

ABSTRACT

E-commerce is an internet-based commercial activity that includes the buying and selling of goods and services efficiently, supported by delivery services. However, when shopping online, some issues arise, one of which is the problem of courier delays in delivering packages that never reach the recipient when they are not at home. To address this issue, many products like package receiver boxes have been introduced, but these boxes still lack a notification feature that allows recipients to monitor when their package is inside the box. Therefore, it is necessary to enhance the functionality of these boxes, one of which is by utilizing Internet of Things (IoT) technology. This research uses NodeMCU, which allows the door to open automatically using an HC-SR04 ultrasonic sensor, a servo motor to rotate 90° at layer 1, and a notification when the package is placed inside layer 2 of the box through a Telegram application. Based on the data, it was found that the device was successfully built with all tests running smoothly. The results show that the ultrasonic sensor is able to measure distances with a range of ≤ 50 cm, the average time required for the servo motor to rotate 90° at layer 1 is 8.02 seconds, and the average time for the notification to be sent is 5.20 seconds. The maximum distance for the device to successfully connect to Wi-Fi is 25 meters.

Keywords: *Internet of Things, Servo Motor, Ultrasonic Sensor HC-SR04, Telegram*