

Bumroong Junseangyen 2011: The Feasibility Study of the Moving Eye Application to Detect Smoke in Controlling of the Air Handling Units and the Ventilation Fans in Case of Fire. Master of Engineering (Safety Engineering), Major Field: Safety Engineering Interdisciplinary Graduate Program. Thesis Advisor Associate Professor Surachai Radagan, Ph.D. 66 pages.

The Feasibility Study of the Moving Eye Application to Detect Smoke in Controlling of the Air Handling Units and the Ventilation Fans in Case of Fire. The main purpose of this thesis is to design and create a smoke detection device to work as an Active Fire Detection System. This safety device is designed to monitor and detect smoke; shutting off the AHU in the Air Conditioning System thereby limiting the spread of smoke in the inhabited area. Similar to conventional smoke detection systems, the subject device will also shut down the AHU system. The device is differentiated from these conventional systems by the additional capacity to control functions such as ventilation fans and fire damper system motors. Conventional systems, a device are installed inside the air duct or chamber so that can be affected by air turbulence. This device has improved sensitivity as a result of being able to be positioned in open areas outside or away from the air duct or chamber.

The study investigates the use and set up of an infrared thermometer sensor to detect fluctuations in temperature within the range from 0° to 70° C (32° to 158° F) The infrared signal is transmitted through the atmosphere to detect smoke. The reflected signal is registered and then processed by the Panel Control Board (PCB). The PCB includes a micro controller, Central Processing Unit (CPU) and internal memory which are programmed to perform the signal processing and data comparison. The processed information is used by the PCB to control and regulate the HVAC system and the data is also logged for reporting purposes.

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