

ABSTRACT

This research describes the development of an IoT-based Automatic Hand Washing Device as an effort to improve soap efficiency at Campus A. The author successfully identified issues with current soap usage and conducted an in-depth needs analysis to develop this innovative system. A circuit scheme consisting of Nodemcu, ultrasonic sensor, PIR sensor, Motor Driver L289N, step-down, and the Blynk application is visually depicted to explain the implementation of this device.

Testing of this Automatic Hand Washing Device involves several crucial stages to examine system performance and achieve primary goals. Test results indicate that the device significantly enhances soap efficiency compared to conventional manual hand washing methods, thanks to the automatic settings provided by the Blynk application. This application also enables easy control through mobile devices, enhancing the convenience and security of the handwashing process.

In conclusion, this IoT-based Automatic Hand Washing Device using Nodemcu has proven successful in improving soap efficiency and facilitating automatic hand washing at Campus A. The device accurately detects user hands, automatically dispenses soap, and promotes efficient soap usage. However, periodic maintenance and care are necessary to ensure smooth operation over an extended period. Through continuous development and optimization, IoT technology can continue to play a vital role in maintaining cleanliness and safety within the campus community.

Keywords: Automatic Hand Washing Device, IoT (Internet of Things), Soap Efficiency, Campus A, Ultrasonic Sensor, PIR Sensor, Motor Driver L289N, Blynk Application, Performance Testing, Hygiene and Safety, Nodemcu, Mobile Control.