B.Tech. Project Report

Submitted in partial fulfillment of the requirements for the

IOT Based Temperature Controlled Fan

Submitted by

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GAIN MORE KNOWLEDGE
REACH GREATER HEIGHTS

PRESIDENCY UNIVERSITY, BENGALURU

202l-22

Acknowledgement

While performing our project, we had to take the help and guidelines of some respected persons who deserve our greatest gratitude. The completion of this project gave us immense pleasure. We are highly indebted to Dr. Prakash sir, for their guidance, constant supervision and for their support in completing our project. We would like to express our gratitude to our parents for their kind co-operation and encouragement.

INTRODUCTION

The main objective of this project is to build IoT based temperature control fan for home automation. This device will be able to control your AC Home Appliances like AC, Fan, Cooler etc. Suppose you came from work, enter the room, and feel hot, fan to be “ON” automatically, and then “OFF” when the room temperature is back to normal.

Nowadays, technology is advancing and houses are getting smarter. Modern houses are usually shifting from conventional switches to some kind of IoT-based centralized control system.

COMPONENTS USED

1. Arduino Uno
2. Breadboard
3. Temperature sensor (LM35).
4. Jumper wires.
5. LCD to control fan/cooler.

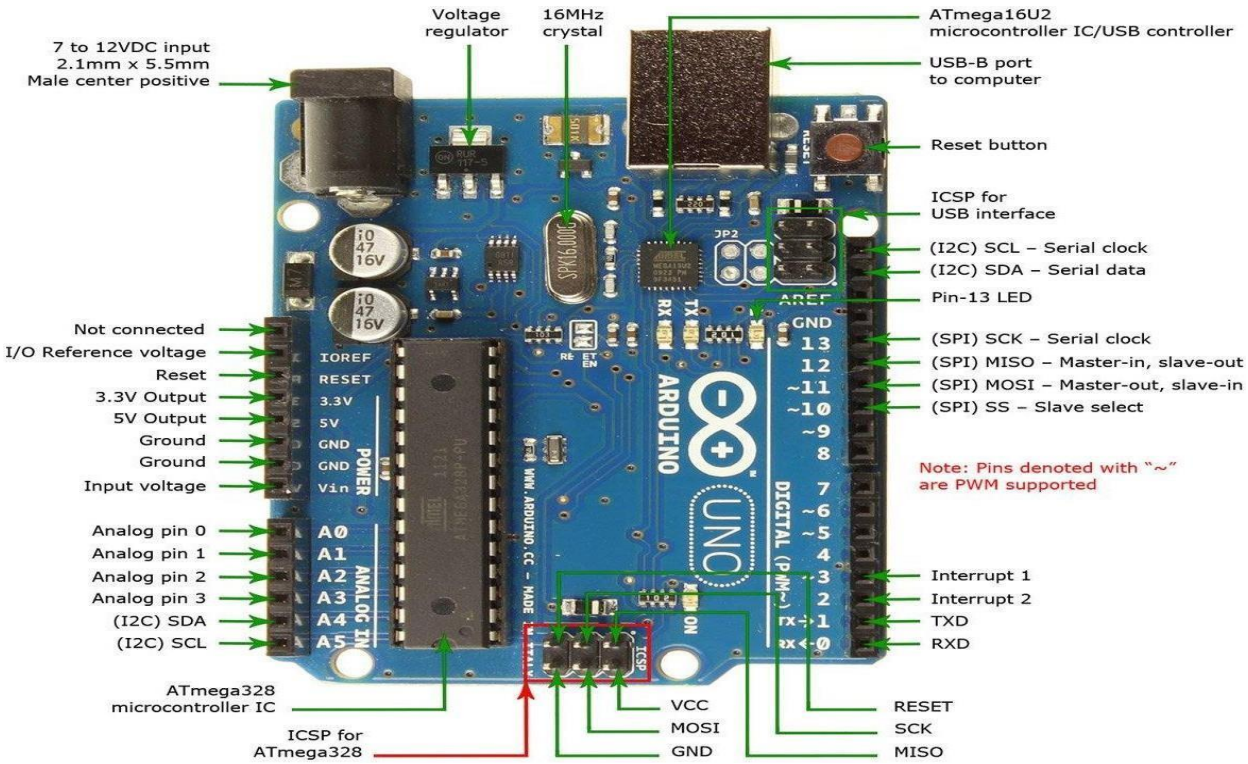
FEATURE OF COMPONENTS USED

1. Arduino Board

Arduino is a prototype platform (open-source) based on an easy-to-use hardware and software. It consists of a circuit board, which can be programed (referred to as a microcontroller) and a ready-made software called Arduino IDE (Integrated Development Environment), which is used to write and upload the computer code to the physical board.

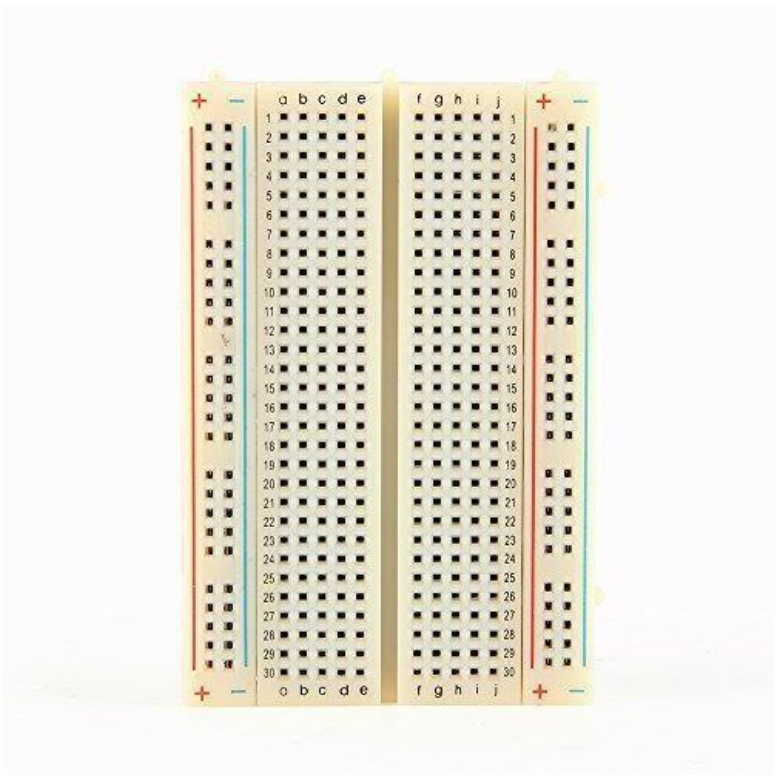
Arduino provides a standard form factor that breaks the functions of the micro-controller into a more accessible package.

Arduino Pin Out Diagram



2. BreadBoard

A breadboard is a construction base for prototyping of electronics. Originally the word referred to a literal bread board, a polished piece of wood used for slicing bread.[1] In the 1970s the solderless breadboard (a.k.a. plugboard, a terminal array board) became available and nowadays the term "breadboard" is commonly used to refer to these. Because the solderless breadboard does not require soldering, it is reusable. This makes it easy to use for creating temporary prototypes and experimenting with circuit design. For this reason, solderless breadboards are also popular with students and in technological education. Older breadboard types did not have this property. A stripboard (Veroboard) and similar prototyping printed circuit boards, which are used to build semi-permanent soldered prototypes or one- offs, cannot easily be reused. A variety of electronic systems may be prototyped by using breadboards, from small analog and digital circuits to complete central processing units (CPUs).



3. Temperature sensor (LM35).

LM35 Temperature sensors are electric devices that detect and measure coolness or hotness before converting them to electrical signals.
The Temperature sensor takes in input and when the temperature increases, the voltage increases, and hence the output initiates the functioning of the Buzzer. For every one degree increase in temperature, there is a 10mV increase in the voltage.

4. Jumper wires.

Jumper wires are simply wires that have connector pins at each end, allowing them to be used to connect two points to each other without soldering. Jumper wires are typically used with breadboards and other prototyping tools in order to make it easy to change a circuit as needed.

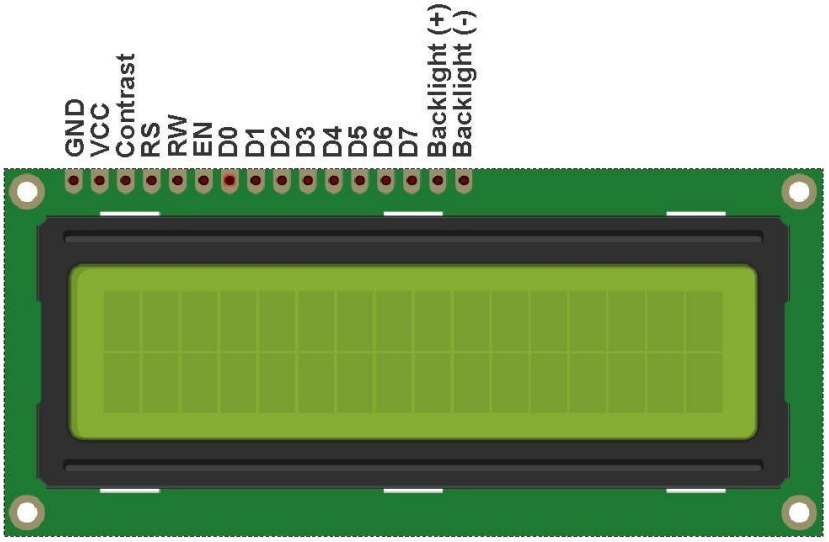
Male to Male Jumper Wires

Female to Female Jumper Wires

Male to Female Wires

5. LCD to control fan/cooler.

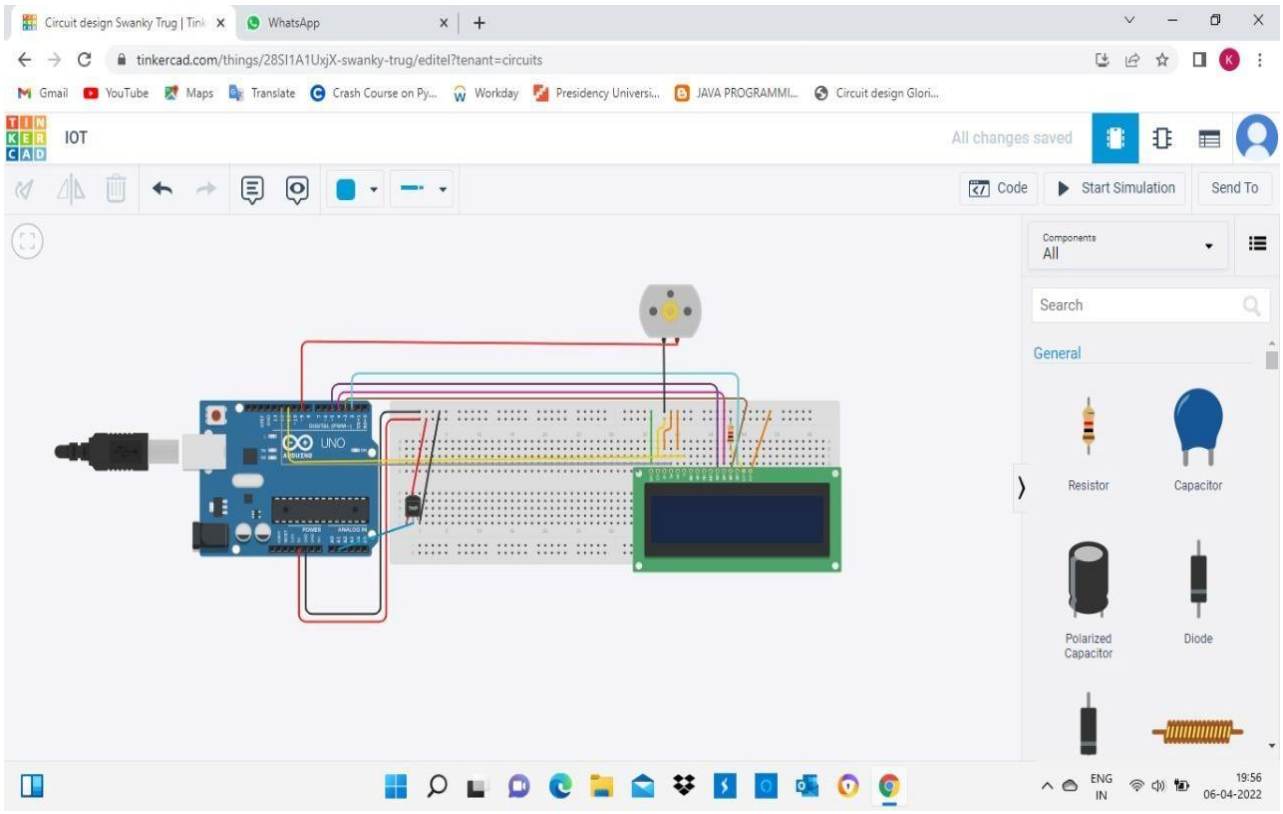
16x2 Liquid Crystal Display with Arduino Uno. And then read the analog value using the inbuilt ADC of Arduino Uno. Here I am going to connect the LCD in parallel way. We can also interface this LCD with only just 4 wires. (I2C communication is used there).



6. Fan

This fan will turn on/off using motion sensing and will control its speed automatically concerning the temperature change.

CONNECTION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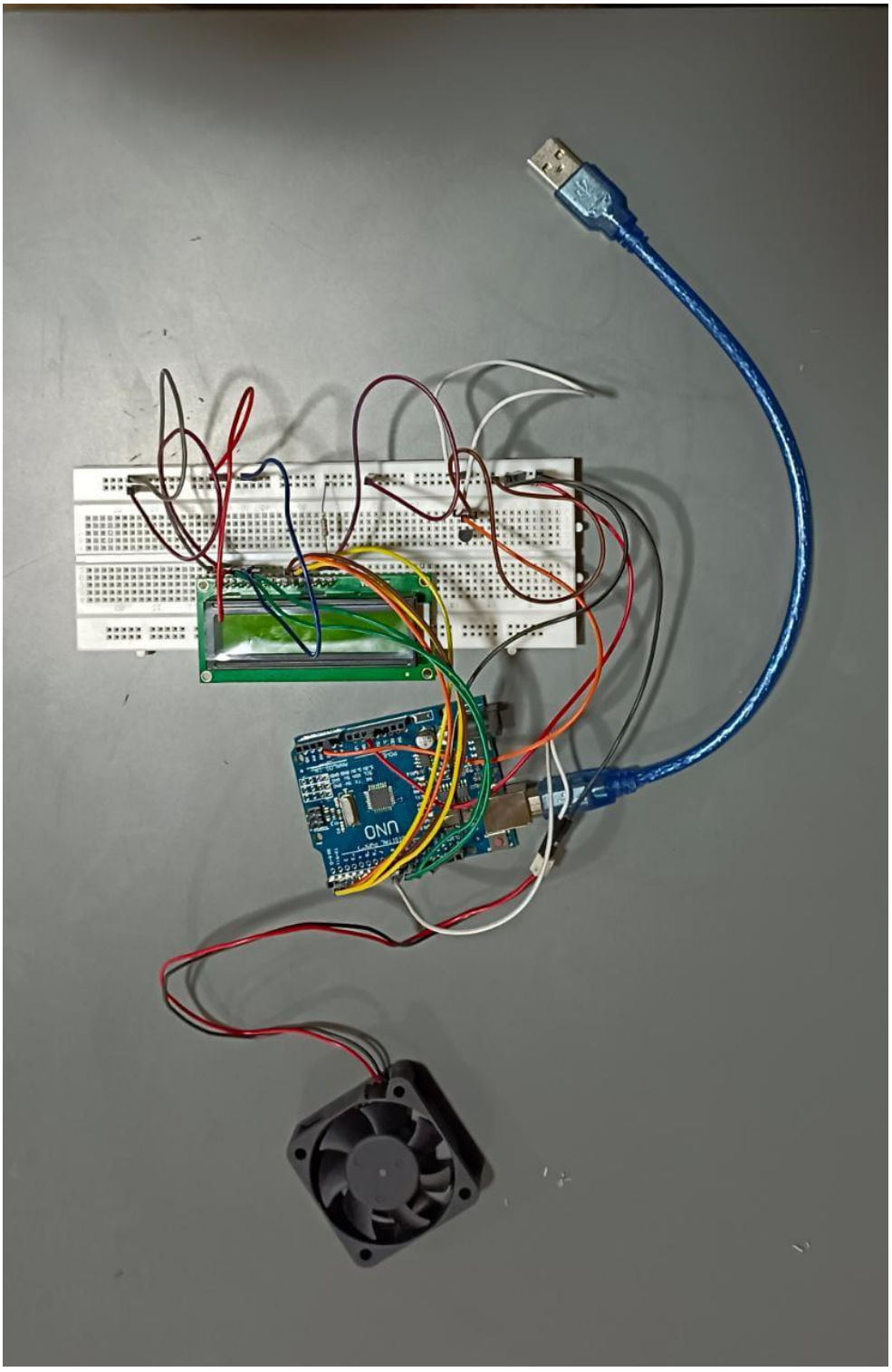
Manual Connection of The Project



CODE

```
#include<LiquidCrystal.h>

LiquidCrystal lcd(12,11,5,4,3,2);

float temp;
int tempPin = A1;

#define fan 9

void setup()
{
pinMode (fan,OUTPUT);
lcd.begin(16,3);
lcd.setCursor(3,1);
lcd.print("6cse05");
delay(1000);
lcd.clear();
lcd.setCursor(1,0);
lcd.print("wel come");
delay(1000);
lcd.clear();
lcd.print("Lets get started");
delay(2000);
lcd.clear();
lcd.print("Auto Temperature");
delay(2000);
lcd.clear();
}
void loop()
{
  lcd.setCursor(3,0);
  lcd.print("Recording");
```

```
lcd.setCursor(2,1);
lcd.print("Temperature..");
delay(3000);
lcd.clear();
lcd.setCursor(0,2);
temp = analogRead(tempPin);
temp = temp * 0.48828125;
lcd.setCursor(0,0);
lcd.print("TEMPERATURE =");
lcd.setCursor(5,1);
lcd.print("Temp");
delay(3000);
lcd.clear();
if(temp<20)
{analogWrite(9,0);
lcd.print("Fan off");
delay(2000);
lcd.clear();
}
else if(temp<=22)
{
  analogWrite(fan,51);
  lcd.print("Fan speed: 20%");
  delay(2000);
  lcd.clear();
}
else if(temp<=24)
{
  analogWrite(fan,102);
  lcd.print("Fan speed: 40%");
  delay(2000);
  lcd.clear();

}
```

```
  else if(temp<=26)
  {
     analogWrite(fan,153);
    lcd.print("Fan speed: 60%");
    delay(2000);
    lcd.clear();
  }
  else if(temp<=28)
  {
     analogWrite(fan,200);
    lcd.print("Fan speed: 80%");
    delay(2000);
    lcd.clear();

  }
  else if(temp>=30)
  {
     analogWrite(fan,255);
    lcd.print("Fan speed: 100%");
    delay(2000);
    lcd.clear();

  }


}
```

CONCLUSION

Through this project we came across various components which gave us more insight about the subject “Internet Of Things”. Our project was about Temperature Controlled Fan using Arduino.

This objective of our project this device will be able to control your AC Home Appliances like AC, Fan, Cooler etc. Suppose you came from work, enter the room, and feel hot, fan to be “ON” automatically, and then “OFF” when the room temperature is back to normal.