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(57) Abstract :

The Gas Leakage Detection and Protection System is designed to enhance safety by detecting and managing hazardous gas leaks in residential and industrial environments. The system includes advanced gas sensors that continuously monitor for the presence of gases such as methane, propane, carbon monoxide, and hydrogen sulfide. Data from these sensors is analysed by a central control unit, which activates audible and visual alarms to alert occupants of potential leaks. In response to a detected leak, the system automatically engages shut-off valves to stop gas flow and activates ventilation systems to remove accumulated gas. Additionally, the system features a user interface for real-time monitoring and control, and it can be integrated with other building management systems for coordinated safety measures. This comprehensive approach ensures timely detection, effective response, and enhanced protection against gas-related hazards.

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