

ABSTRACT

This research was motivated by the many adverse effects caused by cigarette smoke. Some of the most dangerous substances contained in cigarette smoke are hydrogen, methane and carbon monoxide. Therefore the authors chose to design and realize a tool that is useful for filtering the content of hydrogen, methane and carbon monoxide contained in Arduino Uno-based cigarette smoke. This tool is a prototype with a design that uses two boxes consisting of cigarette smoke boxes and smoke exhaust boxes into the environment. In the middle of the two boxes, there is a filtering system in the form of a fan for sucking and filtering the contents of cigarette smoke made of acrylic with a length of 15 cm, a width of 9 cm and a height of 9 cm. Inside the filtering system is activated carbon to bind, zeolite stones to purify and active sand to eliminate odors in the content of cigarette smoke. This study uses the MQ-7 sensor as a measuring device of the amount of cigarette smoke in PPM units with an error measuring sensor of 7.62%. This tool works by measuring the amount of PPM by the sensor from the cigarette smoke box to reach 100 PPM and then sucked and filtered on the filtering system, then the smoke is discharged into the environmental box and read back by the sensor contained in the roof of each box. The measurement results from cigarette smoke boxes and environmental boxes were compared to obtain the average percentage of filtering the content of hydrogen, methane and carbon monoxide in cigarette smoke which amounted to 65.78%.

Keywords: *hydrogen, methane, carbon monoxide, cigarette smoke, MQ-7 sensor and filter.*