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| **Iotronics Techlab Pvt Ltd.** | |
| **Aim:** | To design and implement a Bluetooth-controlled system for opening and closing curtains using IoT development kits. |
| **Requirements:** | 1. Automation Kit (containing Arduino Uno and necessary sensors/components) 2. Mechatronics Kit (for motor control and mechanical setup) 3. Smartphone with Bluetooth capability 4. Arduino Bluetooth controller app(Download it from Play store) |
| **IDE:** | Arduino IDE |
| **Connection Diagram:** |  |
| **Working** | 1. Bluetooth module establishes communication between Arduino Uno and smartphone. 2. Smartphone app sends open/close commands via Bluetooth. 3. Arduino Uno receives commands and triggers motor control functions. 4. Motor(s) attached to curtain rail open/close curtains accordingly. 5. Users can remotely control curtains using the smartphone app. |
| **Procedure:** | 1. Setting Up the Hardware:    * Connect the Bluetooth module to the Arduino Uno following the provided instructions.    * Connect the DC motors or servo motors from the Mechatronics Kit to the Arduino Uno for controlling the curtains. 2. Programming the Arduino Uno:    * Open the Arduino IDE on your computer.    * Write the code to establish Bluetooth communication and control the motors based on received commands.    * Upload the code to the Arduino Uno. 3. Mechanical Assembly:    * Attach the motors securely to the curtain rail or mechanism.    * Ensure the mechanism allows smooth movement of the curtains. 4. Testing:    * Power on the Arduino setup.    * Pair your smartphone with the Bluetooth module.    * Test the system by sending commands from the smartphone application to open and close the curtains. 5. Finalization:    * Make any necessary adjustments to the mechanical setup or code for optimal performance.    * Document the project for future reference. |
| **CODE:** | int val;  int nb;  void setup() {  // put your setup code here, to run once:  Serial.begin(9600);  pinMode(3,OUTPUT);  pinMode(5,OUTPUT);  pinMode(6,OUTPUT);  pinMode(7,INPUT);  }  // put your main code here, to run repeatedly:  void loop()  {  if(Serial.available()>0)  {  int data= Serial.read();  Stop();  if(data=='R')  {  digitalWrite(3,HIGH);  digitalWrite(5,LOW);  digitalWrite(7,HIGH);  digitalWrite(6,LOW);  }  else if(data=='L')  {  digitalWrite(3,LOW);  digitalWrite(5,HIGH);  digitalWrite(7,LOW);  digitalWrite(6,HIGH);  }else if(data=='F'){  digitalWrite(3,LOW);  digitalWrite(5,HIGH);  digitalWrite(7,HIGH);  digitalWrite(6,LOW);  }else if(data=='B'){  digitalWrite(3,HIGH);  digitalWrite(5,LOW);  digitalWrite(7,LOW);  digitalWrite(6,HIGH);  }  }  }  void Stop()  {  digitalWrite(3,LOW);  digitalWrite(5,LOW);  digitalWrite(7,LOW);  digitalWrite(6,LOW);  } |
| **Result/Output** |  |