Mobile Application for Context Aware Shopping Environment

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Abstract— In today's era smart phones, PCs andtablets are gaining immense popularity due to increase intechnology added on top of wear ability, thus creating the scene for context-aware applications that are capable to sense and actively use context to provide the user with valuable information whenever and wherever is needed, even while travelling. The application will be based on the context aware environment of shopping mall. In this we will be making an application which will provide customer aggregated information according to their needs about a particular mall.

Key words: Mobile Application, Shopping Environment

I. INTRODUCTION

Nowadays smart phones are becoming commodity hardware. They are seen everywhere, as more people realize that having more sensing and computing capabilities in every-day situations is attractive for many reasons. They are used for various purposes such as accessing various types of data. Smartphone's success is the basis for a shift towards developing mobile applications that are capable to recognize and pro-actively react to user's own environment. We are trying to make a context aware environment for accessing mall database. Such context-aware mobile applications can help people better interact between themselves and with their surrounding environments. This can be used for taking automated decisions.

In this we are mainly focusing on CAPIM Architecture. CAPIM (Context-Aware Platform using Integrated Mobile services) is a platform designed to support context based model in mobile application.

The term ubiquitous commerce is used to describe the shopping environment. The key to ubiquitous commerce is context awareness which refers to the idea that computing devices can sense and react based on their environment context. A context is any information that can be used to characterize the situation of an entity [3, 4]. To provide the personalized services we need to consider the issues of personalize recommendation. A recommender system is used to provide a user with the items they prefer [5, 6]. In addition, a context-shopping environment requires a pool of services to support it.

A. The Context Model:

We model a generic context, seen as the information that can be used to characterize the situation of an entity. Entity is any person, place, or object that is considered relevant to interaction between a user and an application including the user and application themselves. In accordance, the context is the collection of information used in some particular form.

The context model includes external data (relative to the environment of the mobile device executing the application, such as location, proximity) or internal information (to the device, such available disk space, battery, capabilities, etc.). The proposed context model aggregates this information into a unique set of data. The context is built based on all detectable and relevant attributes of the mobile wireless device, the application's user, the device's surrounding environment, and the interaction between mobile devices.

The hierarchical context model has several layers. On the first layer is the device, grouping together location, time, the user's identity, and the information gathered from various hardware sensors. The device object also provides static information about the device, such as its identifier, operating system and platform, etc. Location is obtained from several sources.

B. Capim Architecture:

CAPIM (Context-Aware Platform using Integrated Mobile services) is a platform designed to support the construction of such next-generation applications. It integrates services designed to collect context data (location, user's profile and characteristics, as well as the environment). These smart services are dynamically loaded by mobile clients, and make use of the sensing capabilities provided by modern smart-phones, possibly augmented with external sensors. The data is collected and aggregated into context instance. This is also possible augmented with external and inferred data about possible situations, relations, or other events.

In addition, the platform includes a workflow engine designed to continuously evaluate the context and take automated decisions or actions based on customized rules and particular context events. We describe how such rules are constructed further within this paper. We also present CAPIM's visualization layer that allows intuitive and easy interaction for the user with the platform and its running services, but also with the user's environment.

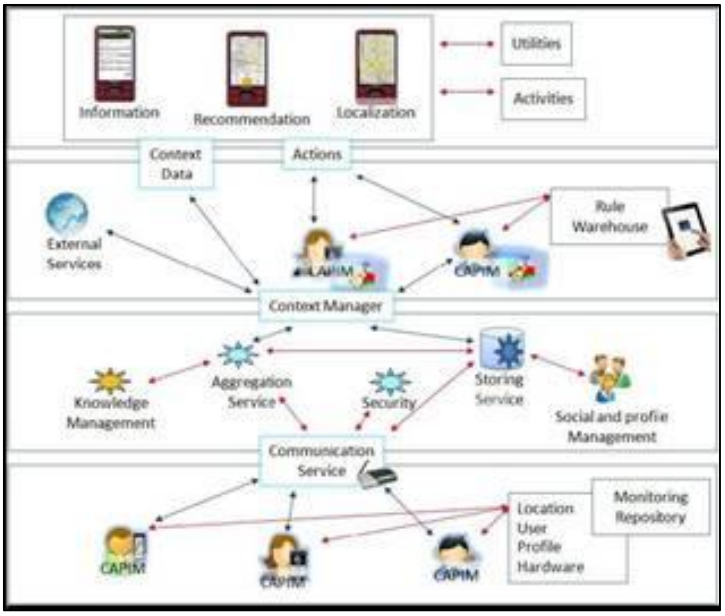

Fig. 1.1: (CAPIM Architecture)

II. PROPOSED SYSTEM

In our proposed system we are creating a system by which user can get information about shopping mall nearby them. It uses GPS system to track the position of the user in a particular mall. User can also search the shopping mall near their areas. By this user can get details about particular products. In a mall, there are more than one shop for a particular product which creates confusion for the user. Therefore, to get the best possible shop is a difficult task. In our project we will be providing best options according to the rating of the customer. This provides convenience for the users. If rating is not possible then the admin itself generates best shops according to the popularity. Popularity and rating system is co related. Therefore, we are using popularity as an alternate option. Most of the time, we go into the mall and search for a particular product which can be time consuming. By viewing this rated shops user can get right product when he/she goes to that shops. We are actually trying to reduce roaming time of the customer inside the mall.

III. RELATED WORK

It uses GPS capabilities of the device to track the position of the user. In this case first the user constructs a module for collecting information from sensors. It then aggregates the information into a recognizable form of location data (e.g., the user is in front of a predefined mall). The user's identity is made available from the certificates installed on the mobile smart phone. The identity information is used for discovering relevant services. It can also be used for situation awareness where the application recognizes the user, its location and take an action to automatically open the door (as described in a subsequent Section). If the user's identity is found, it is augmented with additional information, such as the user's profile and activities. The user's activities are discovered from his/her agenda, or from the user's academic schedule

The profile context includes information related to the user's search interests. For the search interests a special service collects and aggregates data from scientific research databases and provides a set of features including automatic collection of information, guided and focused retrieval of researcher profiles, aggregation and storage of structured data in time, aggregated and personalized view of collected information.

The user's profile is provided from a static form (for example, based on the certificate the user's current academic profile can be easily extracted from the university's digital record database). These sources not only provide dynamic information about user's interest, but they also provide information about social relations between users. So, instead of asking users to insert their social preferences again, we learn them from the users' social networks and devise new connections based on the supplementary context information. This allows making queries to the system asking for the whereabouts of the user's current friends, representing users with current interests situated in the immediate proximity, or finding friends that can serve some specific events. The Following Figure 1.2 shows the actual working of the application. It consists of login of the user, viewing of shops and rating the shops. On the other hand, Admin's application interface consists of login, adding malls, adding shops and adding users.

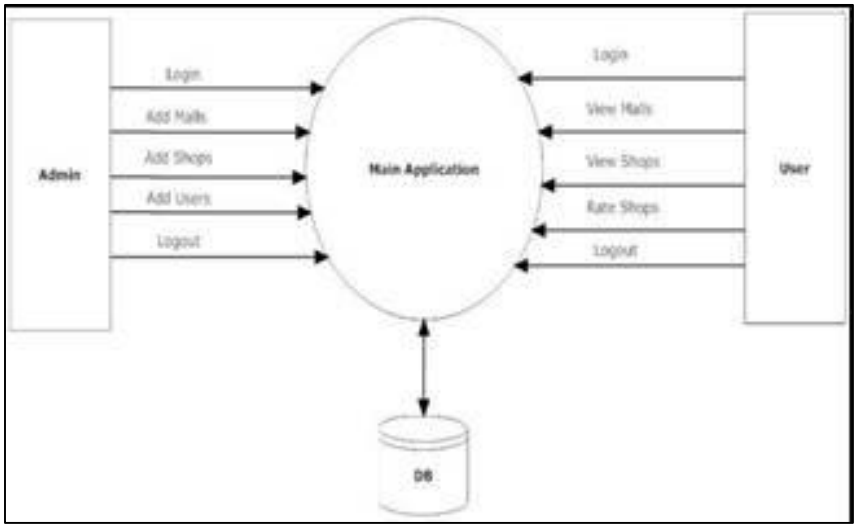

Fig. 1.2

IV. SYSTEM IMPLEMENTATION FRAMEWORK

In our system we will need the following protocols.

- A database server to keep information related to the shops and their exact location.
- Internet is the main entity for tracking the location and providing details about a particular mall.
- Server for keeping the certificates and details of the users. This server stores data of the user as soon as the user creates an account for the applications
- Application interface/Users which provides an interface for accessing data from the database and the server.
- Website on internet contains similar data of database but in a different interface.

These modules are shown in the following figure 1.3 which are interrelated to each other. As describe in the figure, Database and server are the main modules which contains all over information of the application.

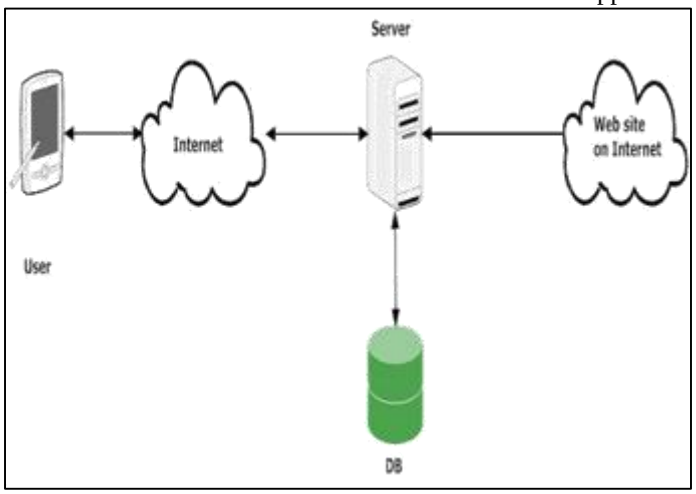

Fig. 1.3: (System Block Diagram

V. CONCLUSION

Considering that even today more than half a billiard people have at least one smart-phone, the advances in mobile technologies allowed people to have in their pockets, wherever they go, powerful computing devices, which can be of great help in their activities. Besides portability, these gadgets present another great feature: they have the necessary hardware capabilities to sense the environment. These are the advantages we are going to use to make mobile devices and the applications in which the host will be aware of the context they work in.

VI. ACKNOWLEDGMENT

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