Introduction
It’s not a myth that running a food industry business is challenging and high-risk. Restaurants are generally highly competitive in terms of pricing, location, food quality and promotions. In addition, restaurants need to address ever-changing customer exceptions and demands. Today’s restaurant customers have higher standards than ever and are more concerned with diet, nutritions, food quality and sourcing. In order to compete in this environment and offer superb guest experiences, restaurants must constantly monitor their operations, control costs and expenses, and perfect even the smallest details. According to a popular and often quoted study, around 60 percent of new restaurants fail within the first year. And nearly 80 percent shutter before their fifth anniversary. Restaurant managers are at the forefront of the battle to keep their businesses afloat and profitable.

Story
Restaurant managers are responsible for running day-to-day operations of the restaurant and ensure that the food quality coming out of the kitchen is the best it can be. In general, there are three main goals that each food business manager tries to achieve; to run business profitably, keep costs and expenses undercontrol and ensure staff and customer safety.

To achieve these goals successfully, restaurant managers must constantly switch between micro-managing the daily operations and micro-managing the future directions. On one hand managers have to go through sales books and records, analyze metrics and plan future improvements. On the other hand, they need to recruit and mentor staff, monitor and order inventory and most importantly pay attention to details and make sure guests have the best possible dinning experience. Traditionally, restaurant managers rely on experienced staff and well-trained supervisors to handle daily and routine tasks such as checking kitchen equipment, monitoring inventory and ensure food safety in order to free up their time to focus on the business’s big picture. Thus, there is no surprise that hospitality and food industry business owners always complain about shortage in experienced labour.

The Internet of Things (IoT) can significantly change the way tasks are done in restaurants by providing managers with real-time insights about different aspect of their businesses. In better words, an IoT-based solution can eliminate the need to walk around every couple hours to check equipment and other areas. So, staff can focus on their job of serving customers and actually making money for the restaurant.
Persona

Alex Boss

Age 39
Occupation Regional restaurant manager
Experience 5 yrs restaurant supervisor, 4 yrs regional manager

I spend about 60% of my day travelling to the restaurants in my region and check details to make sure things are running well. If I had a better way to monitor and analyze the restaurants in real time, that would free up my time to better analyze metrics and improve our guest experiences.

Job Responsibilities:
- Look into day-to-day operations of the restaurants
- Ensure store is in good condition and ready to offer the best experience to customers
- Analyze business metrics and assess and improve profitability
- Plan menus, oversee stock levels and order supplies
- Monitor and maintain the store's equipment, facilities and utility costs
- Recruit, train and supervise staff. Liaise with customers, staff, suppliers, licensing authorities and sales representatives

Goals:
- Create the best dining experiences for guest
- Control costs and avoid unnecessary expenses to maximize profitability
- Ensure staff safety by training and educating them on policies and safety procedures
- Watch food quality and safety. Regularly travel to different locations to check kitchen equipment and food preparation hygiene and resolve problems
- Closely monitor restaurants conditions and plan for future improvements

Needs:
- I need to know about issues such as kitchen equipment failure or customer complains quickly
- I need to constantly monitor stock levels and reorder items before they run out of stock
- I need to know if restaurants’ facility and equipment are in good condition and make sure they get serviced before they break down
- I need to analyze orders to identify and fix underperforming menu items
- I need to maximize savings and minimize costs and unnecessary expenses without compromising guest experience the quality of food

Paint Points:
- Ingredients run out of stock on a busy day and restaurant losing a lot of possible profit
- No way to effectively monitor the food quality and hygiene of food preparation process
- Overdue facility and equipment maintenance that leads to inconsistent food experiences or staff safety hazards
- Losing money on food waste because of improper storage conditions or bad inventory management
- Having to travel a lot and walk around restaurants to check details and log problems

Tech savvy Casual user
Work in team Lone fighter
Global focus Local focus
Innovative Conservative
Extrovert Introvert
<table>
<thead>
<tr>
<th>ACTIONS</th>
<th>MINDSET</th>
<th>FEELING</th>
<th>TOUCH POINTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>◇ Alex starts his day with going through his emails and texts to see if there are any issues that need to be handled quickly</td>
<td>◇ I hope noting serious has happened</td>
<td>◇ I hope everything goes smoothly</td>
<td>◇ Email and his cell phone</td>
</tr>
<tr>
<td>◇ Then he contacts restaurant supervisors for updates</td>
<td>◇ I wish there was an easier way too check everything</td>
<td>◇ I don't know if their suggestions will improve the performance and sales</td>
<td>◇ Restaurant supervisors</td>
</tr>
<tr>
<td>◇ He calls the supervisor of one the restaurants that to discuss a customer complain</td>
<td>◇ Why the staff didn't let me know about the problem earlier?</td>
<td>◇ Ah, I hope I can find the issue today. The company wants to know what's going on</td>
<td>◇ Service centre</td>
</tr>
<tr>
<td>◇ He leaves office and go to one of the locations that has been underperforming recently</td>
<td>◇ The supervisor says the place is running well but why sales has dropped?</td>
<td>◇ The supervisor says the place is running well but why sales has dropped?</td>
<td>◇ Restaurant supervisor</td>
</tr>
<tr>
<td>◇ He calls a service centre to schedule service for a broken beverage dispenser</td>
<td>◇ I hope the service centre has have spare parts in stock</td>
<td>◇ I hope the service centre has have spare parts in stock</td>
<td>◇ Service centre</td>
</tr>
<tr>
<td>◇ He leaves office and go to one of the locations that has been underperforming recently</td>
<td>◇ Why the staff didn't let me know about the problem earlier?</td>
<td>◇ Ah, I hope I can find the issue today. The company wants to know what's going on</td>
<td>◇ Staff</td>
</tr>
<tr>
<td>◇ He goes to another nearby location to plan layout redesign of the dinning area</td>
<td>◇ The supervisor says the place is running well but why sales has dropped?</td>
<td>◇ I hope the service centre has have spare parts in stock</td>
<td>◇ Staff</td>
</tr>
<tr>
<td>◇ He discusses redesign goals with the interior designer and the location's supervisor</td>
<td>◇ Why the staff didn't let me know about the problem earlier?</td>
<td>◇ Ah, I hope I can find the issue today. The company wants to know what's going on</td>
<td>◇ Interior designer</td>
</tr>
<tr>
<td>◇ He finishes his morning audit gets back to office to analyze sales and numbers</td>
<td>◇ Finally I'm back to get some serious job done!</td>
<td>◇ Why are we wasting a lot of food? What is wrong?</td>
<td>◇ Office</td>
</tr>
<tr>
<td>◇ He finds out the cost of food waste has increased a lot last month in his restaurants</td>
<td>◇ Finally I'm back to get some serious job done!</td>
<td>◇ Why are we wasting a lot of food? What is wrong?</td>
<td>◇ Office</td>
</tr>
</tbody>
</table>

**Point of View:**
As a restaurant manager, I want to have detailed, in-depth and real-time information about restaurants in my region so that I can identify problems before they get out of control and impact profitability and guest satisfaction significantly.
I created a prototype with SAP’s BUILD for an IoT solution that provides restaurant managers with real-time and unique insights on their restaurant’s condition and day-to-day operations. A live prototype can be found here: 

https://standard.build.me/prototype-editors/api/public/v1/snapshots/73ba68fc31f4e970e1afa0d/artifacts/latest/index.html#/launch_page

User will see the “Launch” page when he opens the app. On this page he can search restaurants in his region and see brief updates about the each location condition and any notifications or warnings.
The “Restaurant Home” page is a central dashboard that provides general information about the location such as supervisor and staff name and contact info. It’s also the central hub to access other pages of the app.

The “Kitchen” page provides information about the restaurant kitchen. It lists all kitchen’s equipments and shows live and quick updates on their current condition.

 Equipments’ pages provide information about the equipment condition. At the top, some metrics about the current status of the equipment are shown. Further down the page, collected data from sensors and key metrics are visualized.
The “Front of the House (FOH)” page provides managers with information about the dining area. This section shows a detailed visualization of customers’ seating preferences based on analyzing footages from security cameras. This gives unique and valuable insights about customers' behaviour and likings.

The “Activity Map” section of the “FOH” page shows heatmaps of different areas of the dining room. Managers can use these visualizations to plan restaurant’s layout based on customers’ preferences.

The “Storage” section provides information about the status and condition of restaurant’s cold storage room. It also provides information about inventory and notify managers about any issues such as required maintenance or out of stock items.
Managers can monitor inventory using the “Inventory” tab on the “Storage” page. It shows list of items in inventory that managers can search through and gives information about the condition of the item as well as its stock level. The “Alerts” tab with show notifications when an item is out of stock or deteriorating.

The “Restroom” page show information about the condition and cleanliness of the restrooms. It also visualizes bathroom accesses so staff can identify issues without having to go to the bathrooms to check them.

Managers and supervisors can also access kitchen equipment documents under the “Documents” tab on the equipment’s page. This section lists documents such as installation instructions, manuals and care instructions.