



Real-Time Integrated Smart Building Monitoring System with Prioritized Alerts

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Submitted as one of the requirements to obtain

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ABSTRACT

Internet of Things (IoT) technology has made it possible to develop smart building monitoring systems with the ability to respond to security and environmental status in real time. The Real-Time Integrated Smart Building Monitoring System with Prioritized Alerts was developed with a specific focus on access security, object detection, IP management, and priority-based alarm notifications.

The author specifically worked on designing three main components. The first is IP management, which allows administrators to view, edit, and manage installed devices for better configuration settings and security. Next is the Discord notification webhook, which sends automatic notifications only for high and medium priority levels to avoid communication channel congestion and thus sends only one notification for the same object within a certain time interval. The third is CAPTCHA login as an additional security layer to prevent unauthorized access due to malicious bots or brute force attacks.

With a modular design concept and considerations for security and efficiency, this system can enhance reliability and responsiveness in real-time environmental monitoring of smart buildings.

Keywords: Smart Buildings, IP Management, CAPTCHA, Notifications, System Security, Real-Time Monitoring

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