Introduction

In today’s retail market, change is the only constant. The current competitive retail companies are under fierce competition from new and emerging market trends and customer expectations. Retail store managers are in the forefront of this battle. They have to monitor and manage hundreds of daily operations in their stores and devise solutions to reach and exceed the company’s sales and profit targets. In other words, they constantly have to switch between micromanaging the daily operations and micromanaging the future directions.

The manager’s of big department stores sometimes have to go over 40 departments or more. These tasks usually take up to 50% of the manager’s time everyday before he can get back to his office to analyze sales data, communicate with the head office and plan for the future improvements. Therefore, some store managers have up to 5 assistants to help them with their duties on the store floor.

When I interviewed a few retail store managers, I notice most of them mentioned they always worry that they might have overlooked some issues such as mishandling merchandise shelf replenishment, displaying wrong prices especially when items are on sale and low quality of the perishable items due to improper storage conditions. In this project, I designed and prototyped a solution based on the Internet of Things that provides retail store managers with detailed and real-time insights on their store condition and operations. I created a persona to guide me through the design so

Story

As a retail store manager, a day at job always starts with walking around the store and to check the its condition in general and identify any issues that might hinders sales and stands in the way of delivering a great customer experience. As a part of these routine, the store managers usually hold morning meetings with sales associates and department supervisors to identify weak points and areas of improvement.

Let’s meet Mark . . .
Who we are designing for?

Mark Smart

Age 38
Occupation Retail store manager
Experience 3 yrs sales associate, 6 yrs supervisor
Location Toronto, Canada

Job Responsibilities:
- Look into day-to-day operations of the store
- Ensure store is in good condition and ready for customers
- Analyze sales numbers and review business metrics
- Manage store’s merchandising and stocking processes
- Monitor and maintain the store’s equipment, facilities and utility costs
- Train, mentor and develop sales associates and department supervisors

Goals:
- Ensure the store is ready for customers and customers’ needs are served properly
- Make sure the store’s sales meet the company’s sales and profit target
- Implement an effective inventory replenishment process and make sure merchandise has been ordered and placed on the shelves promptly
- Make sure merchandise are priced correctly and promotions are applied properly
- Create effective workflows and healthy work environment for staff

Needs:
- I need to know the current levels of inventory on shelves in real time
- I need to record and analyze merchandise sales and in-store customers behaviour to identify weak points and areas to improve
- I need to know if store’s facility and equipment are in good condition and when they require maintenance
- I need a way to monitor the quality and age of perishable items
- I need to maximize energy savings and minimize utility costs without compromising customer service the quality of staff’s work environment.

Paint Points:
- Low shelf inventory of items although the items are available in stock
- No way to effectively monitor the quality and age of perishable items in real time
- Associates and supervisors fail to report items that are low in inventory early enough and items become out-of-stock
- Overdue facility and equipment maintenance that leads to customer and staff disappointment
- Wrong price tags and inefficient process for displaying sales and promotional prices promptly
- No way to monitor and analyze sales and customers behaviour in real time

I spend about 50% of my day to walk around the store to make sure operations are running well. If I had a better way to monitor and analyze my store in real time, that would make my work much easier and efficient.
As a store manager, I want to have detailed, in-depth and real-time information about my store’s condition such as merchandise quality, shelf inventory levels and the condition of store’s equipments and facilities. I would like to have information that help me to find weak points and plan for future improvements.
After testing the wireframes with a few store managers, I created a prototype with SAP’s BUILD for an IoT solution that provides store managers with real-time and unique insights on their store’s condition and day-to-day operations. From a hardware point of view, this solution can be implemented by installing sensors, beacons, digital price displays and surveillance cameras. This prototype is created specifically for department stores but the solution can be extended for application in different types of retail stores. A live prototype can be found here:

https://standard.build.me/api/projects/d-dea9e5d03677e640cd25d9b/prototype/snapshot/latest/index.html#/14774139252918597_S0

The “Inventory” detail list shows a list of all merchandise with details including the inventory level of each item on shelf, their status and their location in store.
The “Alerts” tab on the inventory page informs the manager about any issue with merchandise such as expiring or old perishable items, improper storage conditions and out-of-stock items.

Product detail pages show in-depth information on an item. This section shows detailed real-time information from sensors about the condition and quality of an item in all one place.

The “Activity Map” in the “Security” page shows a heat map of the different locations of the store. This information is very valuable for the managers to help them analyze customers’ behaviour and plan effective merchandise layouts.

“Security” page shows the status of cameras and alarms. The “Alerts” tab on this page inform managers about any alerts that are triggered throughout the store’s security system.
Using the information from sensors that are installed on the store’s facility and equipment, the “Maintenance” section shows indepth information about the status of each equipment and displays alerts under the “Alerts” section if anything is broken or requires urgent maintenance.

By analyzing the sensors information and using predictive analytics the app will estimate the expected equipment maintenance dates and show this information under the “Upcoming” tab in the “Maintenance” section.

The “Energy” section is a dashboard that shows all sources of energy consumption. Managers can easily get an overview of the store’s power consumption and control each device from the comfort of their offices or on the go.
Thank you very much for taking the time to read this document. I hope you have enjoyed reading it as much as I enjoyed building this project.

Below is the link to the study that I created for this prototype to test the usability of the interface. I would greatly appreciate it if you take five minutes out of your busy schedule to participate in the study.

Study Link

https://standard.build.me/home/projects/d-dea9e5d03677e640cd25d9b/research/participant/dcc84830f5e0db00cd4134b