

## **ABSTRACT**

*Smoking room is a place that is used by people to smoke so that the surrounding environment is not polluted by tobacco smoke. In smoking room, either in a office building or shopping place usually equipped with exhaust fan for cleaning smoke. But fans are used lit with a constant speed so wasteful electricity, although there may be set speed still need human help to change the fan speed. The room became uncomfortable due to deposition of cigarette smoke is still attached all subjects, so many smokers are reluctant to smoke in the smoking room.*

*It is necessary for the system to adjust the exhaust fan speed in smoking room automatically and set the room air circulation to provide an ionizer to clean the air with negative ions. In this system using microcontroller AVR ATMEGA 8535 as controller. The system uses sensors MQ-135 to detect cigarette smoke is used as input to the microcontroller, then processed to be used as input to the block with the exhaust fan speed control using a trigger in the form of a PWM signal.*

*From the research, if the terms of comfort, which has made this system has a faster response time cleaning using ionizer, so as to provide comfort. In general it can be concluded that by using this system energy efficiency improvements have been achieved with the level of power savings of 20-30% compared with no control.*

*Keywords: Exhaust Fan, Cigarette Smoke, sensor MQ-135*