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Implementation of an Efficient Shopping Technique with Automatic Billing Through-CAST

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Abstract: In the modern technological era, time is an important factor to be considered for optimization. Shopping plays a vital role in day-to-day life. It is Time consuming for the purchase and billing the products in particular. Context aware shopping trolley (CAST) is the technique followed to minimize the purchasing time in a systematic way. But it consumes more time for billing. So, the newly proposed method is to make the billing automatic the help of net banking service provided for both the customer and supermarket. And also the features of CAST were enhanced in a futuristic approach. The same is implemented where it can be installed as a set top box which could provide the fullest service to the larger malls. Efficiency of the CAST is increased and optimization is done on reduced workmanship, reduced power, and reduced space instead of having more number of billing counters and facilitators. The customer and the mall owner are the beneficiary with the above said approach.

Keywords: Billing, CAST, Workmanship, Malls

I. INTRODUCTION

A large form of the traditional grocery store, is a self-service shop offering a wide variety of food and household products is the supermarket and Shopping nowadays is one among the fundamental activities, as almost everyone shops on a regular and frequent basis. As every issue has its pros and cons, the issue with the grocery shopping is the complexity with a diverse factor like planning the mental and written shopping list, time and budget constraints, advertisements and the behaviour of other customers while we shop. To reduce the stress and the complexity with the shopping activity we inculcate the concept of Context aware computing. It thereby does assist in supporting dynamic adaptation of plans during the shopping activity. Schilit and Theimer explain context-awareness as the ability of an application to discover and react to changes in the environment. In this paper an interactive mobile grocery assistant that focuses on supporting customers during all stages of the shopping process is presented.

Recent survey stated that the shoppers often find it difficult in locating the products and because of U-Shaped route through the store, the shoppers expressed disregard for getting back the route. An empirical evaluation shows that shoppers using CAST adapted in different shopping behaviour than traditional trolley shoppers by exhibiting a more uniform behaviour in terms of product sequence collection and ease of finding products and thus, CAST supports the shopping experience.

II. FINDINGS

A. *Complexity of the System*

Complexity seems to be jam-packed in the surroundings. Tracking down the products as the shopper's went in search of among the comprehensively brightly colored products that compete with each other at the shelves is tedious

B. *Shopping with a trolley- A multitasking activity*

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C. Product Identification

Shoppers fail to notice the products the inclination is that the shopper regret to notice other products with immediacy. Though the product which are present at the shopping list may miscue while they pass through the shelves because they focus on other product.

D. Back off cause's frustration

The presence of U-Shaped route make the shopper's to feel an awkwardness both psychologically and physically as they have to back pedal the substantial distance.

E. Product groupings

Shopping list order should reflect product groupings.

Regardless the shopping activity, Aggregation of products in the shopping list is tiresome.

F. Visual recognition

Visually identifying the products might be tedious. The exertion is when the wrapping of the product changes, the shopper gets thwarting henceforth visual acknowledgement of product is more important than any other factor.

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III. PROPOSED METHOD

Traditional shopping trolley shoppers very often asked for help either to locate the object or to get its descriptive information. The shoppers will tend to buy things which appears to be in close proximity than to the object they thought to buy which is an effect of myriad of conditions. This proposed method is efficiently implemented through CAST (Context-Aware Shopping Trolley) system to overcome the problems stated above.

CAST's graphical user interface consists of a 7" TFT touch screen in the 16:9 screen format divided into two sections; the shopping list and the map. The touch screen is mounted on a regular shopping trolley. It acquires user attention by a sound notification.

IV. ARCHITECTURE EXPLANTION

The main application logic resides on a remote server that is also responsible for storing all user data. In addition, the server hosts a product database, anonymized shopping basket data and association rules that are used to make recommendations. Storing all user data on the remote server makes it possible to share shopping lists and to access the same shopping list both on PCs and on mobile devices. We have implemented two versions of the Massive Client. The first client is web-based and can be accessed using the web browser on a mobile device or a PC, whereas the second is a native application that runs on Nokia N900 devices.

The Nokia N900 as elected, among other reasons, because of its physical keyboard, Linux-based operating system and high quality camera. All communications between the client and the server take place over HTTP. To minimize latency, Our current development focuses on the native version as it makes it possible to integrate more advanced features, such as positioning or the use of the mobile phone's camera, into the client.

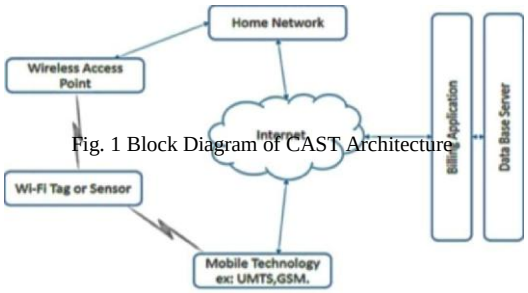

Fig. 1 Block Diagram of CAST Architecture

A. Task

The user task is to prepare a shopping list. The inclusion of the shopping list in CAST gives a direct representation of the task.

B. Location

CAST provides location information in several dimensions namely between the relations between products.

C. Objects

CAST supports the shopper's interaction with objects in his/her context in multiple ways

- Location of objects
- Visual appearance of objects
- Existence of relations between objects
- Descriptive information about objects

D. People

CAST's design incorporates support of the supermarket's social context through its dynamically ordered shopping list.

F. RFID

The issue with identifying the object will be overwhelmed by using RFID (radio-frequency identification system) uses tags, or labels attached to the objects. It is mainly used for checkout free.

G. PDA

Personal digital Assistant is mobile device that has an electronic visual display and it can be connected to internet. It can function as a personal information manager. It is integrated with the trolley to display the shopping list.

V. ARCHITECTURE EXPLANTION

To find the locality of each and every product present in the store and the spatial distance between objects and the trolley, trolleys and shelves, objects and shelves.

Fig. 2 Touch Screen Representation

VI. FEATURES OF THE SYSTEM

Overall importance of different features. The features have been ranked according to the mean rating given to a feature. The table have been grouped together features with a similar rating into three groups.

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A. *Performance*

In spite of the sizable difference between the groups in distance travelled, there was no significant difference in the time taken for each group to collect all the items on the list.

Our data indicates that the CaST users found it significantly easier to find products easier than the group using traditional tools. This finding is supported data showing shoppers using the trolley and paper list asked for assistance 33 times, while only once did a CaST user need help finding a product

TABLE I

Sl. No	Features	Mean
1	Product price	5.73
2	Special offers	5.73
3	Price comparison of similar products within store	5.73
4	Creating a shopping list	4.39
5	Automatic checkout	4.39
6	Product information (e.g., ingredients or manufacturer)	4.39
7	Locating a product with aisle-level accuracy	4.39
8	Automatically organizing the shopping list according to product location	3.86
9	Map of the store	3.86
10	Providing a route though the shop based on the shopping list	3.86
11	Manually arranging the shopping list	3.86

VII. RESULTS

In traditional method shoppers moved their trolley with an average of more than 100 meters than those using the CAST system. From this we can efficiently conclude that the CAST system performed well than the traditional method. In traditional method shoppers used to back off in search of their products but here these efforts are reduced in CAST.

VII. CONCLUSION

Shopping in real world involves multi-tasking with high degree of complexity though it cannot be vanquished from day-to-day activities. In the proposed method, CAST achieves user attention by ensuring ease of shopping activity. This system in turn reduces the mental workload of the shopper.

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Biography

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