

ABSTRACT

Today technology has developed very rapidly. One of the technologies that are currently developing is a smart home system. In this final project, we will discuss the system of applying smart homes to a boarding room. The design carried out was to make a prototype of the smart home system in the boarding room which functions to control electrical devices such as replacing and turning off lights, and turning on and off the electrical device when switching through the application on the smartphone. The system is carried out using a NodeMCU microprocessor, a relay that works as an actuator, and a PZEM 004t sensor that works to read electricity usage in the room. The data read by the sensor is transferred to the firebase that runs a server that can connect microprocessors and smartphones.

Based on the results that have been done, the network quality of the devices used in the LOS condition is a delay of 1.955 seconds and the throughput is 6640.35054 bit/s. While the results of network quality testing in non-LOS conditions are having an average delay of 3.577 seconds, and an average throughput of 4105,12318 bit/s.

Keywords: *smart home*, NodeMCU, relay, PZEM 004 sensor, *firebase*