

ABSTRACT

In the current modern era, technological developments in the world have changed the industry, especially in the manufacturing sector, into an industry whose development is very rapid and is developing globally throughout the world through the convergence of information technology. Based on the problems that occur in the current era, it is necessary to develop a tool as a technology developer on the internet of things based screw size sorting tool system using a microcontroller. The development of technology is very rapid, especially in the field of electronics, with the current developments that are very fast, we are required to be able to play a role in it. Technological developments in the field of IoT (Internet Of Things), is one of the technologies currently being developed. IoT allows it to be used to detect and control items around it by using a screw-size sorting tool technology based on the internet of things using load cell sensors. Its use is what makes the author try to build an internet of things based screw size sorter using a load cell sensor. NodeMCU ESP8266 is a microcontroller or a single board controller that is open source and is an open source hardware project. The design of this bolt size sorter is intended for small-scale workshops such as individual motorcycle workshops. This bolt size sorter can only detect bolt sizes (10, 12, 14 and 17 mm) with the type of bolt used made of brass, each length is 4 cm. The use of load cell sensors in the design of this tool is used to weigh the weight of the bolts to be sorted. In designing this screw sorting tool there are several test scenarios carried out, the first is testing of sending calculation results to the blynk application the tool can send results to blynk via the internet network connected to the user's cellphone the results obtained are sent to the blynk application (size 10m = 5 pieces, 12mm=5, 14mm=5 pieces and 17 mm =5 pieces). The author tested the accuracy of the hx711 loadcell sensor. In practice, he tested 20 trials with the results obtained in 19 trials, the accuracy of sensor readings had a value of 100% and there was 1 trial of sensor readings of 99.7%. The relay experiment here carried out 5 experiments with the results obtained that the relay remained in the ON condition, working regardless of the weight of the bolt to be sensed, but the servo did not accept bolts outside the numbers (10, 12, 14 and 17 mm). The Qos experiment in its implementation carried out a Qos experiment which included a delay experiment with the results obtained from 30 trials getting an average delay value of 59.5 ms, the packet loss experiment conducted 30 experiments with the results obtained that all packets sent were successfully sent, the experiment throughput experimented 30 times with an average result obtained in the throughput experiment of 10.55 kbps.

Keywords: Internet of Things, NodeMCU ESP 8266, Open source, Microcontroller

