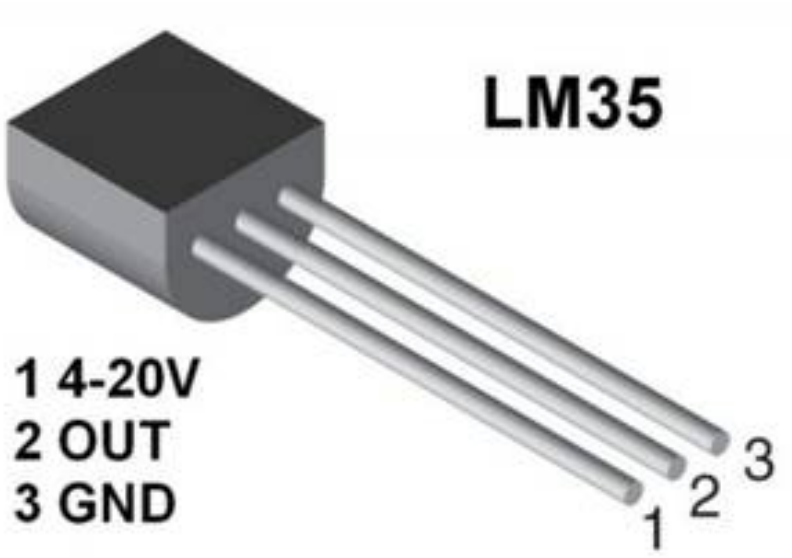

Fig.3.14 :Temperature sensor

3.15 Connector.

A connector is a device used to join electrical circuits and are also referred to as electrical connectors.

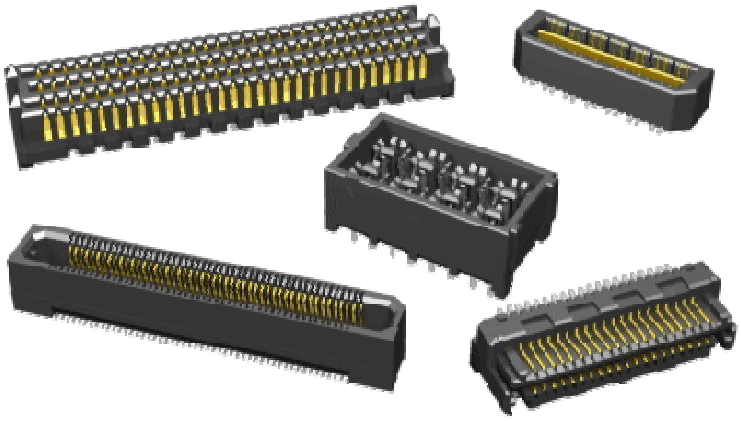

Fig 3.15:Pic Connector

3.16 Oscillator.

Electrical oscillator is crystal oscillator that use the mechanical response of a polarizing and vibrating crystal oscillator.

3.16.1 Application.

Crystal oscillator is used to provide clock to micro-controller. Clock is used to carry all the function that micro controller provides. You need not give any separate voltage because the micro controller has dedicated pin which excites Crystal oscillator.

3.17 OP-Amplifier.

A voltage comparator is an electronic circuit that compares two input voltages and lets you know which of the two is greater. It's easy to create a voltage comparator from an op amp, because the polarity of the op-amp's output circuit depends on the polarity of the difference between the two input voltages.

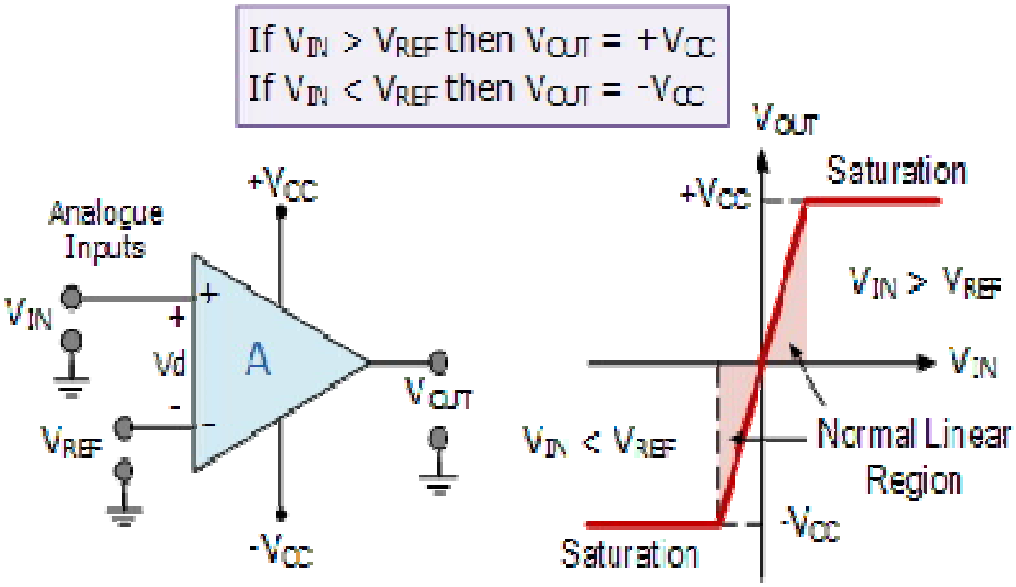

Fig.3.17:OP –Amplifier comparator mode working

3.18 Micro Controller(PIC16F72).

A controller is used to control some process or aspect of the environment A Microcontroller is a Microcomputer in a single Chip.. .A typical microcontroller application is the monitoring a house. As the temperature rises, That means that a microcontroller chip includes If the temperature goes above a certain threshold, the air conditioner is activated.a microprocessor (CPU) as well as some often used peripherals the controller causes the windows to open.

Fig. 3.18:PIC6F72 Microcontroller Chip

3.18.2 PIC16F72 Microcontroller

Mid-Range family of the PIC micro devices. The PIC16F72 belongs to the

3.18.3 Pin Diagram

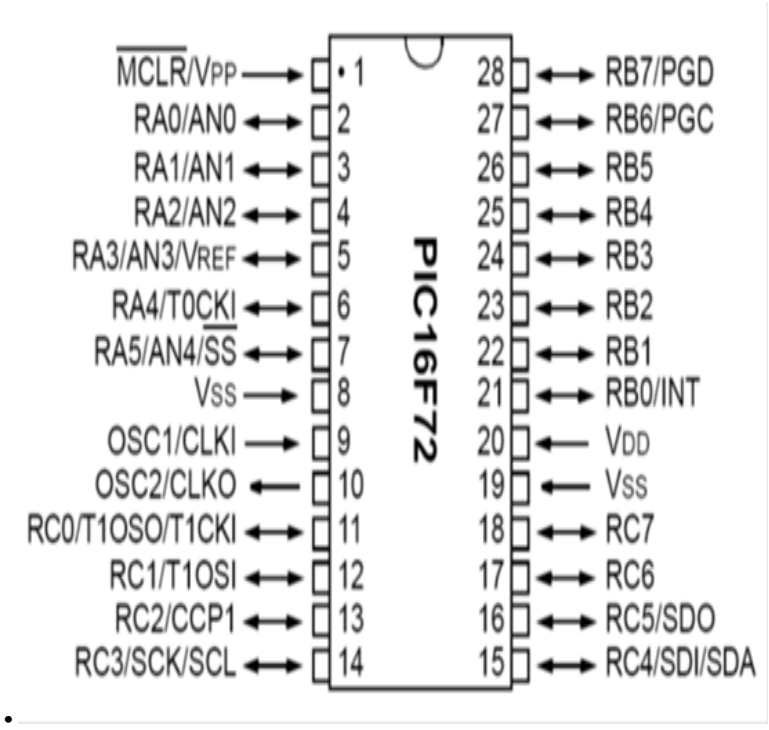

Fig. 3.18.2:Pin Diagram of PIC16F72 Microcontroller

Pin Number	Description
1	MCLR/VPP - Master Clear Reset
2	RA0/AN0 - Port A
3	RA1/AN1 - Port A
4	RA2/AN2 - Port A
5	RA2/AN3/VREF - Port A
6	RA4/T0CKI - Port A
7	RA5/AN4/SS - Port A
8	Vss - Ground
9	OSC1/CLKI - Oscillator Input
10	OSC2/CLKO - Oscillator Output
11	RC0/T1OSO/T1CKI - Port C
12	RC1/T1OSI - Port C
13	RC2/CCP1 - Port C
14	RC3/SCK/SCL - Port C
15	RC4/SDI/SDA - Port C
16	RC5/SDO - Port C
17	RC6 - Port C
18	RC7 - Port C
19	Vss - Ground
20	Vdd - Positive Power Supply
21	RB0/INT - Port B
22	RB1 - Port B
23	RB2 - Port B
24	RB3 - Port B
25	RB4 - Port B
26	RB5 - Port B
27	RB6/PGC - Port B
28	RB7/PGD - Port B

3.19 Circuit Diagram.

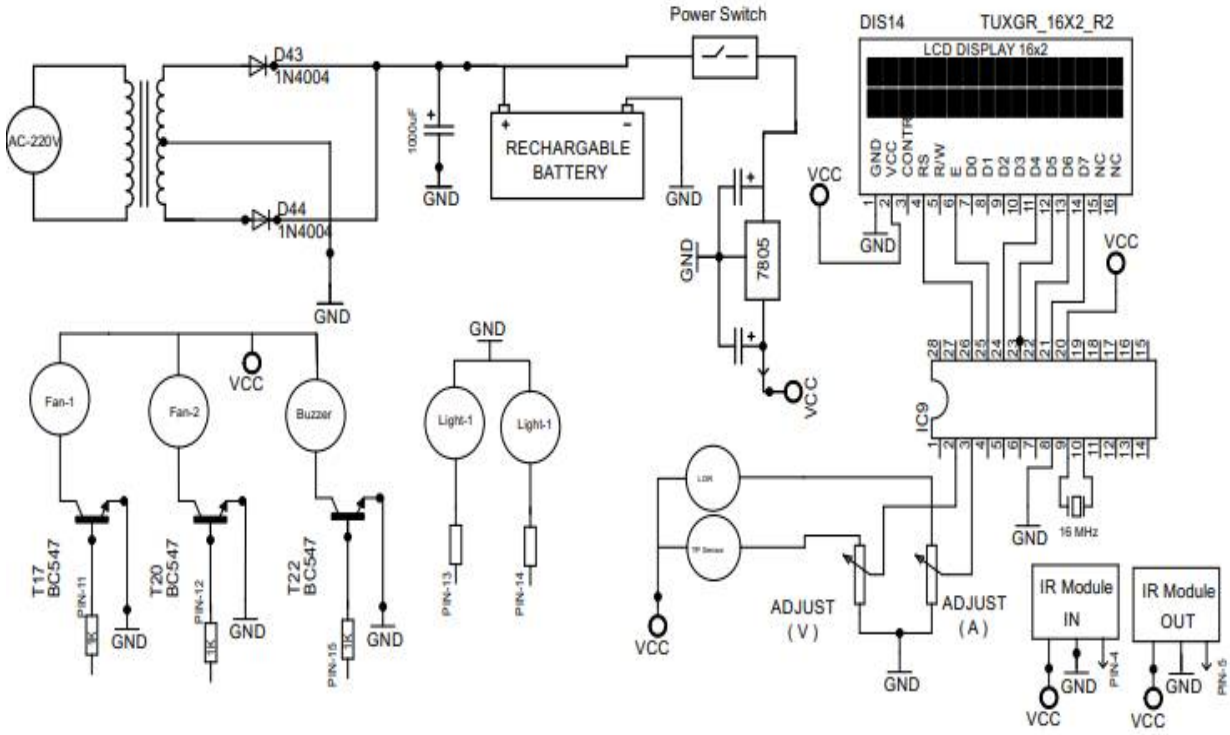

Fig 3.19(a) : Circuit Diagram of Automatic light intensity control and temperature control fan

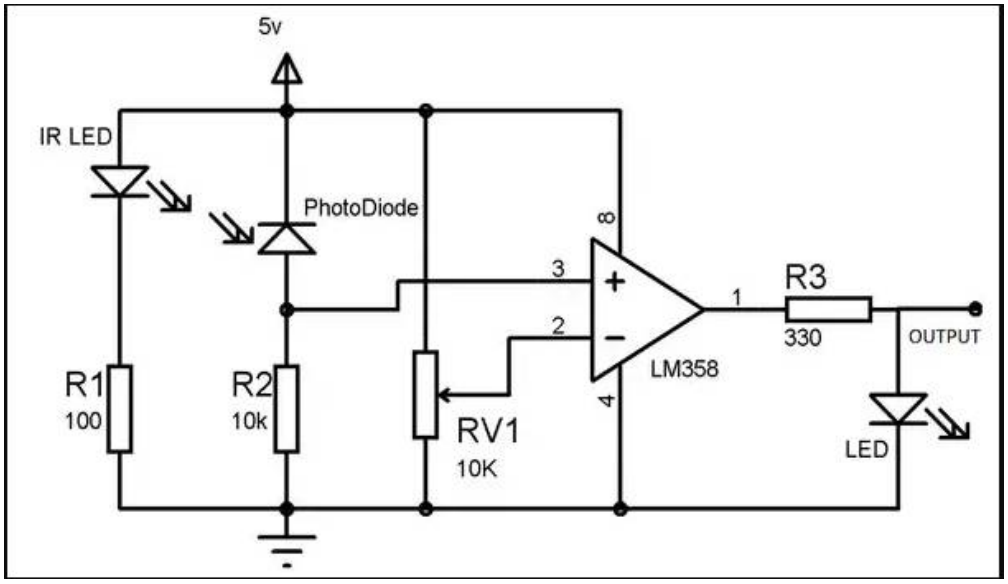

Fig 3.19(b): Circuit diagram of automatic light control

3.20 Block Diagram.

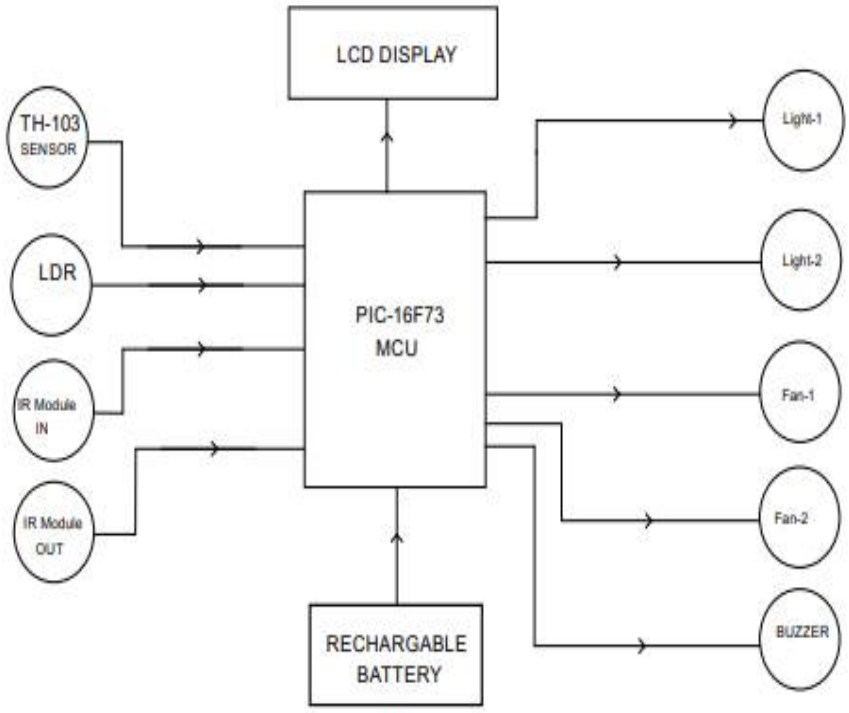

Fig.3.20:Block Diagram of Automatic light control and temperature control fan

.3.21 Cost Estimate

Component Name	**Cost**
Buzzer	50 Taka
LCD	50 Taka
Capacitor	36 Taka
Resistor	30 Taka
Diode	30 Taka
Microcontroller 16F72	250 Taka
Push Switch	45 Taka
Fan	30 Taka
PCB Board	80 Taka
Some wire	25 Taka

LED	20 Taka
LDR	50Taka
OP-Amplifier	20Taka
IR Sensor	30Taka
OP-Amplifier	20
Etc	100
Total	**866 Taka**

CHAPTER 4

CONSTRUCTION AND DESIGN

4.1 Design.

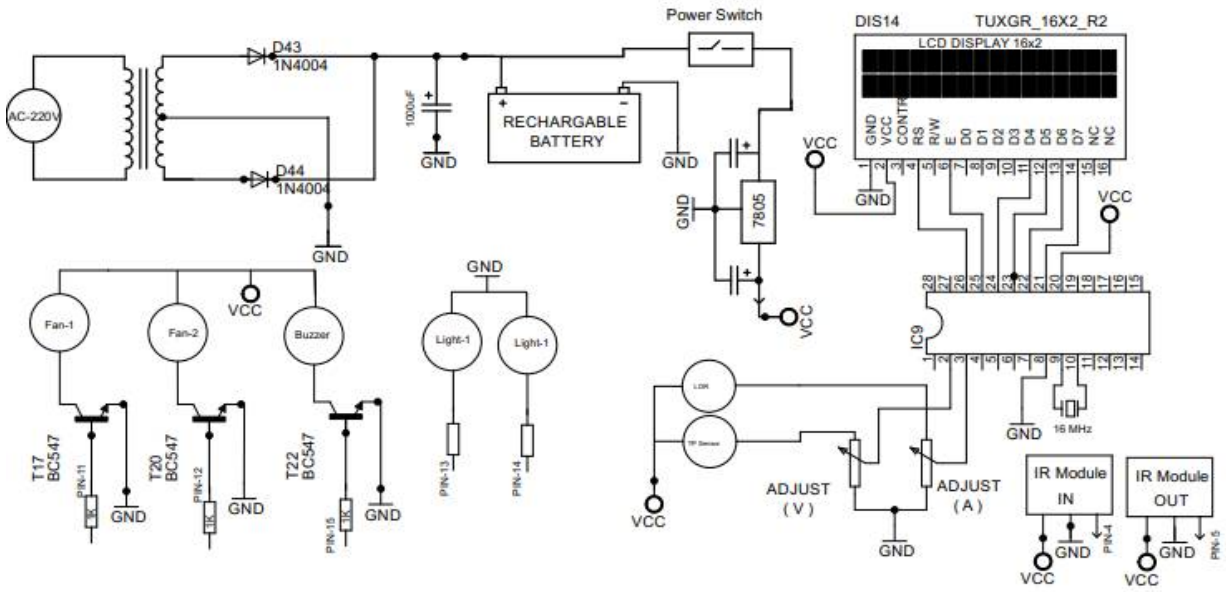

Fig 4.1(a) : Circuit Diagram of Automatic light intensity control and temperature control fan

In this project we used step down transformer ,LCD, Microcontroller ,IR module ,Fan,LED,Buzzer ,LDR,12 V battery, Power switch, capacitor ,Variable resistor,. At first we use step down transformer, for 220v convert to 10-12 v .Then DC Battery connected with it .Then we can source in circuit by using a voltage regulator at 5 v .iti just like vcc .Then we connected vcc at microcontroller 20 pin and GND at pin 8 .For frequency oscillator .it is connected with 9 and 10 pin for running the microcontroller the pin 2,3connected with variable resistor of LDR and connected temperature sensor .The LED and fan connected with pin 3,14 and 11,12 and also connected buzzer with pin 15.The LCD display with connected with pin 21,22,23,24,25,26 on the other hand ,The row light matrix open and analog OP-Amplifier of comparator node .The amplifier connected with IR sensor

CHAPTER 5

RESULT AND DISCUSSION

5.1 Result.

We are Properly connection do this project and finally we gate automatic auditorium lignt intensity control ,and fan control depend on temperature we can easily seen our LCD Disply auditorium in and out going

5.2 Discussion.

The number of person count and to microcontroller based. Model to count the number of person interring to the auditorium and it lights up the auditorium based on the light intensity and automatic light control of the auditorium and turn on fan automatically where the persons are sitting inside the auditorium. It is made to prevent unwanted electric power waste in schools, colleges, houses and other working places. This whole process is operated totally .

CHAPTER 6

CONCLUSIONS

6.1 Conclusion.

In this project, we develop a general purpose of electronic circuit design that can Show the automatic light intensity control and fan control temperature based LCD display shown the temperature and visitor counter it can be also used fire detector and alarm circuit This project is the overview of smart auditorium system The project is successfully developed and met the stated objectives.

6.2 Limitations of the Work.

The working procedure of this project is very easy but we are facing some limitation for doing this project. Such as coding problem, program writing, connecting to PCB board, commend following etc

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APPENDIX A

Programming code

```
#include <16F73.h>
#fuses NOWDT, HS, PROTECT,NOBROWNOUT,NOPUT
#use delay (clock = 16000000)
#include <flex2_lcd.c>
#rom 0x3ff={0x3444}
#byte PORTA = 0x05
#byte PORTB = 0x06
#byte PORTC = 0x07
#byte TRISA = 0x85
#byte TRISB = 0x86
#byte TRISC = 0x87
#define SPORTA PORTA
#define SPORTB PORTB
#define SPORTC PORTC
#define FAN1 PIN_C0
#define FAN2 PIN_C1
#define LOD1 PIN_C2
#define LOD2 PIN_C3
#define BUZ PIN_C7
void setup(void);
void SETTINGS(void);
void LOD_CTRL(void);
void adc_read(void);
void lcd_show(void);
unsigned int COUNT,COUNT1,LDR,IR1,IR2,IN=0,OUT=0,TCNT,OCR,PF=0,PRESENT;
unsigned int1 UP=0,DN=0,SET=0,TOG;
float tp=0,TF=0;
////////////////////////////////////////////////////////////////////////////
////////////////////////////////////////////////////////////////////////////
```

```
void main()
{
 setup();
 while(1)
 {
  LOD_CTRL();
  ////////////////////////////////
  TCNT++;
  if(TCNT > 50)
  TCNT=0;
  COUNT++;
  if(COUNT > 250)
{
COUNT1++;COUNT =0;
adc_read();
}
 if(COUNT1 > 50)
{ COUNT1 =0;TOG ^=1;lcd_show(); }
 }
}
////////////////////////////////////////////////////////////////////////////
////////////////////////////////////////////////////////////////////////////
void setup()
{
TRISA=0b11111111;
TRISC=0b00000000;
TRISB=0b00000000;
setup_adc(ADC_CLOCK_DIV_32);
lcd_init();
   output_HIGH(BUZ);delay_ms(70);output_LOW(BUZ);delay_ms(70);
   output_HIGH(BUZ);delay_ms(70);output_LOW(BUZ);delay_ms(70);
   output_HIGH(BUZ);delay_ms(70);output_LOW(BUZ);delay_ms(70);
   lcd_gotoxy(1,1);
```

```
   printf(lcd_putc, "   WELCOME TO   ");
   lcd_gotoxy(1,2);
   printf(lcd_putc, "      DIU       ");
   delay_ms(1500);
   lcd_gotoxy(1,1);
   printf(lcd_putc, "                ");
   delay_ms(500);
   //setup_timer_1(T1_INTERNAL|T1_DIV_BY_1);
   //enable_interrupts(int_timer1);
   //ENABLE_INTERRUPTS(Global);
   //SET_TIMER1(64854);
}
////////////////////////////////////////////////////////////////////////////
void adc_read(void)
{
 set_ADC_channel(0);
 delay_ms(1);
 tp = read_adc();
tp = tp * 0.2;
   TF=  1.8 * tp +32;

   set_ADC_channel(1);
   delay_ms(1);
   LDR = read_adc();
}
////////////////////////////////////////////////////////////////////////////
void LOD_CTRL(void)
{
  if( TP > 27 )
  {
   output_high(FAN1);
  }
  if( TP > 28 )
```

```
   output_high(FAN2);
  }
  if( TP < 27 )
   output_LOW(FAN1);
   output_LOW(FAN2);
  }
  if( TP > 40 )
{
unsigned int i=0;
for(i=0;i<10;i++)
{
 adc_read();
  lcd_show();
output_HIGH(BUZ);
  delay_ms(100);
output_LOW(BUZ);
delay_ms(100);
}
}
  ////////////////////////////// VISITOR COUNTER
IR1 = input(PIN_A2);
IR2 = input(PIN_A3);
IF(! IR1)
{
OUT++;delay_ms(500);
}
IF(! IR2)
IN++;delay_ms(500);
}
  PRESENT= ( IN - OUT );
 ////////////////////////////////////
 IF(PRESENT >= 1 )
 {
```

```
  if( LDR < 40 )
{
 if(COUNT ==2 )
 {
 if( LDR > 30 )
 OCR++;
if( LDR < 30 )
OCR—
 IF(OCR > 48) {OCR=48;PF=1;}
  IF(OCR < 2)  {OCR=2;PF=0;}
 }
 IF(TCNT > OCR)
{ output_HIGH(LOD1);output_HIGH(LOD2);}
ELSE
{ output_LOW(LOD1);output_LOW(LOD2);}
 }
 ELSE
 { output_LOW(LOD1);output_LOW(LOD2);}
 }
 ELSE
 { output_LOW(LOD1);output_LOW(LOD2);}
 ////////////////////////////////////
}
//////////////////////////////////////
4void lcd_show(void)
{
 lcd_gotoxy(1,1);
 printf(lcd_putc, "T:%2.1f%cC  ",TP,223);
 lcd_gotoxy(10,1);
 printf(lcd_putc, "P:%3u ",PRESENT);
 lcd_gotoxy(1,2);
 printf(lcd_putc, "IN:%3u  OUT:%3u  ",IN,OUT);
 //printf(lcd_putc, "IN:%3u  OUT:%3u  ",IN,LDR);
}
```