

ABSTRACT

Indonesia, being a tropical nation, faces significant rainfall intensity and plentiful sunshine year-round. Erratic weather patterns frequently present difficulties for home tasks, including drying laundry. When homeowners are absent, clothes drying outside may be exposed to unexpected rain and get wet. This problem emphasizes the necessity for an automated system that can oversee and regulate the drying process from a distance in real time.

This study presents an intelligent clothing drying system utilizing the Internet of Things (IoT) that can sense environmental conditions employing a rain sensor (raindrop module) and a light sensor (LDR), automatically triggering a servo motor to pull back or extend the clothesline. The system is connected to an Android mobile app named Jepri, enabling users to execute manual or automatic control and obtain real-time weather alerts. The ESP8266 module serves as the primary controller, while Firebase acts as the data transport and interface between the hardware and the mobile app, facilitating efficient and responsive functionality.

Implementation results demonstrate that the system functions reliably, showing an average delay of 92.37 ms, jitter of 92.39 ms, and a packet loss rate of merely 1%—all categorized as “very good” per ITU-T G.1010 standards. The Jepri app effectively shows sensor information in real time, sends control commands, and provides users with an engaging experience. Consequently, this system is appropriate for use as a home automation solution for overseeing clothes drying tasks.

Keywords: *Mobile Application, Internet of Things (IoT), Light Dependent Resistor (LDR), Smart Clothes Dryer, Rain Sensor (Raindrop Module).*