Vision Document

Customer Queuing System

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Table of Contents

1. Introduction

1.1 Purpose

This document outlines the vision for the Customer Queuing System (CQS). This document aims to:

- Identify problem of inefficiency within stores
- Demonstrate value of solving inefficiency problem
- Propose a new way to improve the current shopping experience with a new development
- Identify stakeholders and users
- Identify product information and key features
- Identify constraints of the proposed solution
- Detail product requirements involved

1.2 Scope

This vision document applies to the CQS, developed by John Steltzner and Colton Judy. The CQS software will provide a way for stores to have a more efficient and organized way of checking out. The CQS software will be run on Windows via a terminal within the store. The software will also be able to provide checkout suggestions and customer checkout information to the store.

1.3 Definitions, Acronyms, and Abbreviations

- CQS - Customer Queuing System
- POS - Point of Service
- Windows - The Microsoft operating system that will run on kiosks implementing the CQS.
- SCO - Self-Checkout
- FEC - Front-End Coordinator

2.Positioning

2.1 Business Opportunity

Maximizing profit for the store through increasing the speed of which customers are checked out during business hours alongside creating a faster and more organized checking out process for customers are the business opportunities seizable with this project.

2.2 Problem Statement

Busy lines in stores can be off putting and unappealing to customers, making the trip to the store a frustrating experience when trying to checkout. The problem of inefficiency checkout process affects not only the individual store, but also that store's organization. The impact of this problem leads to decreased profits and a worse overall image among the public eye. A

successful solution would be to implement a system that organizes the process, directs customers to a POS that serves their needs, and fixes the inefficiency problem.

3. Stakeholder and User Descriptions

3.2 Stakeholder Summary

Name	Project Role	Responsibilities
John Steltzner	Software Engineer	Requirements Specification Project Development User Interface Development
Colton Judy	Software Engineer	Requirements Specification Project Development Backend System Development
Retailer	Client	Requirements Specification Project Review and Validation

3.3 User Summary

Name	Role	Description of Use
Retailer	CQS Deployment	● The retailer will be responsible for ensuring the deployment of the CQS throughout all store locations.
Store Management	CQS Setup	● Store managers will be able to quickly start and set up the CQS. ● Store managers will be able to customize and tailor the CQS experience with the logo and information of their brand and store location.
Customers	CQS Kiosk Use	● Customers will be able to quickly and easily utilize the CQS interface in order to choose the desired checkout experience with maximum efficiency.

Store Employees	CQS Employee Use	• Store employees will be able to quickly serve the next customer without any unnecessary delays.

4. Product Overview

4.1 Product Perspective

Many stores do not have any queuing system in place. Usually one or more people, like SCOs attendant or FECs, have to direct traffic to a POS. One of the only queuing systems on the market is QueVision that sees use by primarily Kroger, however not only is the system not accurate nor working all the time, but the system can go unacknowledged by customers. Our software would put the customer into focus as they answer questions based on their checkout needs, and the customer would be acknowledged by our system with the fastest checkout POS. No SCOs attendants or FECs would be needed to direct traffic as all of this would be taken care of by the CQS.

4.2 Summary of Capabilities

- Software will take input of customer
- Determine best suited POS to go to
- Direct to POS
- Collect statuses of POSs
- Make recommendation to store associates on if POSs need to be opened
- Display data of what checkout options were picked throughout shift

4.3 Assumptions and Dependencies

- Customers will respond well to a new system
- Connections to self-checkout and POS
- Kiosks built and able to run Windows
- The kiosk will not run throughout the entire day, primary focus is the middle of the day with rushes and high customer activity (exceptions are holidays)

5. Product Features

1. Ability for the user to select self checkout or standard checkout
2. Ability to choose more or less than 15 items for express checkout eligibility
3. Ability to choose cash or card
4. Automatic queuing system
5. Detection for when a customer finishes checking out triggered by finishing purchase alongside multiple purchase prompt at POSs
6. Detection for whenever an employee opens or closes an aisle
7. Identification of the statuses of POSs: Open, Closed, Delayed
8. Recommendation to open up POS if queues are full

9. Setup-wizard-like application that allows store managers to set up the program with a custom png or jpg logo, as well as determine the amount of registers, their types, and whether they are cash/card only
10. Testing simulation that simulates the queuing system in real time.
11. Return of checkout data daily upon closing of the kiosk

6. Constraints

6.1 Design and Development Constraints

The CQS will be developed using languages, frameworks and tools that support the efficient development process of a high-quality, customer-oriented product, including but not limited to the following:

- .NET WPF Framework
- C#
- JSON

6.2 Hardware Constraints

The CQS system is developed solely with support for systems running Windows 10 and above, in order to allow the development of the CQS to be done in a quick and timely manner.

9. Other Product Requirements

The CQS will utilize WPF libraries for interaction with customers to supply the system with customer input. WPF libraries will supplement the needed graphical user interface to be implemented within the CQS.

Kiosk capable of running Windows 10 or above will need to be implemented within store locations. Execution of the CQS software will run through the kiosk terminals.