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| **Iotronics Techlab Pvt Ltd.** | |
| **Aim:** | To design a voice-controlled LED system |
| **Requirements:** | Automation Kit, Wireless & iot kit. |
| **IDE:** | Arduino IDE |
| **Connection Diagram:** |  |
| **Working** | 1. The project utilizes the Arduino Uno microcontroller along with a Bluetooth module. 2. Voice commands are captured via a smartphone with Bluetooth capability. 3. The Bluetooth module receives the voice commands and forwards them to the Arduino Uno. 4. The Arduino Uno processes the commands and controls the LED based on the received instructions. |
| **Procedure:** | Step 1: Setting up the Hardware   * Connect Arduino Uno, Bluetooth module, and LED   Step 2: Connecting Components   * Connect Bluetooth module's TX pin to Arduino Uno's RX pin and vice versa. * Connect LED to a digital pin on the Arduino Uno.   Step 3: Installing Required Libraries   * Open Arduino IDE. * Manage Libraries and install necessary libraries.   Step 4: Writing the Code   * Initialize Bluetooth module and set up communication. * Interpret voice commands received via Bluetooth. * Control the LED based on received commands.   Step 5: Uploading the Code   * Connect Arduino Uno to the computer. * Select board and port. * Upload the code.   Step 6: Testing   * Power on Arduino Uno. * Pair smartphone with Bluetooth module. * Send voice commands and observe LED's behavior. |
| **CODE:** | int Green = 5;  int Blue = 9;  int Red = 6;  void setup() {    Serial.begin(9600);    pinMode(Green, OUTPUT);    pinMode(Blue, OUTPUT);    pinMode(Red, OUTPUT);  }  char c;  String voice;  void loop() {    if (Serial.available() > 0)    {      voice = "";      voice = Serial.readString();      Serial.print(voice + '\n');    }    if (voice == "green")    {      digitalWrite(Green, HIGH);    } else if (voice == "green off")    {      digitalWrite(Green, LOW);    }    if (voice == "blue")    {      digitalWrite(Blue, HIGH);    } else if (voice == "blue off")    {      digitalWrite(Blue, LOW);    }    if (voice == "red")    {      digitalWrite(Red, HIGH);    } else if (voice == "red off")    {      digitalWrite(Red, LOW);    }  } |
| **Result/Output** |  |