DEVELOPMENT OF AN IOT-BASED WIRELESS CONTROL TOOL FOR ELECTRICAL EQUIPMENT WITH A NODE RED DASHBOARD

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ABSTRACT

This research aims to design and build an IoT-based wireless control device for electrical equipment that can be operated through the Node-RED dashboard. This system utilizes a NodeMCU ESP8266 microcontroller and a 4-channel relay module to remotely control several electrical devices such as lights, fans, and sterilizers via a Wi-Fi connection. The Node-RED dashboard serves as the user interface, while data communication is conducted through the lightweight and efficient MQTT protocol. Tests were conducted to ensure Wi-Fi connectivity, MQTT communication, and responsiveness to user ON/OFF commands. The results demonstrated that the system performed its functions well, responding to each command in real time and accurately. With this system, users can control electrical devices practically and flexibly, especially in obstetric practice environments that require efficiency and speed.

Keywords*: IoT, Node-RED, ESP8266, Wireless Control*