

## **IBM PROJECT**

### **INDUSTRY SPECIFIC INTELLIGENT FIRE MANAGEMENT SYSTEM**

**TEAM ID:PNT2022TMID19483**

#### **LITERATURE SURVEY:**

The literature review focuses on two significant aspects of research. One aspect includes the behavior of people in building fires and the effects of fires under different behaviors, while the second aspect examines the latest applications of various technologies in building fires. The sudden occurrence of a building fire can quickly cause panic among a crowd and complicate decisions. For example, when a building fire occurs, some people choose to escape, others choose to wait for rescue, and others become involved in the firefighting effort. These differential decisions reflect individual characteristics. To gain a better understanding of people's behavior in a fire, some scholars have used the support vector machine (SVM) survey to collect decision information. The survey found that more than 50% choose to pack things or ignore the alarm, and the proportion of people who choose to evacuate in the first time is only 15% [16]. These findings further reflect the diversity of crowd decision-making. Although advanced technologies are increasingly used in fire emergency management, and it is hoped that the behavior of trapped people can be unified and regulated, diversified behavior decisions are still inevitable. Scholars have studied the many reasons for differences in crowd behavior decisions. The prime reasons can be divided into an external environment and individual factors. Tang et al. [19] suggested that crowd behavior is affected by a building's layout and the spread of smoke and that these two objective factors make it difficult for a crowd to make correct decisions. In order to study the influence of the objective environment on crowd behavior decisions, Kobes et al implemented evacuation experiments in hotel buildings that show smoke affects the evacuation route of a crowd, and that guiding signs have a meaningful impact on whether the crowd evacuates or stays.

Also, many individual factors influence people's decision-making behavior, which is embodied in individual characteristics. Individual features of a crowd include their specific knowledge such as fire-coping knowledge, psychological qualities, and other characteristics, as well as physical factors such as disability and age. Such differences will have a significant impact on people's final decision-making behaviors. Fires in buildings can have both beneficial and

adverse consequences due to the behavior decisions of the crowd. A survey of fire survivors shows that those who adopt an appropriate evacuation strategy have the highest survival rate, while the survival rate of people who choose to ignore fire information is low, and the consequences of such behavior decisions are different. Taking changes in building fires into account, crowd fire emergency management adjusts dynamically in the process of implementation, but it often brings negative consequences because of the wrong behavior decisions. Indeed, different behavior decisions have corresponding consequences. As such,

it is necessary to formulate targeted strategies to ensure that each decision-making behavior group can avoid casualties in building fires.

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