Project Report

Applicant(s):

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Automatic Rain Detector and Cloth Collecting System

1. Introduction

In modern households, the need for smart and automated systems has increased significantly. Drying clothes outside is a common practice, but unexpected rain can damage clothes and waste effort. This project aims to design an automatic system that detects rainfall and retracts clothes indoors to a covered area, thus protecting them from getting wet.

2. Objective

The main objective of this project is to create an automated rain detection and cloth collecting system that:
- Detects rain using a sensor.
- Automatically pulls the cloth hanger inside a sheltered area.
- Reduces the need for human intervention.
- Ensures clothes remain dry during sudden weather changes.

3. Components Required

- Rain Sensor Module
- Arduino Uno (or similar microcontroller)
- DC Motor / Stepper Motor
- Motor Driver Module (e.g., L298N)
- Rails or Pulley System
- Clothes Hanging Rod
- Power Supply (Battery or Adapter)
- Frame/Shelter Structure
- Connecting Wires and Breadboard

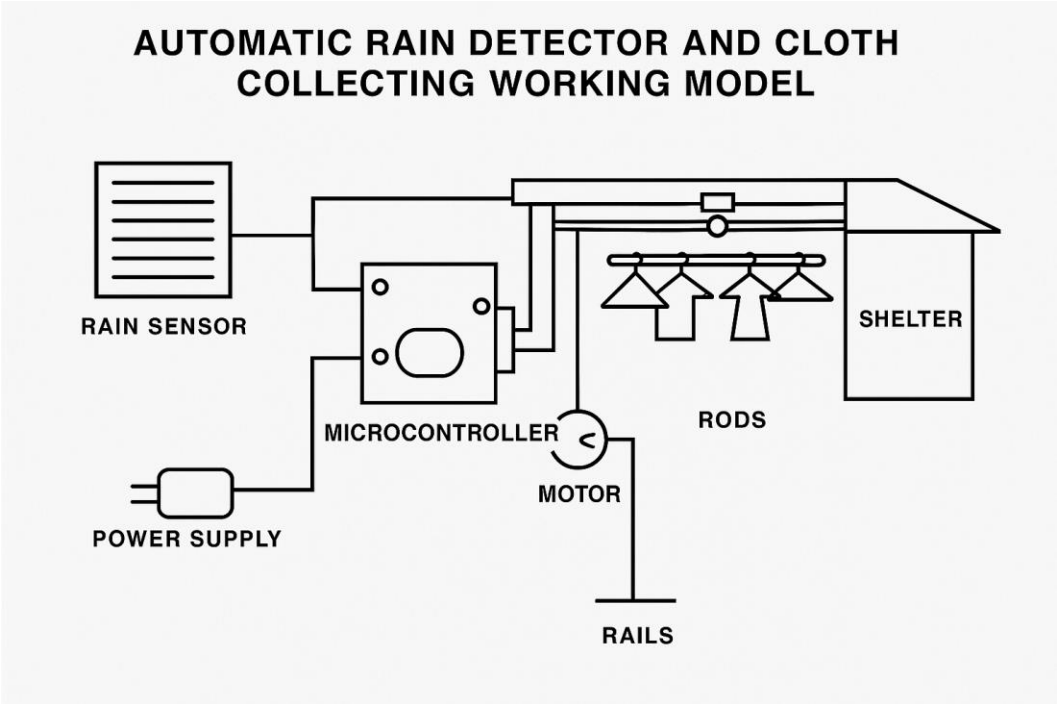
4. Working Principle

The system works by using a rain sensor that detects water droplets. When rain is sensed, the sensor sends a signal to the Arduino. The Arduino then activates a motor through the motor driver. The motor is connected to a pulley or rail system that pulls the cloth rod inside a covered shelter. This process helps in avoiding wet clothes during unexpected rain.

Once the rain stops, the system can reset or notify the user to move the clothes back outside.

5. Circuit Diagram

Below is the block/circuit diagram representing the system:



6. Applications

- Residential Homes
- Apartments and Hostels
- Smart Home Systems
- Old Age Homes or Remote Households

7. Advantages

- Automated system, no manual intervention required.
- Saves time and prevents clothing damage.
- Useful during monsoon seasons.
- Can be powered using solar panels.
- Cost-effective and user-friendly.

8. Conclusion

This project successfully demonstrates the use of sensors and automation in everyday life. By integrating rain detection with a mechanical cloth collecting mechanism, this system offers a smart solution for protecting clothes from rain. It is an effective and eco-friendly home automation innovation that enhances convenience and reduces manual effort.