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I

# Abstract

The Internet of Things (IoT) has revolutionized the way we monitor and manage environmental conditions, especially in temperature-sensitive domains like cold storage. This project proposes an IoT-based cold storage monitoring system designed to ensure the optimal preservation of perishable goods by continuously tracking temperature, humidity, and other critical parameters in real-time. The system integrates sensors with a microcontroller (e.g., Arduino or Raspberry Pi), which collects and transmits data to a cloud platform using Wi-Fi or cellular connectivity. A web-based dashboard or mobile application provides live updates, historical data, and alert notifications when any parameter breaches predefined thresholds. This real-time monitoring not only improves operational efficiency but also minimizes spoilage and ensures compliance with food safety standards. The system is scalable, cost-effective, and can be adapted to various industrial and agricultural cold storage applications By automating and digitizing the monitoring process, the system reduces human error, enhances reliability, and minimizes operational costs. Additionally, the modular and scalable design allows easy customization for different applications, from small commercial freezers to large industrial cold storage units. This solution represents a step toward smarter, safer, and more sustainable cold chain management, demonstrating the power of Internet ofThings in transforming traditional storage infrastructure into intelligent, data-driven systems.

Keywords: **Alert Notifications, Humidity Tracking, IoT Cold Storage,Real-time Monitoring, Remote Access, Spoilage Prevention**

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