ABSTRACT

The development of technology in the digital era has now penetrated into various human lives, as well as the development of houses with *smart home* systems that can provide comfort, convenience, security and increase efficiency for their residents. Sometimes someone forgets to turn on or off electrical devices such as lights, fans and even lock doors when they are outside the house or when someone is on the bed, causing a sense of laziness to move to the switch to open and close the circuit. So, there are still electrical devices that are found to be still active when they are no longer in use, this can be caused by negligence in the user to turn off the device. To solve this problem, a tool is needed that is able to work to monitor and control electrical devices at home.

In this Final Project, a *prototype smart home* is designed to monitor and control electrical devices at home that can be accessed using the IoT *platform* through s*martphone.* The system was designed using the NodeMCU ESP8266 microcontroller and with supporting devices such as *relays*, DHT11 sensors, LDR sensors, servo motors, *solenoid door locks*, lights, *smartphones* and laptops. NodeMCU ESP8266 as the brain that executes commands used to control home devices. Control or monitoring is carried out through a *smartphone* application connected to nodeMCU ESP8266 via the internet network. The test results obtained for the average accuracy value of the DHT11 sensor were 99.05% for temperature and 97.35% for humidity. Then from the results of testing monitoring and controlling home equipment on this *smart home* can operate according to the orders given, as long as the system is still connected to the internet network.

Keywords: *Prototype, Smart home, IoT,* NodeMCU ESP8266, *smartphone.*