DESIGN AND ANALYSIS OF HOIST CRANES USING ANDROID BASED INTERNET OF THINGS (IoT) IN ELECTRO BUILDINGS

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ABSTRACT

In industry, hoist crane operations are carried out by pressing a push button where the operator's location is not far from the crane hoist. This is very risky if a work accident occurs, such as the fall of a machine or heavy equipment, etc. Efforts that can be made to operate a hoist crane safely are to create a tool that can be controlled remotely using a hoist crane system that can be carried anywhere (mobile) and operates based on the Internet of Things (IoT) so that it can be operated easily. This tool is controlled using the NodeMCU ESP8266 as the main brain. The way this tool works is that Android functions as a controller which is connected to the NodeMCU ESP8266 by connecting to WIFI or hotspot. Then, the NodeMCU ESP8266 sends commands to the crane hoist motor from signal data via Android. Testing of the hoist crane is carried out by activating the power supply and then trying to control the hoist crane and taking analysis data then deactivating the power supply again after it is finished using it. The results obtained from this test are that the time interval between pulling and pushing is not too far, in testing with remote the time ratio is 0.05-2.64 (s) while in the test with Blynk the time ratio is 0.6-2.64 (s). as well as the distance between the current measurement. Pull and push are not too far away, in testing with a remote current ratio of 0.01-0.03 A while in testing with Blynk the comparison of time is 0.01-0.04 A. Then, in the measurement of pushing power using remote and lots the smallest power usage is found at 313.49 W and the largest power usage is at 350.85 W.

Keywords: *NodeMCU ESP8266, Android, Hoist crane, Internet Of Things (IoT).*