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Abstract

Safe From Fire (SFF) is an intelligent self controlled smart fire extinguisher system assembled with multiple sensors, actuators and operated by micro-controller unit (MCU). It takes input signals from various sensors placed in different position of the monitored area, and combines integrated fuzzy logic to identify fire breakout locations and severity. Data fusion algorithm facilitates the system to discard deceptive fire situations such as: cigarette smoke, welding etc. During the fire hazard SFF notifies the fire service and others by text messages and telephone calls. Along with ringing fire alarm it announces the fire affected locations and severity. To prevent fire from spreading it breaks electric circuits of the affected area, releases the extinguishing gas pointing to the exact fire locations. This paper presents how this system is built, components, and connection diagram and implementation logic. Overall performance is evaluated through experimental tests by creating real time fire hazard prototype scenarios to investigate reliability. It is observed that SFF system demonstrated its efficiency most of the cases perfectly.

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Index Terms

Computer Science

Artificial Intelligence

Keywords

Fire, sensors, fuzzy logic, data fusion, MCU, intelligent system, expert system