ABSTRACT

Fire is an incident that frequently occured in many locations. Besides burning and destroyed many objects, fire also produces poisonous smoke. Smoke inhalation resulted in more victims than burns in fire. A device to exhaust smoke from inside a room when there is a person is required, so he could breath without inhaling poisonous smoke.

This device could exhaust smoke inside a room when it detects person. Smoke detector that is used to measure the thickness of some consist of LED and photodiode, where LED is directed to fotodiode that is tilted 17.5°. Light produced by LED will be blocked by smoke, so intensity of light received by photodiode decreased and the voltage value on photodiode decreased. There are two steps to execute in this system. First, when smoke is detected, buzzer will produce sound and window will open automatically. Second, when a person or people detected, device will produce the speed of fan based of smoke thickness and distance between the person and device by using fuzzy logic.

This device produced speed of fan that is consistent with the desired result and has accuracy of 98.765%. It could exhaust smoke from a miniature of a room within average time of 11,8 seconds.

Keywords: fuzzy logic, smoke detector, photodiode, fan, smoke