MET CS682

System Architecture

Assignment 5

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Contents

Table of Contents Figures

Application Aspects of WatchADeal

Abstract

This assignment focus on the presentation of the key requirement aspects of the wearable smart watch app and accompanying mobile app that called WatchADeal application, which allows customers where they simply walk in to Big Mart store, pick out what they want, and walk out without having to stop and “check out” with a cashier, or automated check station.

Assumptions

The following assumption will apply to the various elements presented in this assignment:

- BigMart is a brick-and-mortar physical store
- The store features 'Just Walk Out' technology and works with WatchADeal app
- WatchADeal application was develop for wearable Apple or Samsung smart watch, Android or iOS smartphone and tablet or iPad
- User will be able to download and install that application on their wearable smart watch, smart phone or tablet / iPad.
- Customer can just walk in to BigMart, grab items, and leave that means there's no need to wait in line or even check-out at register
- To get started with WatchADeal, customer need to create an account
- That is assuming everyone in the store has a smart watch, mobile device or tablet / iPad on their person, which means customers might not want to bring their kids to this store.
- WatchAdDeal will be able to generate the list of potentially matching items down to a small list to advice customer based on chosen item.
- If customers change their mind about chosen item, just put it, back. WatchADeal will update their virtual cart automatically.
- Customer will be notified of deals, location-based advice, price comparisons and similar item

1. Common Design Goals:

I would like to provide a set of packages for WatchADeal application and priotrize

2. Class Model:

3. Physical Data Flow Diagram:

4. Networking Data Flow Diagram:

5. Appendix

1. Overview

The WatchADeal application by joining to store features 'Just Walk Out' technology provides a Non-stop shopping experience. Customer with wearable smart watch (Apple Watch, Samsung Gear, etc.) or latest version of Android / iOS smartphone or even tablet / iPad can simply walk in, pick out what they want and even sometimes put items back on the shelf and walk out when customers exit the store through a transition area, automatically charge a fee for the items.

2. Functional Requirements

The WatchADeal app shall work with store features 'Just Walk Out' technology (Bishop, 2016)

- The WatchADeal app shall track user's location so that the user will notify of deals, location-based advice, price comparisons and similar item suggestions depending on where they are in the store.
- The WatchADeal app shall detect when items are taken or returned to the shelves and keeps track of them in customer virtual cart
- The WatchADeal app shall be able to provide search tool in order to finding exact place of item based on:
    - Item category
    - Item name
    - Voice request
- The WatchADeal app shall be able to provide search tool based on name of item

- The WatchADeal app shall generate the list of potentially matching items down to a small list to advice customer based on chosen item
- The WatchADeal app shall be able to vocal communication with customers to assist them in determining the identity of items placed in inventory locations for picking up items.
- The WatchADeal app shall display buying alternatives that include merchandise in stock, reviews and similar items bought by others.
- The WatchADeal app shall alarm and notified to Inventory Manager system, when inventory amount are less than required level
- The WatchADeal app shall alarm and notified to Inventory Manager system, when items are not proper placed on inventory location
- The WatchADeal app will be able to offer items with discount, based on customer purchase history
- When customers exit the store through a transition area, the WatchADeal app shall sense that they're leaving, add up the items and charge their account

3. Use Cases

Use case Name	Grab items, and leave	
Actor:	Shopper	
Description:	WatchADeal application, allows customers where they simply walk in to Big Mart store, pick out what they want, and walk out without having to stop and "check out" with a cashier, or automated check station.	
Precondition:	Customer need an BigMart account to get started with WatchADeal app	
Step #	**Actor**	**System**
1	1. Open the WatchADeal app on his/her smart watch or smartphones	2. Displays the main GUI with the qr code on the screen
2	3 Holding screen to a scanning device	4. Identifies user and notifies to customer to begin shopping
3	5. Entering the store and began shopping	
4	6. Picked up item from the shelve	7. Identifies on an item identifier list associated with the customer and added to his/her virtual cart

5		8. Display buying alternatives that include merchandise in stock, reviews and similar items bought by others.
6	9. Change his/her mind and put item back on the shelve	10. Identifies on an item back and update his/her virtual cart
7	11. Exit the store through a transition area	12. Sense that customer is leaving, add up the items and charge his/her account
8		13. Displays items bought with price and total price plus tax in the GUI for confirmation
9	14. Clicks the button for confirmation the shop	
10		15. Displays "Thanks for your shopping"
11		16. Display the main GUI
12	17. Close the app	
Alternate Courses:	**(Alt 1 Step 1)** clicks on Help icon	**(Alt 1 Step 2)** displays Help page with instructions.
	(Alt 2 Step 1) clicks on Previous arrow	**(Alt 2 Step 2)** brings Previous Page
	(Alt 3 Step 1) clicks on my list icon	**(Alt 3 Step 2)** displays what customer s bought after they have left
Implementation Constraints:	WatchADeal functional areas shall be no more than five clicks away from the main page.	

Use case Name	Search place of item by Voice Request	
Actor:	Shopper	
Description:	WatchADeal application assist customer in determining the identity of items placed in inventory locations for picking up items.	
Precondition:		
Step #	**Actor**	**System**
1		1.Displays the main GUI
2	2. Click "Advice Shopping" button	3.Displays three icons:

		-looking by items - Enter the name of item -Voice request
3	4. Clicks the “Voice Request” button	5. Display Voice recording GUI
4	6. Asks about location of specific item	7. Repeats name of your item for confirmation
5	8. Confirm that by saying “yes”	9. Display the exact location of the item in the store with voice response
6	10. Clicks “Done” button	11. Displays message “Is there anything else?”
7	12. Clicks “No” button	13. Displays the main GUI
Alternate Courses:	**(Alt 1 Step 1)** clicks on Looking by name radio button	**(Alt 1 Step 2)** displays prompt of get item’s name page
	(Alt 2 Step 1) clicks on Home icon	**(Alt 2 Step 2)** brings Home Page
Implementation Constraints:	Search results should not take more than one second.	

4. Sequence Diagram

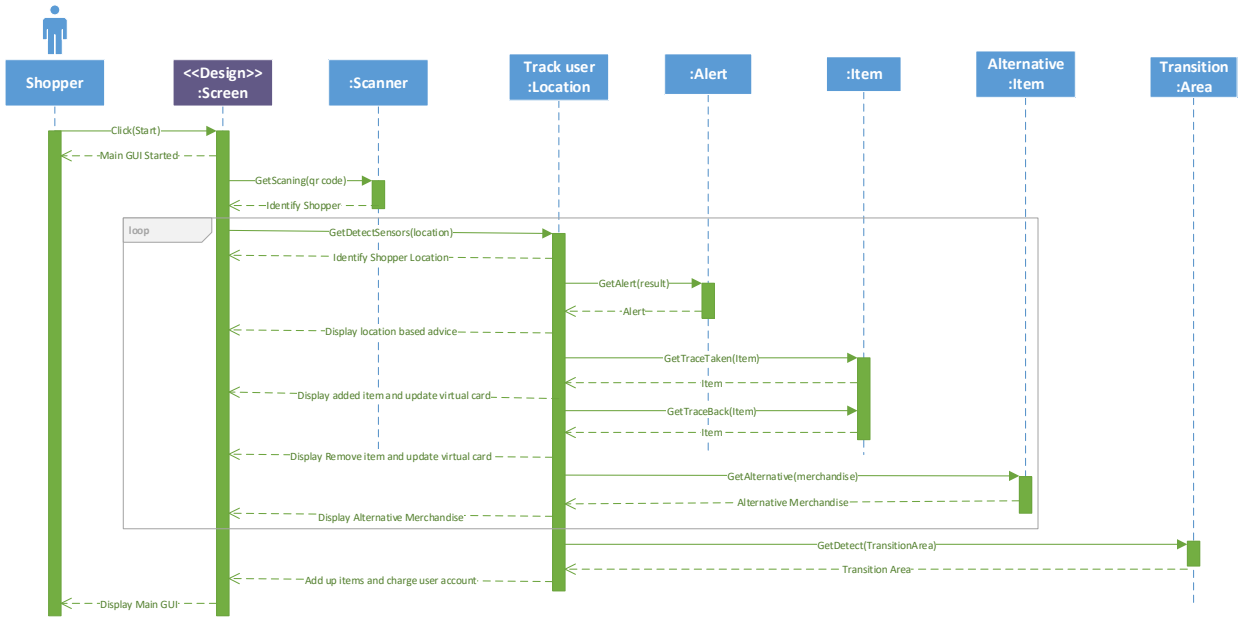

Fig 1: Sequence Diagram for Grab items, and leaves Use Case

Note: As a mention in diagram Shoppers opening the app on their device, then holding it to a scanning device, and entering the store. Shoppers then put away their device and began shopping. Track User Location is machine vision in-store sensors and cameras to track user's location so that the user will notify of deals, location-based advice, price comparisons and similar item suggestions depending on where they are in the store. When Shopper Picked up item from the shelve, system identifies on an item identifier list associated with the customer and added to his/her virtual cart and alert buying alternatives that include merchandise in stock, reviews and similar items bought by others. Finally, when Shopper Exit the store through a transition area, system sense that customer is leaving, add up the items and charge his/her account. (Bishop, 2016)

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