SMART FIRE ALARM SYSTEM: AN IOT IMPLEMENTATION FOR ENHANCED SAFETY AND MONITORING

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Abstract: This study explores the transformative possibilities of the Internet of Things (IoT) by introducing an innovative fire alarm system that redefines safety protocols and emergency response mechanisms through the synergistic integration of the Internet of Things (IoT), Enterprise Service Bus (ESB) infrastructure, and the MQTT protocol. Our proposed system seamlessly connects and coordinates smoke detectors, heat sensors, and alarms within the flexible ESB framework, leveraging MQTT for swift and reliable message transmission. In comparison to existing works, the distinctiveness of our approach lies in the comprehensive integration of these technologies. The ESB acts as a central orchestrator, ensuring seamless communication and data exchange among interconnected devices and APIs. This interaction, coupled with the rapid communication facilitated by MQTT, sets our system apart, guaranteeing a swift and coordinated response to potential fire incidents. The primary benefit achieved is an elevated level of safety and operational efficiency. The system's seamless integration ensures a cohesive approach to fire detection, providing timely alerts and facilitating efficient emergency management. Interconnected APIs through ESB is additional advantage which will connect more people and inform the incident widely. This study not only showcases the potential of interconnected technology but also establishes a paradigm for advancing safety standards and emergency response mechanisms.

Keywords: API, ESB, IoT, MQTT