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(57) Abstract :
A fire evacuation assistance system (100) integrates sensors (102), light-emitting diodes (LEDs) (104), and a processing unit (106) to enhance building safety during fire emergencies. The system (100) detects fire using the sensors and, upon identification, dynamically illuminates LEDs (104) along evacuation routes with pre-defined colors, ensuring clear and visible guidance. Additionally, the processing unit receives location data from a GPS device (110) equipped headgear (112) worn by individuals in the building, transmitting this information to authorized personnel for efficient rescue operations. In case of a fire area, the system (100) activates red illumination for heightened visibility. Green LEDs signify safe evacuation routes, while distinct blinking patterns at exit gates enhance visibility. A power supply unit ensures continuous functionality during power outages, and a communication module (122) facilitates seamless communication between the processing unit (106) and the GPS device (110), collectively establishing an intelligent and comprehensive fire evacuation solution.

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