

A REVIEW: SMART SHOPPING AND INDOOR NAVIGATION

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Abstract: This paper presents a novel method of collaborating ease in online shopping and for security purpose as well as money wise for customer satisfaction. This is implemented using an Android application. Earlier the customer needs to physically pick up his purchase, carry cash, credit/debit cards along with them and wait in the long queue to make payments. In this application using smart phone we would read the barcode(s) of the product(s) & add it to the shopping cart (bag). We feel that this can be changed, and our idea is introduce a method that automate the checkout process by enabling automatic payment system, striving towards a new-age digital shopping experience. We propose to do this by using a smart phone application that allows the user to scan the products he or she wishes to purchase and can generate the bill by himself, make the payment as quickly as possible and can leave the store early. This application will helps us to avoid long queues and provide a hassle free checkout and not only reduce the amount of waiting time but it will also reduce or eliminate the need for a cashier.

Index Terms - Indoor and Outdoor Detection, Smart Shopping, QR Code.

I. INTRODUCTION

Manual Shopping is the traditional way of shopping where the customers choose their wished product and carry the products along with them. Traditional shopping is a tedious and time consuming job. In traditional shopping, the customer has to wait in long queues at the cash counter. This consumes lot of time and energy of both the shopper as well as cashier. To overcome this law, the customer himself can scan the barcode using his mobile while making purchase, retrieve essential details of all products from shops database and generate bill himself. This bill can be sent to the customer's mobile through online banking service thus the user can make quick payment and leave the shop early. The Barcode of the product is scanned by the customer and move to the wish list if they are interested in choice of item by using the proposed mobile application. In order to develop an Android Application that uses a barcode scanner for the purchasing and navigation of items for store that will be self-checking and automatic payment transaction. Here comes the term indoor navigation and barcode scanning. Indoor positioning is still a challenging problem because satellite-based approach do not work properly inside buildings. Navigation is used to find the desired product that makes feasible for customer to purchase the product quickly and can leave the shop as early as possible.

II. LITERATURE REVIEW

1.Paper name: Travi-Navi: Self-Deployable Indoor Navigation System

Author: Yuanqing Zheng, Liqun Li, Chunshui Zhao.

We present Travi-Navi—a vision-guided navigation system that enables a self-motivated user to easily bootstrap and deploy indoor navigation services, without comprehensive indoor localization systems or even the availability of floor maps. Travi-Navi records high-quality images during the course of a guider's walk on the navigation paths, collects a rich set of sensor readings, and packs them into a navigation trace. The followers track the navigation trace, get prompt visual instructions and image tips, and receive alerts when they deviate from the correct paths. Travi-Navi also finds shortcuts whenever possible. In this paper, we describe the key techniques to solve several practical challenges, including robust tracking, shortcut identification, and high-quality image capture while walking. We implement Travi-Navi and conduct extensive experiments. The evaluation results show that Travi-Navi can track and navigate users with timely instructions, typically within a four-step offset, and detect deviation events within nine steps. We also characterize the power consumption of Travi-Navi on various mobile phones.

2.Paper name: Electronic Shopping Using Barcode Scanner

Author: Suk-Hoon Jung; Gunwoo Lee; Dongsoo Han.

The advent of wireless technology along with other communication techniques has helped in making electronic commerce very popular. A modern forward looking product is the one that aids the comfort, convenience and efficiency in everyday life. In this paper, we discuss an innovative concept of 'ELECTRONIC SHOPPING'. The key idea here is to assist a person in everyday shopping in terms of reduced time spent while purchasing a product. The main goal is to provide a technology oriented, low-cost, easily scalable, and rugged system for aiding shopping in person. Electronic Shopping is equipped with Barcode Scanner for product identification and a consistent Wi-Fi connection with the shop's server. Besides, it also has an LCD display that informs customers about product prices, discounts, offers and the total bill. The barcode reader identifies the product and updates the bill. When the customer is done with shopping, he can just press the End shopping button and the details are sent to the shop's server and the customer has to pay just the amount and leave.

3. Paper name: Interactive android-based indoor parking lot vehicle locator using QR-code**Author:** Siti Fatimah Abdul Razak; Choon Lin Liew; Chin Poo Lee; Kian Ming Lim.

QR code has been applied in many ways from marketing products, locating promotional items on shelves, finding stores and etc. In this study, we report on an android based application development aimed to provide navigation services to locate parked vehicles in an indoor parking space of shopping malls. We utilize the motion sensor, bar code scanner function and camera function built in smartphones. This application is able to show the route from user current location to his parked vehicle based on an indoor map of the parking area stored in a database. In addition, it is also able to automatically detect user's current movement based on steps calculation. A field test was conducted in a shopping mall indoor parking space to evaluate the performance of the application. In general, the application has shown promising results.

4. Paper name: Smart Shopping using QR codes for Bill Calculation and RFID system**Author:** Da Su; Zhenhui Situ; Ivan Wang-Hei Ho.

Most of us have spent what seemed like forever in a retail store, waiting for the person in front of us in the queue to bill a large number of items, when we just needed a loaf of bread or a single shirt. Long lines at the cashier counters can cause people to wait for a significant amount of time, before they can pay for their products, and leave, regardless of the number of items being purchased. We feel that this can be changed, and our idea is to automate the check-out process, enabling automatic payment, striving towards a new-age digital shopping experience. We propose to do this by using a smart phone application that allows the user to scan the products he or she wishes to purchase, generate the bill for all the products scanned, make the payment and simply walk out of the store.

5. Paper name: Concept for building a MEMS based indoor localization system**Author:** Thomas Willemsen; Friedrich Keller; Harald Sternberg

Global Navigation Satellite Systems (GNSS)-based navigation with smartphones is very popular. But in areas where no GNSS signal is found navigation could be useful. Examples are navigation in shopping malls, in big offices, in train stations or museums. The goal is to estimate the position in GNSS shaded areas to make navigation possible. The MEMS sensors (Micro Electro Mechanical System) installed in current smartphones, such as accelerometer, gyroscope, magnetic field sensor and barometer allow now navigation also in GNSS shadowed areas. Due to the low quality of these sensors, however, support of the position estimate is needed. In this work, a concept is presented for the construction of an indoor navigation system based on low-cost sensors of smartphones. The position estimate from the available sensor data forms the basis of the position determination. So position estimation is always possible independent of location.

III. PROPOSED SYSTEM

Earlier, in manual shopping we use to visit malls and purchase our products along with us, it is quiet time consuming and we need to wait in long queues for paying bills. Now, The customer himself can scan the barcode using his mobile while making purchase, retrieve essential details of all products from shop database and generate bill himself. This bill can be sent to the customer's mobile by using shop database. By using E-wallet, user can quickly pay and leave the shop early. The Barcode of the product is scanned by the customer and move to the wish list if they are interested in choice of item by using the proposed mobile application.

ADVANTAGES OF PROPOSED SYSTEM:

- Propose system reduce the user shopping time
- Provide the navigation to user for better experience of shopping
- Barcode help to identify product uniquely.
- Users can explore more products.

IV. SYSTEM ARCHITECTURE



Fig.: System Architecture

V. CONCLUSION AND FUTURE WORK

In a step aimed at promoting shopping methods and make people life easier; we are going to build this mobile application that could play an important role in Indian society as a whole. The usage of Pocket PC mall navigator as a shopping mall navigator, in addition to helping the users to find shops efficiently and effectively, using this smart shopping method we will be able to create awareness using smart phone devices for flexibility.

Future scope

In future our application could utilize into real time mall for navigation. In future we will scan products using barcode and pay bill using e-wallet.

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