



Department of Computer Science

Futuristic Refrigerator: Assignment #1

Dale Clements

Ross Esdale

Kyle Kravitch

Rachel Niederhoffer

Matthew Rucker

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Software Design Assignments

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Problem Statement

In commercial settings, such as back of house grocery store inventory, it is difficult to manage refrigerated content. A large number of factors, such as physical inventory counts, tracking spoilage information, timing of new order requests, and preparation of outgoing shipments, as well as the monitoring of temperature and humidity must all be performed manually. The optimization of product spoilage, as well as supply, demands the utmost priority. You are developing hardware additions to the most commonly used refrigerator model in back of house storage in supermarkets that will include RFID or PLU scanners as well as a manual input screen on the front of the door, a humidifier and gauge to detect the current humidity, and a network adaptor that will connect to a local database which contains information from every refrigerator in the specific supermarket. You will also be developing software that compiles all of this data, current items, humidity, temperature, and submits it to the database, as well as expiration reminders, inventory updates, modifications to current temperature and humidity, and an application that will be implemented for mobile devices, the manual input screen on each refrigerator, and desktop/laptop computers. The implementation must be intuitive to non-technologically savvy employees to reduce training time. The inventory manager or other privileged administrators will be able to make manual adjustments to temperature and humidity to the aforementioned applications as well as submit supply requests from the company product warehouse. If a product is to expire within a user or automatically defined timeframe or if supply submissions must be made, an alert will be sent to all associated devices. The project will be broken into hardware updates to the current refrigerator model, implementation of the DBMS, development of software for the individual refrigerator, and then development of applications for specified devices. This prototype will then be tested for bugs and end user satisfaction. Following prototype testing, beta testing will be performed in various supermarkets varying in demographic and foot traffic.