AMOAC: Automatic Monitoring of Object and Authenticating Check-In Over Android Smart Phones

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Abstract:-This paper proposes a new hybrid method for enhancement of location based service and authentication of users in special environment. The location tracking of authentication users within a specific environment is done by using both GPS and Wi-Fi connectivity which is implemented in the smart phone. A dedicated algorithm AMOAC automatic monitoring of object and authentication check-in over is used for authenticating the users of a specific environment by using a cloud platform and this hybrid method is used to track the location and duration of the objects presence within the environment to maintain their records with the help of Android smart phones along with the AMOAC algorithm tracking of users information updating and authentication of users in the cloud platform.

***Keywords*:** AMOC, Check-in, Check-Out, Object tracking, Android.

I Introduction

The open-source nature of Android allows security contractors to take existing devices and adapt them for highly secure uses. Android is the first truly open and comprehensive platform for mobile devices. Android is a free, open-source operating system for mobile devices. Android is an open invitation to mobile software developers to write third-party applications. Android is based on open source software allowing both collaboration and customization. A Location Based Service (LBS) is an information service, accessible through mobile devices, such as smart phones, which provides the identification of people and objects location. LBS can be used in many applicative scenarios, such as object search, entertainment, work and personal life. LBS applications may include object tracking services and mobile commerce when taking the form of advertisement directed at customers based on their current location. One of the most popular LBS applications concerns [1] this application allows people to check in at specific locations such as collages, companies, pubs, supermarkets, and post offices. These applications, users can check in at a location, share information with other people, leave comments and votes, retrieve suggestions and enjoy benefits the increasing popularity of these applications has allowed revealing some of their weaknesses. For example, it is difficult to guarantee the owner of a pub (the location where to Check in) that a customer has actually stayed in the location for a given amount of time. Some users could be tempted to check in when they simply pass near the location without really staying, just to obtain possible commercial benefits dedicated to accustomed people.

To avoid this possibility Check-ins should be validated by considering not only the correct user location but also a minimum period of time spent by a

user in a given location. This period is called Stay Length (SL) and it is usually set by a business owner. In practice, a Check in request is considered valid only if the user permanence in the location (i.e., the overall time spent by that user in the location) is larger (or equal) than the SL. This is the done by the AMOAC (automatic monitoring of object and authentication check in over) AMOAC is implemented over Smart phones and uses GPS and WI-FI uses the concept of Stay Length (SL) to validate Check ins. The success of Cloud Computing (CC) offers further opportunities for LBSs, which can be exploited in the Cloud and give origin to cloud-based LBSs.

To Build the efficient topology management is proposed in [3]. This network is represented in the Biologically inspire network and in the form of the salt-and-pepper pattern formed Active cell(primary fate) cells are scattered among inactive cell(secondary fate) cells. It lags in Limited performance analysis for the case of infinite-size networks sensing.Shankar Sastry representation provides a coordinate-free calibration of the sensor network and demands no localization of the cameras or objects in the environment[4].

Boon Giin Lee and Wan-Young Chung proposed an accuracy refinement algorithm to increase the precision of real-time multi target tracking in an indoor environment [2]. An autonomous and collaborative RSS fingerprint collection and localization system is proposed in [5]. Mobile users track their position with inertial sensors and measure RSS from the surrounding access points. In this we come to know about reasonable location accuracy is obtained with automatic fingerprinting in indoor environments.

In [6] a technique that provides geo location and mobility prediction both at network and service level. Based on a novel database correlation technique over Received Signal Strength Indication (RSSI) data and provides a geo location and tracking .It uses the map-based location and tracking in multipath outdoor mobile networks .and the GPS chipsets suggested that satellite-based Geo location systems like GPS. It supports location-aware handoff between 3g and wifi network protocols. It is map based location thus it does not consider the individual object. Method of position of a terminal to be tracked by exchanging text or multimedia messages using short message service (sms) and/or multimedia message service (mms) [6].Then the P2P communication established between two devices of mobile network is carried out for privacy and security of avoiding third–party intervention. We come to know about the Position and Tracking Enabling Technologies. Chen follows the method to track the spatial location and movement of human using wearable inertia sensors without additional external global positioning devices[7-9]. Then the method has no restriction to indoor and outdoor applications and Track the location of a human in daily living environments.

These technologies are cannot be used in outdoor applications. In the existing method, they present a smartphone based autonomous construction and management of a personalized location provider in indoor and outdoor environments. This system makes use of electronic compass and accelerometer, specifically for indoor user tracking. Our focus mainly focuses on providing Point of Interest (POI) locations with room level accuracy in everyday life. It is based on the autonomous construction of a personalized POI map, which provides location information for advanced mobile services. The key concept is to use an accelerometer to track user locations and to identify the POIs. The solution incrementally builds user's POIs through a personalized radio map generated from the properties of Wi-Fi APs.

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The concept of tracking the physical location of a user by employing inertial sensors in the Smartphone and to aggregate identical POIs by matching logical location. The system recognizes user context to estimate accuracy of location, and the aggregation process utilizes measured

accuracy to refine location information. The system incrementally constructs user's POIs with a personalized radio map. This system does not require priori signal training since each user incrementally constructs his/her own radio map into their daily lives.Monitoring of object and authenticating check in over android smart phones for mobile application has been developed. To overcome the above problem, we proposing A Location Based Service (LBS) are an information service, accessible through mobile devices, such as Smart phones, which provides the identification of people and objects location.22

a)Using A Smart Phone With Hand Holding: The can easily determine the direction of movement, while a user is messaging, watching a video on the phone, or talking over the phone, because the direction of movement directly relates the abstract orientation.

b) In Swing Phase: according to the body-segment analysis of gait cycles, we used skewness as a basic factor to decide the direction of movement, since the time for acceleration is generally shorter than the stepping time while a human walks.

C) In Strap Down Position: Deciding the direction of movement in strap down position, including inside a bag and a jacket pocket, is difficult since the smart phone is randomly positioned and hardly affected by gait cycle. Skew ness is used as a basic standard, but an additional method is required to supplement inaccurate results of the direction of movement.

Techniques mentioned above are the employment of the absolute values of the measured RSS. FPs are built by measuring the RSS, sensed during a first step, called training phase. RSS absolute values are employed also in the recognition phase. This action, independently of the robustness of the employed method, presents some drawbacks. Measured RSS absolute values are 1) sensitive to multipath fading, to device orientation etc 2) Strongly dependent on the employed device i.e., two different Smart phones, in the same position with the same orientation, often provide different RSS measures. These drawbacks have an impact not only on the performance, but, the latter in particular, on the practical applicability of the location recognition solutions as SaaS in the Cloud, and on the Cloud Computing deployment model. Implication of the device dependability is that, if during the recognition phase the employed device is different from the device used during the training, the accuracy of the location recognition approaches decreases.

To overcome the above problem, we proposing A Location Based Service (LBS) are an information service, accessible through mobile devices, such as Smart phones, which provides the identification of people and objects location. LBS can be used in many applicative scenarios, such as object search, entertainment, work and personal life. LBS applications may include parcel and object tracking services and mobile commerce when taking the form of advertising directed at customers and based on their current location. We can survey the location by fixing the boundary value and we can get the value of the survey area and the information can be store in the database and later it can be updated by the valid user authentication used for check in and checkout application using android application.

This also proposes a possible solution of this problem based on —relative RSS measures, i.e., on the employment of the order relation among the measured RSS sent from different APs, rather than on RSS absolute value. where the recognition action is based on the following details they are i) Exploitation of GPS-HPS information opportunely filtered and weighted Error Correction Filter with Wi-Fi stability condition ii) new automatic, opportunistic and device-independent FP building and matching method.

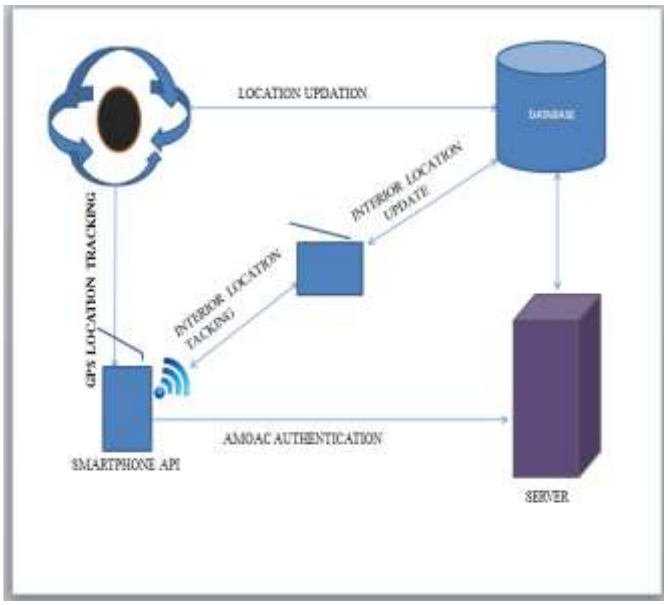

Fig 2.1 AMOC Authentication

Fig 2.2 shows the architechture of the AMO.

GPS

The Global Positioning System (GPS) is a space-based satellite navigation system that provides information about location and time in all conditions, and anywhere on Earth where there is an unobstructed line of sight to four or more GPS satellites. Androidtransceiver calculates its position by using the help of GPS satellites information. All satellite continually track and transmits information likelocation, time was transmitted, satellite present position at time of message transmission. The receiver uses the messages it receives to determine the transmitter's location on the earth.

$$\text{factor accuracy} = \frac{\#\text{ of corrected measured factors}}{\#\text{ of measured steps}}.$$

AMOAC Authentication

AMOAC Authentication is the act of confirming the truth of an attribute of a datum or entity. This might involve confirming the identity of a person or software program, tracing the origins of an artifact, or ensuring that a product is what its packaging and labeling claims to be. Authentication often involves verifying the validity of at least one form of identification.

Algorithms / Techniques

AMOAC algorithm employs positioning information, provided by Smart phones Operating System(s), acquired from GPS/HPS This algorithm is based on a sliding time window of seconds during which positioning data (latitude and longitude) This algorithm used to store the User present locations details with Duration.

Location Update

The receiver is on the surface of each of these spheres, whendistances and the satellites' locations are correct. This location is updated in the database then displayed.

Interior Location Update

The tracked locations details of the objects are get updated in the server. These details are used in the process of check in and check out. This details are get updated periodically to make the system up to date using the help of GPS.

Database

Database support in this application is like a lifeline, whether big or small. All the details of the authenticated users are getting registered in the database. Initially Verification and Authentication process is done by an trusted administrator in this real time application. Database also want to deal with integrity, consistency, concurrency, etc.., there is a need of database system to store structured data. SQLite database system is used by Android applications.

API

An Application Programming Interface (API) specifies how a software component can interact with each other in addition to accessing databases or computer hardware. This provides an easy way of use and interacts with the devices.

One of the smallest differences between the smart phone and featured phone are that in the Smartphone an advanced Application Programming Interfaces (APIs) is used for running third-party applications can allow those applications to have better integration with the phone's OS and hardware.

Wi-Fi

Wi-Fi, is a popular technology that used in electronic devices like phone, PC etc..that allows that electronic device to exchange data or make connection in wirelessly using radio waves. These can also be able to make connection with the network resource such as the Internet through a wireless network access point. The range of this WiFi is about Such 20 meters in indoors and in outdoorsrange is greater than 20 meters.

GPS Tracker

A GPS tracker contains GPS module to receive the GPS signal and calculate the coordinates. This GPS trackers havecontains large memory to store the coordinates, and logger details.GPS tracker contains an tracking unit, This is a device that determine the presence location of an object using the Global Positioning System.Thisinformation's are get stored in that tracking unit or transmitted to the database which is centralized or Internet.

III Results and Discussion

A dedicated algorithm AMOAC automatic monitoring of authentication check over is used for authenticating the users of a specific environment by using a cloud platform and also gives detailed information about the use for e.g. it is used in smart universities to track about the student. Experimental results are shown below. Following figure shows the scenario of my project and then followed by the screen shots of results in my project.

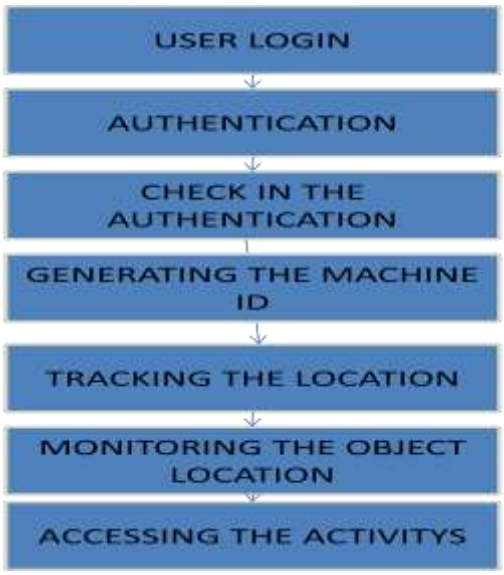

Fig 3.l Scenario of Proposed work

Registration Using AMOC Authentication:

Fig 3.2 User Interaction Using AMOC

1) Display personalized data
2) Switch to personalized settings
3) the user perform actions from his identity
4) Access private data (like email or pm)
5) Control automated edits, also known as spamming
6) Allows the Web Developers to email registered users with updates on their site.

Fig 3.2 Server Registration Module

Authentication

The process of AMOACauthentication is differing from that of authentication. Process where authentication is the process of verifying that when someone tries to log on a computer, they are usually first requested to identify them with a login name and support that with a password. Afterwards, this combination is checked against an existing login-password validity record to check if the combination is authentic. If so, the user becomes authenticated.

a) Season Valid Authentication Module
b) Registration Module
c) Security for login users
d) Valid Authentication

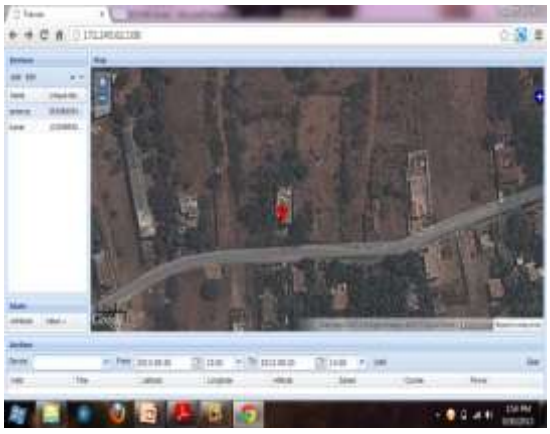

Fig 3.4 Tracking the Users using AMOC

Generating the Machine Id

The machine id Generator is used to generate a random machine id.The tool can generate four most commonly used types of machine id formats and it is also allowed to specify your preferred machine id prefix (specific OUI Organizationally Unique Identifier).Please note that the generated machine id. The machine id contains,

a)Device Identifier
b) Server address
c) Server port
d)Messages interval in seconds
e)Location provider

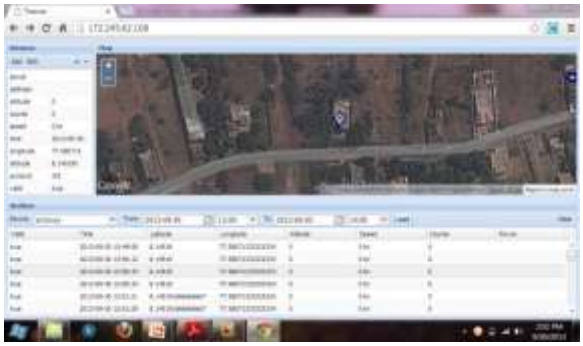

Fig 3.5 Tracking user's duration

IV Conclusion

In this project monitoring of object and authenticating check in over android smart phones for mobile application has been developed. This application was built using Eclipse and Android SDK. In this application monitoring the activities of the objects and validating the user's authentication which are configured in the mobile phones and in future, the tracking data will be send to the server for remote location monitoring. The object movements detecting using smart phones are given to the server will be interfaced with Android apk used by the smartphones. In the future works it can be implemented in smart university for the student activity monitoring.

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