Problem Statement:

Traditional shopping experiences often lack transparency regarding product freshness and quality, leading to consumer uncertainty and increased food waste. Current methods for detecting expiry dates and assessing product condition rely heavily on manual inspection, prone to errors and inefficiencies. Additionally, retailers struggle with inventory management and maintaining compliance with food safety regulations. These challenges underscore the need for an innovative solution that combines advanced technologies to provide accurate, real-time information to both consumers and retailers, thereby improving efficiency, reducing waste, and ensuring compliance with regulations.

Proposed Solution:

My innovation overcome this problem and I present the design of a freshguard trolley equipped with an array of sensors and image processing capabilities to detect product expiry dates and assess quality in real-time. By integrating technologies such as barcode scanners, RFID readers, temperature sensors, humidity sensors, gas (for spoilage detection), and image recognition algorithms, the system can provide shoppers with instant feedback on the freshness and condition of items placed in the trolley. By implementing data acquisition mechanisms to collect data from the sensors in real-time. This could involve microcontrollers or single-board computers like Raspberry Pi. Provide feedback to users regarding the products they've selected. This could be alerts for expired items or notifications about product quality issues. The user-friendly interface enhances the shopping experience, enabling consumers to make informed purchasing decisions while minimizing food waste. The smart trolley represents a novel solution for improving efficiency and convenience in retail environments, with potential benefits for both consumers and retailers alike.

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