



# İZMİR KÂTİP ÇELEBİ UNIVERSITY

— 2010 —

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# Voice Controlled Home Automation System



The background features a blurred image of a person's hand reaching towards a screen. Scattered around the hand are numerous icons representing different technologies: speech bubbles, envelopes, a person in a blue square, a tablet, server racks, a desktop monitor, a smartphone, and another desktop monitor with a speech bubble. Text labels for various software and protocols are also present: Java, NFC, Bluetooth, .NET, PHP, Symfony, MS SQL Server, Oracle, PostgreSQL, QlikView, J2EE, and MySQL.

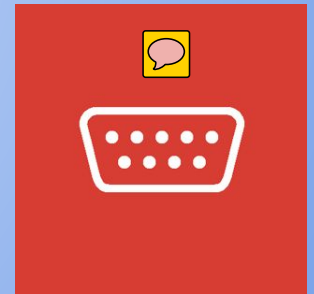
## Software Used ?



# PROTEUS



Blynk



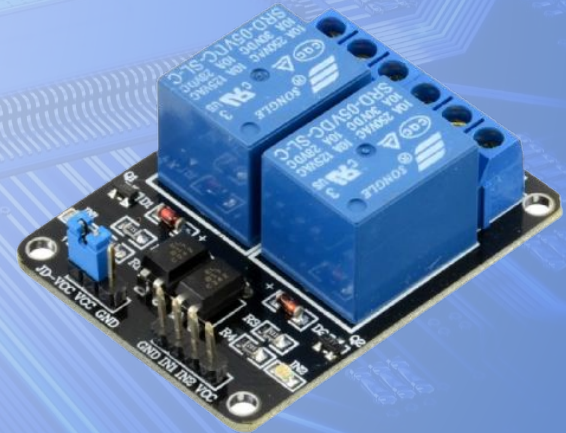
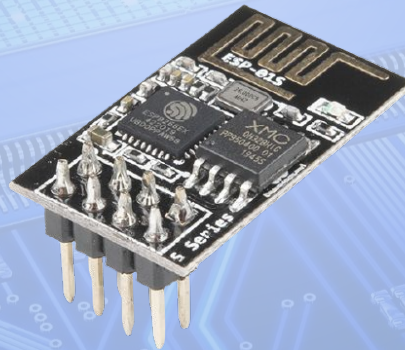
VSPE

# Component Used ?

Arduino uno

WIFI Shield

Relay



Buzzer



LDR



Diode



Resistor



Transistor





Fan



Bulb

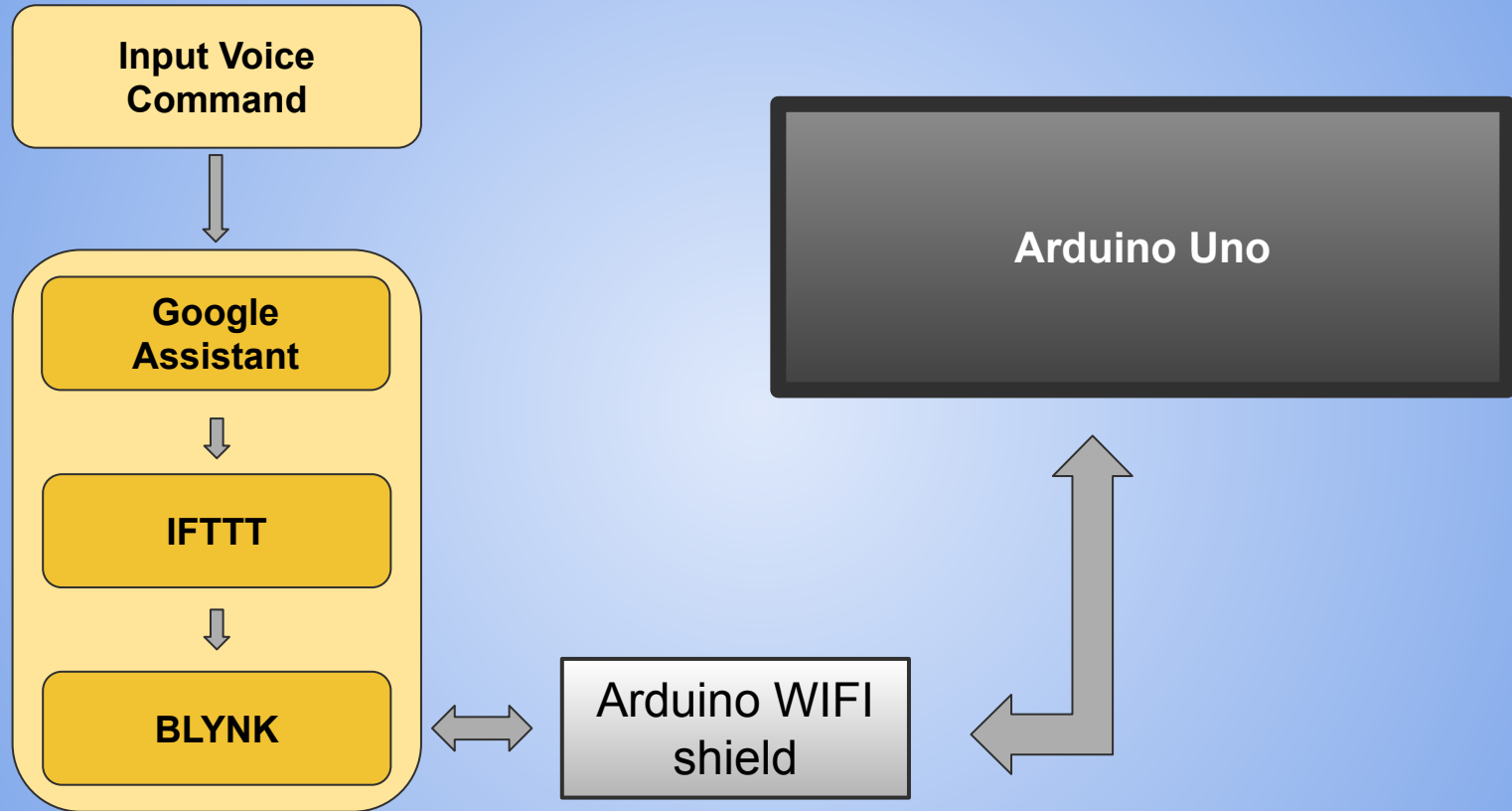


LED



# **Voice controlled Home Automation using Google Assistant, IFTTT and Blynk**







# Home Automation using Blynk App

B  
Blynk Server

Blynk app



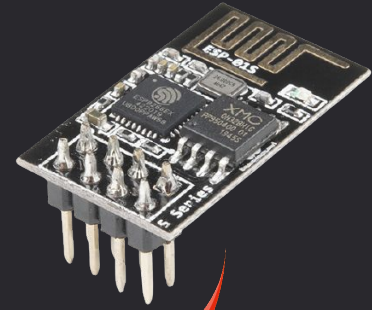
 No laptop required

 Blynk Libraries

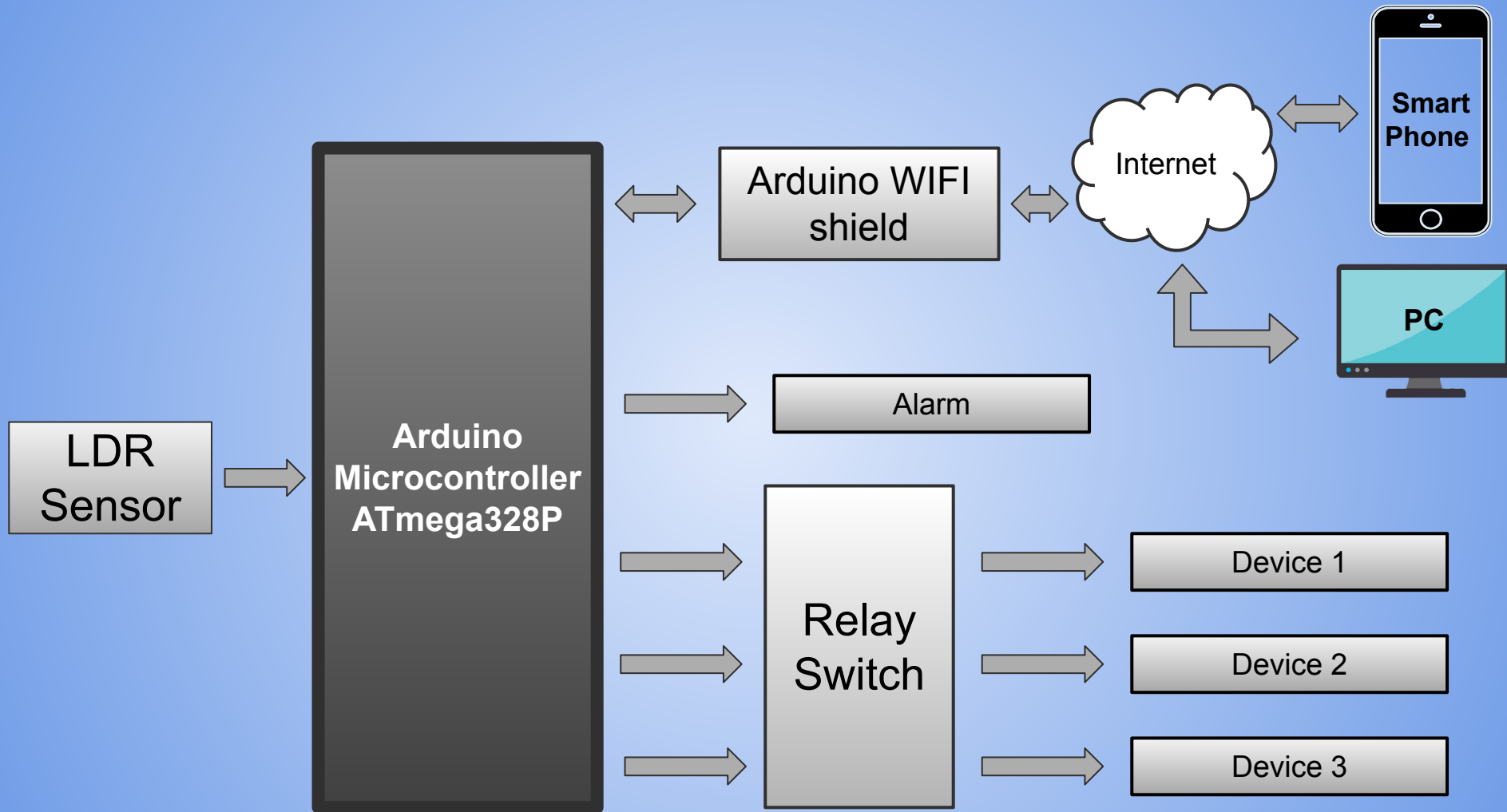
Internet Access of your choice  
Ethernet, Wi-Fi, 3G ...



WIFI Module

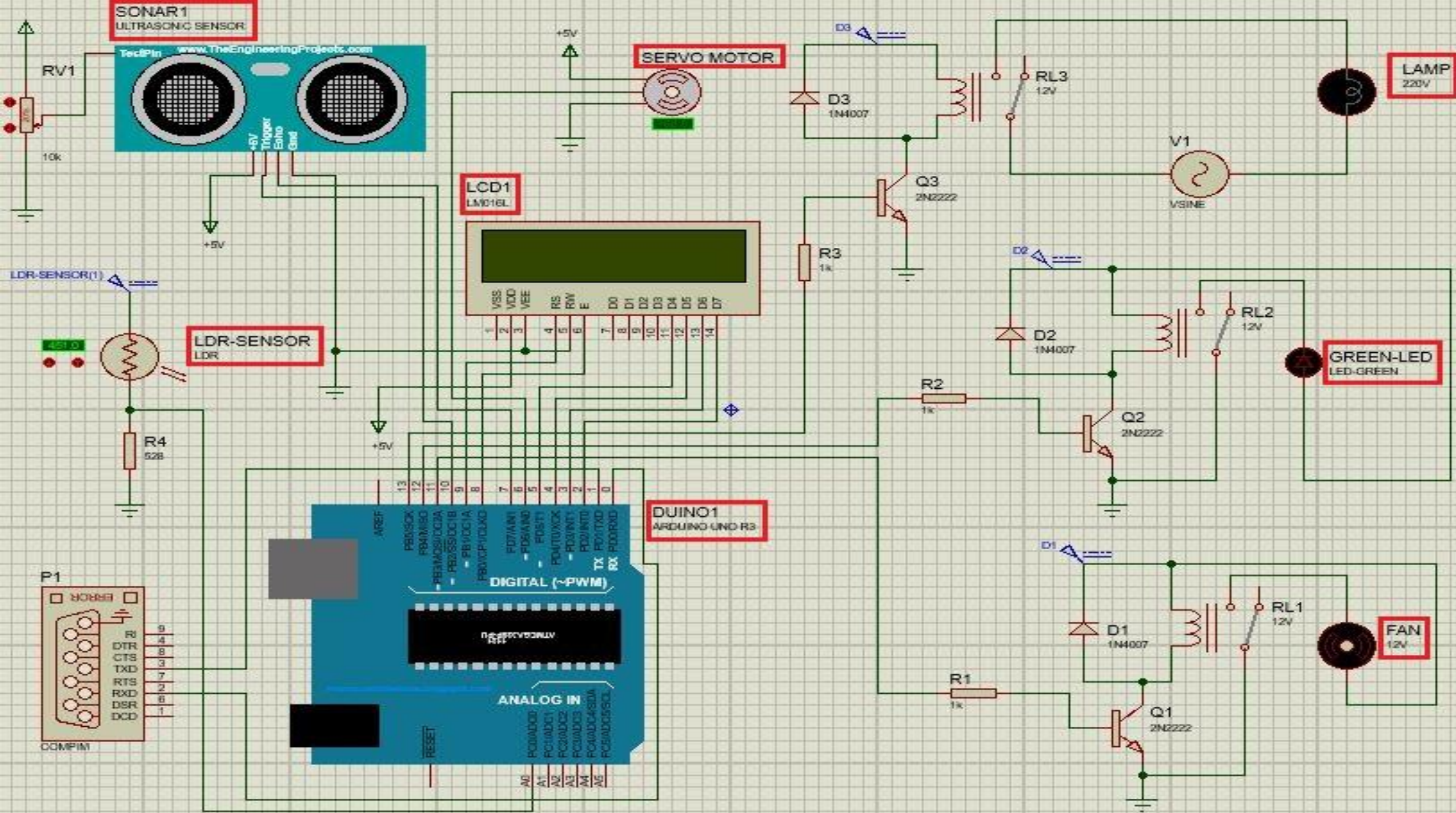


# Block Diagram



# Circuit Diagram





# Arduino Code

```
#define BLYNK_TEMPLATE_ID      "TMPLa0UCB-3b"
#define BLYNK_DEVICE_NAME      "Home Automation System"
#define BLYNK_AUTH_TOKEN       "LYaF85nA4CovgWYy1NKGkE5r9gwj-rxGy"
```

```
#include <BlynkSimpleStream.h>
#include <LiquidCrystal.h>
#include <Servo.h>
```

```
char auth[] = BLYNK_AUTH_TOKEN;
```

```
Servo myservo;
const int rs = 9, en = 8, d4 = 5, d5 = 4, d6 = 3, d7 = 2;
LiquidCrystal lcd(rs, en, d4, d5, d6, d7);
int lampPin = 13, ledPin = 12, fanPin = 11, trigPin = 10, echoPin = 7;
int ldrSensorPin = A0;
int ldrSensorValue = 1;
int pinData1 = 0, pinData2 = 0, pinData3 = 0, pinData4 = 0;
```

```
void setup() {
  Serial.begin(9600);
  Blynk.begin(Serial, auth);
  pinMode(lampPin, OUTPUT);
  pinMode(ledPin, OUTPUT);
  pinMode(fanPin, OUTPUT);
  pinMode(trigPin, OUTPUT);
  pinMode(echoPin, INPUT);
  lcd.begin(16, 2);
  myservo.attach(6);
}
```

```
BLYNK_WRITE(V1) { // Button Widget is writing to pin V1
  pinData1 = param.asInt();
  if (pinData1 == 1) { // turn the lampPin on
    digitalWrite(lampPin, HIGH);
  }
  else { // turn the lampPin off
    digitalWrite(lampPin, LOW);
  }
}
```

```
BLYNK_WRITE(V2) { // Button Widget is writing to pin V2
  pinData2 = param.asInt();
  if (pinData2 == 1) { // turn the ledPin on
    digitalWrite(ledPin, HIGH);
  }
  else { // turn the ledPin off
    digitalWrite(ledPin, LOW);
  }
}
```

```
BLYNK_WRITE(V3) { // Button Widget is writing to pin V3
  pinData3 = param.asInt();
  if (pinData3 == 1) { // turn the fanPin on
    digitalWrite(fanPin, HIGH);
  }
  else { // turn the fanPin off
    digitalWrite(fanPin, LOW);
  }
}
```

```
BLYNK_WRITE(V4) { // Button Widget is writing to pin V4
  pinData4 = param.asInt();
  if (pinData4 == 1) { // turn all devices on
    digitalWrite(lampPin, HIGH);
    digitalWrite(ledPin, HIGH);
    digitalWrite(fanPin, HIGH);
  }
  else { // turn all devices off
    digitalWrite(lampPin, LOW);
    digitalWrite(ledPin, LOW);
    digitalWrite(fanPin, LOW);
  }
}
```

```
void loop() {
  long duration, distance;
  digitalWrite(trigPin,LOW);
  delayMicroseconds(2);
  digitalWrite(trigPin, HIGH);
  delayMicroseconds(10);
  digitalWrite(trigPin, LOW);
  duration = pulseIn(echoPin, HIGH);
  distance = (duration/2)/29.412;
  if (distance > 200) {
    lcd.setCursor(0, 0);
    lcd.print("WELCOME!");
    lcd.setCursor(0, 2);
    lcd.print("DISTANCE:");
    lcd.print(">200cm");
  }
  else if ((distance <= 200) || (distance > 100)) {
    lcd.setCursor(0, 0);
    lcd.print("PLEASE ENTER");
    lcd.setCursor(0, 2);
    lcd.print("DISTANCE:");
    lcd.print(distance);
    lcd.print("cm");
  }
  if (distance >= 200) {
    myservo.write(120);
  }
  else {
    myservo.write(0);
  }
  Serial.print("distance");
  Serial.println(distance);
  ldrSensorValue = analogRead(ldrSensorPin);
  if (pinData1 == 0) {
    if (ldrSensorValue <= 450) { // turn the lampPin on
      digitalWrite(lampPin, HIGH);
    }
    else { // turn the lampPin off
      digitalWrite(lampPin, LOW);
    }
  }
  Blynk.run();
}
```





## ADVANTAGES

- Control home appliances from anywhere in the world
- Easy to operate
- Android compatible smartphone app
- You will receive a email or sms for any activity
- Saves electricity



## DISADVANTAGES

- Reliability
- System crashes due to any damage in the interconnection
- Costly

## CONCLUSION AND FUTURE WORKS

This project has introduced a home management system. Our prototypical system is applicable to real-time home security, automation, monitoring, and controlling of remote systems.

This implementation provides an intelligent, comfortable, and energy-efficient home automation system. It also assists the old and differently abled persons to control the appliances in their home in a better and easier way.