

## **ABSTRACT**

*Cigarette smoke is one of the causes of air pollution can cause adverse effects on health. Tar and nicotine was compounds of a cigarette stick and on cigarette smoke contains many toxic compounds (toxins) such as hydrogen cyanide, carbon monoxide (CO), ammonia, methanol, acetone, and arsenic. In addition to tobacco smoke, air pollution is also caused by smoke from the engine manufacturer, engine vehicle, or, the lack of air circulation in a room so that dust and germs spread.*

*At this final project, a prototype of a microcontroller-based air filter ATmega 8535 was designed and realized. Microcontroller to set the integration between the sensor as a detector mq135 cigarette smoke in the air and fans as the inhaler the dirty air into block air cleaner (filter block). At block filter, the air flow to meet with a wire strainer and ultraviolet (UV) light. To keep the air flow smoothly inside the block, a fan is used to pull more air out of the air purifier. The second fan will also be activated automatically by the microcontroller.*

*The air filter device is work automatically to clear the air. All the filters, except for the sensor, is actived only if the sensor detects smoke in the air. The air coming out of the air filter is more clean and based on the output filter can be seen, smoke concentration decreased after the filtration process.*

*Keywords: cigarette smoke, air pollution, MQ135 sensor, air filter, a microcontroller ATmega 8535.*