ABSTRACT

Air pollution is a foreign substance in the air, therefore it can cause a component in the air to become abnormal again. In the industrial area in Taman Sidoarjo District, there are quite a lot of factories and also the roads in the area are alternative roads for all vehicles, ranging from small vehicles to large vehicles. Therefore, air pollution is very bad for human health which can cause diseases such as respiratory problems, heart disease, cancer of various organs and hypertension (high blood pressure).

The parameters to be measured in this study are CO, PM^{10}, air pressure, temperature and humidity. Where, CO (Carbon monoxide) gas compounds generally come from vehicle pollution, incomplete burning of garbage and the number of industries that stand in that place. The bad impact if CO gas is too high will be able to cause death and endanger the health of the heart, brain and lungs. Dust particles (PM^{10}) can cause adverse health effects such as allergies, respiratory problems and lung cancer. Air pressure should not have much effect on human health, if the air pressure in the area is normal (1 atm). Temperature and humidity are interconnected, where if the temperature is low then the humidity of a place will also be high.

The design of an air quality monitoring system using Arduino is a system made to monitor how good the air quality in the area is monitored through the Blynk application. The methodology used in this research is to identify the needs of the measured parameter system and identify system components, system design, implementation and testing of system design. Based on the results of the tests that have been carried out, the performance of the air quality monitoring system has functioned as expected, which can detect air quality with the required parameters using NodeMCU ESP8266 to be displayed on the LED Matrix. Then the data will be sent to the Blynk application which is connected to WiFi. The first day shows the results of the dangerous category according to the ISPU value, the second day shows the results of the dangerous to unhealthy category, and on the third day shows the results of the unhealthy to very unhealthy category.

***Keywords** : Arduino, Blynk, NodeMCU, Air pollution*