Location Based Smart Resource Management

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Abstract - *-"To assist with the exact details, at the right place in real-time with customized setup and location sensitivity," says the inspiration for any location-based information system. We are dealing with palmtops and Android in this age, which will eventually replace bulky desktops for computational purposes. An individual sitting in a roadside café has a wide range of applications and uses. Such necessities must be catered to with the assistance of LBS. In this paper, a smart area-based versatile shopping application for Android gadgets is proposed. The Geo- location of the client's cell phone is used to deliver area data in a shopping application. The progression of the application is that client looks through an item, and afterward distinguishes the area and searches the item on the nearest nearby stores. The thought is to get the costs from every nearby store with data and a cleverly recorded item list. With the proposed brilliant sifting calculation, portable shopping application accomplishes exact and least error dependent on searching and listing results.*

Key Words: **Android, computational purposes, LBS, Geo-location, searching, nearest store, shopping application.**

1. INTRODUCTION

Because of the exponential advancement of cellular networking and location positioning technologies, location-based services (LBS) are emerging as a killer technology in mobile data networks. Users with location-aware wireless devices may look up information about their surroundings (such as the closest hotel, ATM, Hospitals, or Medicals within 5 miles) at any time and from anywhere. While this ubiquitous computing model makes it easier to access information, the limitations of mobile environments, the spatial property of location-dependent data, and the mobility of mobile users make providing location-based services to mobile users a difficult task.

We can imagine that today's cell phones are as powerful as machines and that they can compete with computers. They have multi-core processors, for example. It means that they are as fast as a machine and have a wide range of capabilities. As a result, the demands of consumers will grow year after year. Furthermore, in recent decades, profits have risen dramatically.

People are more likely to use their mobile phones for shopping, browsing, and other uses rather than using a device as the number of smartphones grows. According to the study, mobile phones are used as a source of intelligence.

Handheld computers and cell phones supported large corporations. PayPal's electronic payments business has grown at an unprecedented rate, from $750 million in 2008 to over $4 billion in 2011, with $20 billion projected in 2013. Starbucks Card Mobile has been used by more than 3 million users, making it the country's biggest mobile payment network. It's available at 6800 Starbucks and 1000 Target stores. As a result of all of this information, the mobile industry has grown to become a significant part of global trading. As a result, smartphone developers are required to create mobile apps.

One kind of smartphone application for smartphones is "online shopping." Furthermore, we can see that the online market is gaining people's attention, as the attention is moving to the smartphone market. Moreover, people today have a limited amount of time due to technological advancements, and a large amount of work must be completed in a specific amount of time; hence, time becomes critical in our everyday activities. Business analysts claim that consumers have used their phones more in the last two decades than they have in the previous two decades. People, on the whole, are likely to purchase the cheapest products. The positioning of shopping centers is also a significant factor. And if a product's price is high, people choose to purchase it from a nearby shopping center. Furthermore, they like to shop at the nearest shopping mall for the cheapest item. As a result, consumers would look up the locations of shopping centers and the items that are sold at each mall. As a result, positioning data became the most valuable asset for smartphone devices. The location information is used as a regular feature in other apps, and the scope of this mobile shopping Android app is not restricted. The software can be conveniently customized to meet the needs of the users. The Android framework was created with Android 2.2 and API level 8 (Application Programming Interface). Apart from this, the system architecture is developed using the Service- Oriented Modeling Framework (SOMF), which is built on the Unified Modeling Language (UML), and the object- oriented programming language is used in the development process. Designing with UML simplifies the system's complexities and aids us in comprehending the

architecture of this paper project. A "Smart Filtering algorithm" is used in the implementation process to use the users' input data that was carried before looking for items in the closest electronic superstores, as well as the names of nearby retail shops. In addition, the SAGO mobile shopping app employs basic filtering and cleaning techniques such as the Agglomerative Clustering Algorithm, Greedy Search Algorithm, and a Levenshtein distance. While the software is designed for Android devices, it can easily be adapted and developed for iOS devices. Users will browse for items in nearby areas without knowing the location of the shopping center, compare prices from different local electronic superstores, and then determine where to purchase by using this Android smartphone application. According to these, using the Android smartphone platform saves consumers both money and time.

2. Motivation

The motivation for every area-based information structure is: "To assist with the particular information, at ideal spot consistently with the tweaked course of action and territory affectability" At this moment, are overseeing palmtops and Android, which will trade the enormous work territories regardless, for computational purposes. We have an enormous number of uses and use where an individual sitting in a roadside bistro needs to get huge data and information. Such necessities must be provided food with the assistance of Area Based Administrations.

An exceptionally engaging application incorporates innovation where moment data can be recovered for the client from the space set by the client. These are the data of the sellers in the reach set by the client. The application gives a rundown of offers with the offers and merchant detail. It shows the location of the seller, legitimacy of the offer, scan alternative for looking through some particular or wanted offers. It additionally has an audit framework where clients can give a survey of the offers. The normal of this audit will be to appear to every client at whatever point clients open that merchant's window. We should ensure that a person when visiting places need not pass on the development guides with him. All the information should be available in his PDA and besides in the customer changed group. The data or offers should time and cash effectively for the clients.

3. Literature Survey

The aim of the survey was to determine the most effective algorithm strategy. We looked up scientific papers and current systems, analyzed the findings, and sought advice from experts. A literature review focuses on a research topic, attempting to classify, appraise, pick, and synthesize all available high-quality research evidence and arguments.

In January 2015, Ahmad Jaradat, Noor Azian Mohamad, Ahmad Asadullah, and Seyed Ebrahim proposed Issue in Location-Based Marketing: Review of Literature, which describes the issues faced by marketers and customers, such as security and consumer acceptance of LBM.

In 2016, Priyanka V. Lokhande, Priyanka M. Abhale, Monali M. Kumari, and Sandhya B. Mundhe proposed a Smart Shopping Location-Based Android Application, which describes an Android Application based on LBS.

Moein Mohammadi, Ehsan Molaei, and Ali Naserasadi conducted a survey on Location-Based Service and Positioning Techniques to determine the importance of LBS in research, industry, and employment, among other things.

Design and Implementation of an Android Application for Smart Shopping were proposed by Rajesh Kannan Megalingam, Souraj Vishnu, Swathi Sekhar, Vishnu Sasikumar, Sreekumar S, and Thejus R Nair in April 2019.

A few of the research papers were examined in order to gain a better understanding of current technologies and implementation strategies.

4. System Architecture

In order to make LBS services active, some infrastructure elements are necessary. Mobile devices, applications, communication network, positioning component, and service servers these are the elements which are required for LBS . The main tools used by users to access LBS services is Mobile devices. Mobile devices are generally used to send requests and retrieve results. To access the LBS service application is the interface for users. Itis usually software developed by an application provider, downloaded and installed on user's mobile device. Generally a specific application is developed for usage of a specific LBS service,

4.1 System   Architecture

LBS Application:
This represents a simpler application such as a "find my Things" application. This consists of a Smartphone as a component , which has potentially a server component that includes application-specific data (such as location-tagged information).

LBS Middleware:
This part of the process access to Core LBS Features (Location Tracking, GIS Provider and Location Collection Services) to provide a consistent interface to LBS applications.

Location Tracking:
This component stores the location of application users.
This part of the process represents a fundamental

component for LBS as it contains the data that allows a user's route to be determined and potentially predicted.

Functionality:

1. Keep records on user's current location.

2. It shows the same area's nearby venders location This supports location-based notifications being sentto users.

GPS Provider

This component provides geo-location functionality for many LBSs including map information, map visualization and directory services. Google Maps with its API can be considered a GPS provider.

OS : ANDROID

Android is an operating system for many devices such as smart phones and tablet computers. As Android is developed by the Open Handset Alliance which is led by Google itself. Google released most of the Android code under the Apache License, a free software license .The Android Open Source Project (AOSP) is maintained with the development of Android.
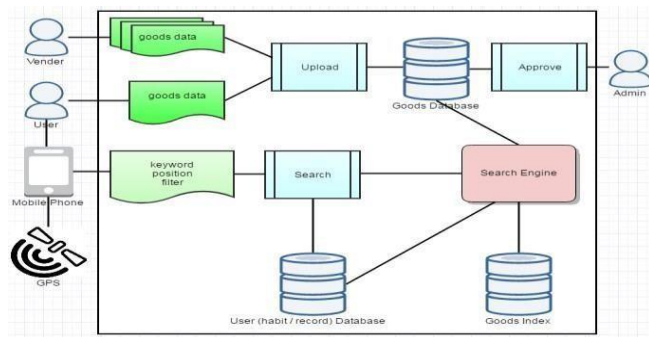

Fig -1: System Architecture

4.2 System Design

Admin Panel:

Admin can login with her/her credentials. Admin can add/update/delete the vendor's in the system. The vendor's will be location specific. Due to location the user can see the offers nearby to their location. Admin can view the customer's that have registered into the system using mobile application. Admin can view the registered offers for every vendor that the user has registered for.

Vendor Panel:

Vendor can login with their credentials.view the customers who have registered to their offers. The registered offers data here will be vendor specific.

Vendor can add offers with information such as name, price, description, start date, end date, photo. Vendor can

User App:

User can register into the app.

After successful registration the user can login into the app.

User can then set the range from 1-10 kms The offers will be then showed to the user based on the range selected.

User can also look for offers based on the categories available

4.3 Implementation

Our application and system consist of activity aiding to product scanning and finding its availability location-wise. In today`s world of technology where the world is moving towards digitalization of everything, we were seamlessly able to connect all the buyers with the sellers nearest to their location. Due to the increase in digitalization, there is a tremendous transformation in the way of doing business and also in the way to shop the products for one`s daily requirements. Android is one of the technologies that is

widest in use in terms of operating systems in the world. Hence Android-based system can be used to reach a wide customer base range. Through this research and our project, an individual can find the availability of any product which he/she requires nearest to his/herlocation.
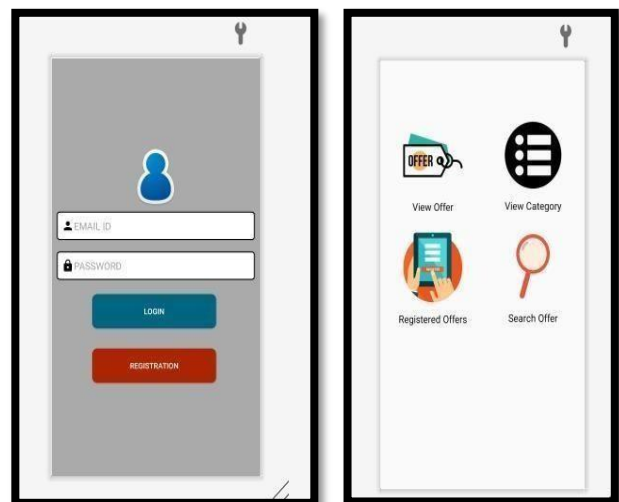

Fig 2 - Application Output Screen

An application shall be used by consumers to find their requirements nearest to their locations and they can book/purchase products accordingly, which can be collected by customers accordingly.
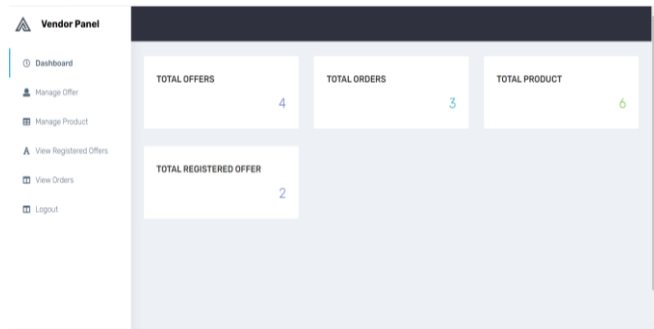
Fig 3- Vendor Panel

Similarly, local shopkeepers and local small businesses can do their business online with ease and reach a wide range of consumer bases. Our system also gives an option to all the business partners/sellers to display all their offers and connect to consumers easily allowing consumers to grab their favorite offers easily.

5. Future Scope/Conclusion

After going through the surveying, it can be gathered that there is a huge scope of application development in the mobile domain. Following the same notion, we can also develop an application that can tackle the following issues:

1) Location positioning technologies

2) Query processing

3) Cache management

Applications can be developed on the Android platform with LBS applications which can help users to find hospitals, schools, gas filling stations, or any other facility of interest indicated by the user within a certain range. Just like a GPS device, its location will also be updated as soon as the user changes his/her position.

The LBS application can help users to find products of their day to day requirements & of interest indicated by the user within a certain range. Just like a GPS device, its location will also be updated as soon as the user changes his/her position.

REFERENCES

1. Ahmad Jaradat, Noor Azian Mohamad, Ahmad Asadullah, and Seyed Ebrahim proposed Issue in Location-Based Marketing: Review of Literature
2. In 2016, Priyanka V. Lokhande, Priyanka M. Abhale, Monali M. Kumari, and Sandhya B. Mundhe proposed a Smart Shopping Location-Based Android Application,
3. Moein Mohammadi, Ehsan Molaei, and Ali Naserasadi conducted a survey on Location-Based Service and Positioning Techniques
4. Design and Implementation of an Android Application for Smart Shopping were proposed by Rajesh Kannan Megalingam, Souraj Vishnu, Swathi Sekhar, Vishnu Sasikumar, Sreekumar S, and Thejus R Nair
5. Pew Research Center (2011) How People Learn About Their Local Community.
6. PayPal (2013) Mobilising Sales Making Money in the Mobile Commerce Revolution.
7. Marker, F. and Chan, Y.H. (2009) A Survey on Android vs. Linux.
8. Bell, M. (2008) Introduction to Service-Oriented Modeling. In: Service-Oriented Modeling: Service Analysis, Design and Architecture, Wiley & Sons, Hoboken
9. Jonathan Hedley (2009-2013) Jsoup Java HTML Parser, with Best of DOM, CSS, and Jquery. http://jsoup.org/
10. Hastie, T., Tibshirani, R. and Friedman, J. (2009) The Elements of Statistical Learning: Data Mining, Inference, and Prediction. Springer, Berlin. http://dx.doi.org/10.1007/978-0-387-84858-7
11. Huang, A. (2008) Similarity Measures for Text Document Clustering. In: New Zealand Computer Science Research
12. Student Conference (NZCSRSC), Christchurch, April 2008.
13. Peng, Q., Meng, W., He, H. and Yu, C. (2004) WISE- Cluster: Clustering E-Commerce Search Engines Automatically.
14. http://www.tutorialspoint.com
15. http://www.uml.org
16. http://www.smartdraw.com/resources/tutorials /uml-diagrams/
17. http://en.wikipedia.org/wiki/Software_maintena nce