ABSTRACT

Smoking is an activity that is mostly done by humans around the world, usually when they gather to make the atmosphere more relaxed and pleasant, although it is generally known that smoking can cause health problems. Cigarette smoke produced by burning cigarettes can have a negative impact on the respiratory system due to the nature of hemoglobin which binds carbon monoxide more easily than oxygen, therefore the decomposition of cigarette smoke is carried out in the hope of reducing the adverse effects of cigarette smoke on human health.

In this study, the authors designed and built a control system for decomposing cigarette smoke in a closed room. The decomposition of cigarette smoke automatically uses an ozonizer DIY ozone generator to produce an ionization process. The Arduino Uno R3 microcontroller is used as the main controller by using the Proportional Integral Derivative (PID) method to adjust the DC fan speed in accordance with the concentration of cigarette smoke and adjust the DC out fan speed according to the carbon monoxide concentration with themethod switch.

The prototype designed using the PID method succeeded in improving the output system. The output system is getting better by having a peak time of 6 seconds, an overshoot of 6313,53 and a time to move the smoke to the decomposition chamber for 57 seconds. Decomposition of carbon monoxide contained in cigarette smoke with variations of 1 puff with the highest concentration of 248,46 PPM takes 21 seconds to decompose, 2 puffs with the highest concentration of 288,31 PPM takes 23 seconds to decompose, and 3 puffs with the highest concentration of 323 ,11 PPM takes 30 seconds to parse.

Keywords : *cigarette smoke, microcontroller, ozone generator DIY ozone generator . PID*