Smart Curtain System - Procedure

1. Introduction:

The Smart Curtain System is an automated curtain control system that opens and closes curtains based on various inputs such as sunlight, temperature, time of day, or manual override using a mobile app or voice assistant.

2. Components Required:

- Microcontroller (e.g., Arduino or ESP32)
- Light sensor (LDR)
- Temperature sensor (optional)
- Motor (servo or stepper motor)
- Motor driver module
- Wi-Fi module (if not inbuilt)
- Power supply
- Mobile App or Voice Assistant integration

3. Circuit Setup:

- Connect LDR to analog pin to detect light intensity.
- Connect the motor to the motor driver and then to the microcontroller.
- Connect temperature sensor to a suitable pin (if used).
- Establish Wi-Fi connection for remote control.

4. Programming the Microcontroller:

- Write code to read sensor values.
- Implement logic to open/close curtains based on thresholds.

- Include manual override options through app or voice assistant.

- Upload code to microcontroller.

5. Mobile App Integration:

- Use platforms like Blynk or custom app for control.

- Link app buttons to microcontroller via Wi-Fi.

6. Voice Control (Optional):

- Integrate with Google Assistant or Alexa using IFTTT and webhooks.

7. Testing:

- Test curtain operation in various light and temperature conditions.

- Ensure motor moves curtains smoothly without obstruction.

8. Final Setup:

- Mount the system on the curtain rod.

- Ensure proper alignment of the motor and curtain mechanism.

- Secure all components and hide wiring for a neat look.

9. Maintenance:

- Periodically check sensor accuracy.

- Lubricate moving parts if needed.

- Ensure Wi-Fi connection is stable for remote operation.