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POCKET MALL NAVIGATOR: Bridging Digital and Traditional Shopping Experience

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Abstract *— Big shopping malls usually provide a directory to their available shops, but these directories are most of the time static and do not provide any interactivity features to the visitors. Propose system present a mobile shopping mall navigation system. The main reason behind our conceptual idea of our proposed project is because we feel that when visitors often change their plan to go to other shops instead of the ones in their minds, it can be full of effort especially considering the crowded levels and location of the navigation material. The application developed is practical and feasible; Smart phones have become very popular these days, so propose system have combined the idea. Smart phone application helping you in an alienated mall. The idea revolves around our smart phones & the "WI-FI" provided by the mall. An application that needs real-time, fast, & reliable data processing. [2]*

Keywords- *Indoor and Outdoor Detection, Mobile Phones, GPS Availability*

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 QRcode 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 QRcode 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 QRcode 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 QRcode scanning. Indoor positioning is still a challenging problem because satellite-based approach do not work properly inside buildings. [4]QRcodes are ubiquitously used to identify products, goods or deliveries. Devices to read QRcodes are all around, in the form of pen type readers, laser scanners, or LED scanners. Camera-based readers, as a new kind of barcode reader, have recently gained much attention. The interest in camera-based QRcode recognition is built on the fact that numerous mobile devices are already in use, which provide the capability to take images of a fair quality. This describes the hardware system architecture for implementing the QRcode reading system in mobile phones and its process. The camera device and application processors are necessary hardware components for the system. The application processors is needed to implement the camera interface, LCD controllers , DSP for image processing, and application host in CPU for real-time computations. The application processor works for displaying the menu and preview of the display and computing of code recognition and decoding in real-time. With these systems, the user can control the position of the camera of smartphone and decides the capture timing of QRcode. [8]

II.EXISTING SYSTEM

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.

III.LITERATURE SURVEY

According to literature survey after studying different IEEE paper, collected some related papers and documents some of the point discussed here:

1. Accurate and reliable real-time indoor positioning on commercial smartphones [1]
Author: Gennady Berkovich

This paper outlines the software system navigation engine that was developed by SPIRIT Navigation for indoor positioning on industrial smartphones. a particular feature of our approach is coinciding use of multiple technologies for indoor positioning. Measurements from such smartphone sensors as foreign terrorist organization (3D measuring device, gyroscope), a field of force device (magnetometer), and wireless local area network and BLE modules, alongside the ground premises arrange area unit used for hybrid indoor positioning within the navigation engine. Indoor navigation software system uses such technologies as PDR, Wi-Fi process, geomagnetic process, and map matching. Being emulsified within the particle filter, dissimilar measurements enable finding a group of principal tasks. First, the navigation engine will mechanically begin in anyplace of a building where user switches on his or her smartphone. There ought not to enter initial position manually or to begin outdoors wherever initial position are

often determined by GPS/GNSS receiver. Then, operative within the following mode, the navigation engine provides time period indoor navigation for displaying current user position either on the ground arrange or on Google Indoor Map if the latter is obtainable for the building. At last, the navigation engine will recover following from failures that area unit the famed drawback of the particle filter occurring once all particles area unit accidentally discarded. The automated recovery of following during this case permits continued following and increasing handiness of indoor navigation. The navigation engine exits during a kind of SDK that serves for building mobile applications each for humanoid and iOS. Positioning results given for various indoor environments during a shopping center and during a huge exhibition area show quick TTFF inside and correct and reliable time period indoor positioning with accuracy of regarding 1-2 m.

2. Methods and Tools to Construct a Global Indoor Positioning System [3]
Author: Suk-Hoon Jung; Gunwoo Lee; Dongsoo Han

A global indoor positioning system (GIPS) may be a system that has positioning services in most buildings in villages and cities globally. Among the assorted indoor positioning techniques, wireless local area network-based location process has attracted goodly attention owing to the wide handiness of WLAN and comparatively high resolution of the fingerprint-based positioning techniques. This paper introduces strategies and tools to construct a GIPS by exploitation wireless local area network process. Associate degree unattended learning-based technique is adopted to construct radio maps exploitation fingerprints collected via crowdsourcing, and a probabilistic indoor positioning rule is developed for the radio maps made with the crowdsourced fingerprints. Alongside these techniques, collection indoor and radio maps of buildings in villages and cities is important for a GIPS. This paper aims to gather indoor and radio maps from volunteers WHO have an interest in deploying indoor positioning systems for his or her buildings. The strategies and tools for the volunteers are represented within the method of developing an inside positioning system at intervals the larger GIPS. Associate degree experimental GIPS, named KAIST indoor locating system (KAILOS), was developed desegregation the strategies and tools. Then indoor navigation systems for a university field and a large-scale indoor shopping center were developed on KAILOS, revealing the effectiveness of KAILOS in developing indoor positioning systems. The additional volunteers WHO participate in developing indoor positioning systems on KAILOS-like systems, the earlier GIPS are accomplished.

3. Interactive android-based indoor parking lot vehicle locator using QR-code [5]
Author: Siti Fatimah Abdul Razak; Choon Lin Liew; Chin Poo Lee; Kian Ming Lim

QR code has been applied in many ways from promoting merchandise, locating promotional things on shelves, finding stores and etc. during this study, author have a tendency to report on AN mechanical man primarily based application development aimed to supply navigation services to find set vehicles in an enclosed parking lot of looking malls. Author have a tendency to utilize the motion detector, Universal Product Code scanner perform and camera perform inbuilt smartphones. This application in a very position is ready} to indicate the route from user current location to his set vehicle supported an enclosed map of the parking lot keep in a information. Additionally, it's additionally ready to mechanically sight user's current movement supported steps calculation. A trial run was conducted in an exceedingly store indoor parking lot to judge the performance of the appliance. In general, the appliance has shown promising results.

4. Mitigating the antenna orientation effect on indoor Wi-Fi positioning of mobile phones [6]
Author: Da Su; Zhenhui Situ; Ivan Wang-Hei Ho

Due to the limitation of GPS in indoor atmosphere and also the ascent of Wi-Fi hotspots and mobile devices, indoor Wi-Fi-based positioning has been attracting growing interest. During this paper, author have a tendency to implement a sensible and convenient indoor positioning system supported the fingerprint technique and Kalman filter on mechanical man mobile devices. This paper not solely discusses the positioning algorithms, however additionally addresses numerous challenges in utilization, like the impact of antenna orientation and signal fluctuation. Specifically, AN improved mapping algorithmic program supported k-nearest neighbors (K-NN) is introduced to tackle the orientation impact, and an orientation-based fingerprint information is established through learning the received signal strength patterns in several directions to handle the massive fluctuation caused by orientation modification. Finally, our experimental result indicates that the planned indoor positioning system can do up to one.2 meters accuracy in ninety p.c of your time, that is adequate for supporting numerous navigation and moving-picture show services in large-scale indoor environments (e.g., looking malls).

5. Concept for building a MEMS based indoor localization system [7]
Author: Thomas Willemsen; Friedrich Keller; Harald Sternberg

Global Navigation Satellite Systems (GNSS)-based navigation with smartphones is incredibly widespread. However in areas wherever no GNSS signal is found navigation may be helpful. Examples are navigation in looking malls, in huge offices, in train stations or museums. The goal is to estimate the position in GNSS shaded areas to form navigation potential. The MEMS sensors (Micro Electro Mechanical System) put in in current smartphones, like measuring instrument, gyroscope, force field detector and measuring instrument permit currently navigation conjointly in GNSS shadowy areas. As a result of the caliber of those sensors, however, support of the position estimate is required. During this work, an inspiration is given for the development

of an interior navigation system supported cheap sensors of smartphones. The position estimate from the on the market detector knowledge forms the idea of the position determination. Thus position estimation is usually potential freelance of location. Initial results with Kalman filter and particle filter are shown. The given construct is a basis for the development of a smartphone-based navigation answer for indoor use. So the on the market MEMS sensors ought to be used as an edge figurer and a large style of supporting data will be processed. A primary approach for implementation on a smartphone is shown as Associate in Nursing example.

IV.PROPOSE SYSTEM

User login into system then system will display bestselling products. System also provide recommendation to user. User search required product in to database. System send product location to user. The customer scan the QR-Code using mobile while making purchase, retrieve essential details of all products from shops database and generate bill. 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. User can provide rating to products and also view the rating of product. The QR-Code of the product is scanned by the customer and move to the digital cart if they are interested in choice of item by using the proposed mobile application.

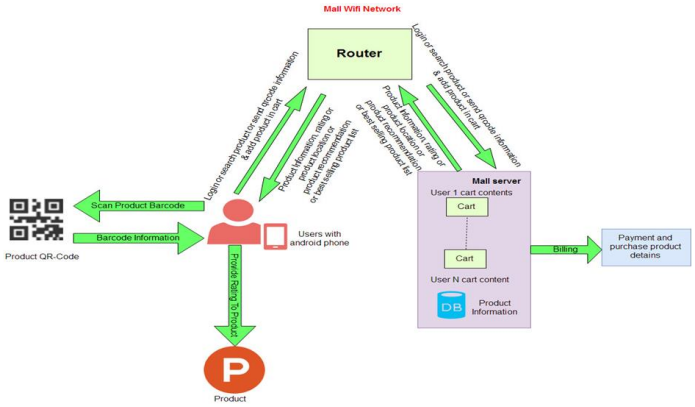
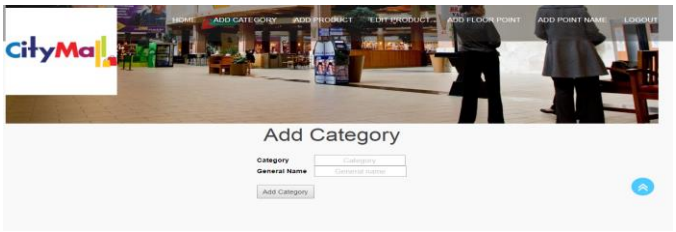
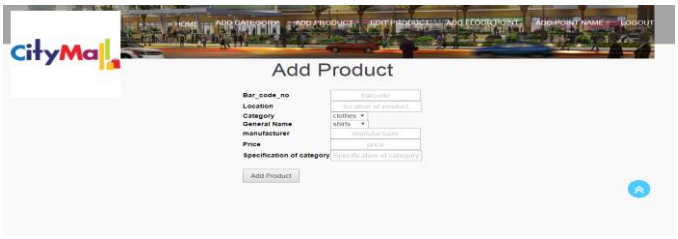


Figure 1. System Architecture

V.RESULT ANALYSIS





VI. CONCLUSION

In a step aimed at promoting shopping methods and make people life easier; propose system is 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, were able to create awareness in using smart mobile devices for flexibility in almost every task among the shopping.

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