ID 001

Automatic Clothesline Retrieval System for a Balcony

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Abstract

The conventional method of drying clothes on a clothesline is widely practiced due to its cost-effectiveness and efficiency. However, unexpected rain showers can negate the drying efforts. Modern-day unpredictable weather patterns exacerbate this issue. To address this challenge, the development of a weather-responsive smart clothesline system is proposed. This innovation integrates rain and humidity sensors into an automatic clothesline retrieval system. This system employs an Arduino microcontroller board to orchestrate a circuit equipped with rain and humidity sensors. These sensors enable accurate detection of weather changes, triggering automatic extension or retraction of the clothesline. Additionally, a real-time clock module restricts system operation to daytime hours, conserving energy during the night. The design is optimized for compact spaces like balconies, offering a tailored solution for urban living. Results from experimental testing demonstrate the system's effectiveness in responding to weather fluctuations. When rain or high humidity is detected, the system promptly retracts the clothesline, safeguarding the drying laundry. During nighttime hours, the system remains inactive, conserving energy and resources. By seamlessly integrating technology with daily chores, this innovation enhances convenience and conserves resources. The successful implementation of this system underscores its potential for broader adoption, contributing to a more sustainable and efficient lifestyle.

Keywords: *Automated clothesline, Energy efficiency, Sensors, Prototype development, Cost efficiency*