ABSTRACT

The air quality problem in Indonesia as the background of this research is based on the fact that Indonesia is ranked 17th out of 180 countries as the country with the worst air quality in the world as of 2021. The purpose of this research is to develop a portable air purifier system that can help improve indoor air quality. The limitation of this research is that the air purifier developed must have a portable size and use anion generator technology and the Particulate Matter GP2Y1010AU0F sensor.

Various kinds of research are carried out to overcome the decline in air quality, especially indoors. In this Final Project research, a portable air purifier system will be made that can improve air quality in the room. This research uses an Arduino Nano microcontroller as the system controller and integrates anion generator technology that can produce negative ions and a Particulate Matter GP2Y1010AU0F sensor that can detect dust and smoke levels in the room. The system will be tested by monitoring air quality in a 3x3 m^2 room before and after using the air purifier made.

The results of the design of a portable air purifier system with an anion generator integrated with the Particulate Matter GP2Y1010AU0F sensor have an accuracy rate of 95,88% and the average ion concentration generated from the anion generator is 6.771.000 ions/cm^3. This air purifier can reduce Particulate Matter pollutants for 1 minute.

Keywords: *Air Quality, Portable Air Purifier, Anion Generator, Particulate Matter Sensor GP2Y1010AU0F*