ABSTRACT

In today's digital age, the concept of "smart home" or "smarthome" has become increasingly popular. Smarthome allows users to control and monitor electronic devices in their homes automatically or remotely via an internet connection. In today's modern era, advances in technology and information are accelerating. Gadgets are one of the main examples of such advancement. According to data from the Association of Indonesian Internet Network Users (APJII), internet usage in Indonesia continues to increase. In 2018, the number of gadget users reached 171.17 million out of a total population of 264.16 million, which is equivalent to 64.8% of Indonesia's population. The impact of gadget use is also very significant, where around 80% of gadget users tend to ignore their surroundings. Therefore, an automatic system will be made that is able to control temperature, humidity, exhaust fans and smoke detectors using an ESP32 microcontroller, DHT11 sensor, MQ-7 sensor and will be controlled via Smartphone using the Arduino IoT Cloud application to make it easier for residents to control the state of the house. The accuracy of the DHT11 sensor when the AC is on is 90.96%. While in the inactive AC condition it is 94.69%. Which means DHT11 is accurate in detecting temperature. For the MQ7 Sensor, the results obtained with an average gas level measurement error of 26.97%. With a measurement accuracy of 73.03% LPG gas levels. Likewise, the exhaus fan can be controlled via a smartphone on the Arduino IoT Cloud platform.

Keywords: Arduino IoT Cloud, DHT11, Mikrokontroler ESP32, MQ-7, Smarthome