**Welp - Location Based Social Network**

**Project Report**

Submitted to North Maharashtra University, Jalgaon in Partial Fulfillment of the Requirements for the Degree of Bachelor Of Engineering in Instrumentation Engineering.

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**CERTIFICATE**



This is to certify that the project report entitled, **“Welp-Location Based Social Network”**, which is being submitted herewith for the award of Bachelor of Engineering is the result of the work completed by…………………………. under my supervision and guidance within the four walls of the institute and the same has not been submitted elsewhere for the award of any degree.

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**DECLARATION**

I hereby declare that the project/ dissertation entitled, **“Welp-Location Based Social Network”** was carried out and written by me under the guidance of **Prof.D.V.Chaudhari**, HOD, Department of Computer Engineering, Government College of Engineering,Jalgaon. This work has not been previously formed the basis for the award of any degree or diploma or certificate nor has been submitted elsewhere for the award of any degree or diploma.

Place: Jalgaon

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(ROLL NO. )

BE Computer

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**Abstract:**

Welp is Geo social Networking is a type of social networking in which geographic services and capabilities such geocoding and geotagging are used to enable additional social dynamics.User-submitted location data or geolocation techniques can allow social networks to connect and coordinate users with local people or events that match their interests. Geolocation on web-based social network services can be IP-based or use hotspot trilateration. For mobile social networks, texted location information or mobile phone tracking can enable location-based services to enrich social networking.

The evolution of geosocial can be traced back to the implication of social application programming interfaces by internet-based corporations in the early 2000s. Ebay uses one of the oldest, announcing its social API at the end of 2000 and allowing free access to over 21,000 developers in late 2005. Amazon's primary API was released in 2002, which allowed developers to pull consumer information like product reviews into third-party applications. Google, Inc. began testing an API in April 2002 and currently owns dozens that are used by thousands of applications. The Facebook Developer's API is considered the first to be specific to a social network and was launched in 2006. Facebook later created an open stream API, allowing outside developers access to user's status updates. By June, 2010,Twitter integrated API into their applications and is considered the most open of all social networks. By 2008, expanded geolocation technologies including cell tower localization became available and devices such as digital cameras and camera phones began to integrate features such as Wi-Fi connectivity and GPS navigation into more sophisticated capabilities.

**1.Introduction**

Our project is location based social network, In short we can say that users can collaborate with each other and in turns to enrich the location and mapping information by constantly adding and updating the information related about their locality and places they visit.

There are some applications which are there in the app market but they don’t address to the exact problems faced by the user, which is to providing them the localised information. With the help of our application users may constantly add and update the latest location information and in that way providing fellow users with the most updated and relevant information.

Geosocial networking Like Welp will allows users to interact relative to their current locations. Web mapping services with geocoding data for places (streets, buildings, and parks) can be used with geotagged information (meetups, concert events, nightclubs or restaurant reviews) to match users with a place, event or local group to socialize in or enable a group of users to decide on a meeting activity. Popular geosocial applications like Yelp, Gowalla, Facebook Places and Foursquare allow users to share their locations as well as recommendations for a locations or 'venues'.

In disaster scenarios, geosocial networking can allow users to coordinate around collaboratively filtered geotag information on hazards and disaster aid activities to develop a collective situational awareness through an assembly of individual perspectives. This type of geosocial networking is known as collaborative mapping. Furthermore, geolocated messages could assist automated tools to detect and track potential dangers for the general public such as an emerging epidemic (see Flu Detector application on Twitter).[7][8]

The technology has obvious implications for event planning and coordination. Geosocial has political applications, as it can be used to organize, track, and communicate events and protests. For example people can use mobile phones and Twitter to quickly organize a protest event before authorities can stop it. People at the event can communicate with each other and the larger world using mobile device connected to the Internet. Geosocial has the combined potential of bringing a Social Network or Social Graph to a location, and having people at a location form in to a Social Network or Social Graph. Thus social networks can be expanded by real world contact and recruiting new members.

**History of Location Based Services:**

The evolution of geosocial can be traced back to the implication of social application programming interfaces by internet-based corporations in the early 2000s. EBay uses one of the oldest, announcing its social API at the end of 2000 and allowing free access to over 21,000 developers in late 2005.[3][4] Amazon's primary API was released in 2002, which allowed developers to pull consumer information like product reviews into third-party applications.[5] Google, Inc. began testing an API in April 2002 and currently owns dozens that are used by thousands of applications.[3] The Facebook Developer's API is considered the first to be specific to a social network and was launched in 2006. Facebook later created an open stream API, allowing outside developers access to user's status updates.[6] By June, 2010, Twitter integrated API into their applications and is considered the most open of all social networks. By 2008, expanded geolocation technologies including cell tower localization became available and devices such as digital cameras and camera phones began to integrate features such as Wi-Fi connectivity and GPS navigation into more sophisticated capabilities.

**Problems:**

Using geo-social applications, such as FourSquare, millions of people interact with their surroundings through their friends and their recommendations. Without adequate privacy protection, however, these systems can be easily misused, *e.g.,* to track users target them for home invasion. In this paper, we introduce *Welp*, a novel alternative that provides significantly-improved location privacy without adding uncertainty into query results or relying on strong assumptions about server security. Our key insight is to applysecure user-specific, distance-preserving *coordinate transformations* to all location data shared with the server. The friends of a usershare this user’s secrets so they can apply the same transformation. This allows all location queries to be evaluated correctly by theserver, but our privacy mechanisms guarantee that servers are unable to see or infer the actual location data from the transformeddata or from the data access. We show that Welp provides privacy even against a powerful adversary model, and we use prototype measurements to show that it provides privacy with very little performance overhead, making it suitable for today’s mobile devices.

As discussed above there is gap in the market when it comes to providing users the location based information which is relevant to them. Many apps which are available in the market usually make use of real old databases to pull info about locations and thus user gets outdated information which is more or less useless. We want to use this gap in the market as a leverage to make a new product which will address the core problem of the users. And we are very much confidence that our application will be indeed very helpful to users.

**Project Scope:**

Location-based services (LBS) are a general class of computer program-level services that use location data to control features. As such LBS is an information service and has a number of uses in social networking today as an entertainment service, which is accessible with mobile devices through the mobile network and which uses information on the geographical position of the mobile device. This has become more and more important with the expansion of the smartphone and tablet markets as well.[1][2][3][4]

LBS are used in a variety of contexts, such as health, indoor object search,[5] entertainment,[6] work, personal life, etc.[7]

LBS include services to identify a location[8] of a person or object, such as discovering the nearest banking cash machine (a.k.a. ATM) or the whereabouts of a friend or employee. LBS include parcel tracking and vehicle tracking services. LBS can include mobile commerce when taking the form of coupons or advertising directed at customers based on their current location. They include personalized weather services and even location-based games. They are an example of telecommunication convergence.

This concept of location based systems is not compliant with the standardized concept of real-time locating systems (RTLS) and related local services, as noted in ISO/IEC 19762-5[9] and ISO/IEC 24730-1.[10] While networked computing devices generally do very well to inform consumers of days old data, the computing devices themselves can also be tracked.

**Technology Used:**

We are using following technologies for our project:

1. Java :

For native application programming on Android Platform.

Java is a computer programming language that is concurrent, class-based, object-oriented, and specifically designed to have as few implementation dependencies as possible. It is intended to let application developers "write once, run anywhere" (WORA), meaning that code that runs on one platform does not need to be recompiled to run on another. Java applications are typically compiled to bytecode (class file) that can run on any Java virtual machine (JVM) regardless of computer architecture. Java is, as of 2014, one of the most popular programming languages in use, particularly for client-server web applications, with a reported 9 million developers.[10][11] Java was originally developed by James Gosling at Sun Microsystems (which has since merged into Oracle Corporation) and released in 1995 as a core component of Sun Microsystems' Java platform. The language derives much of its syntax from C and C++, but it has fewer low-level facilities than either of them.

The original and reference implementation Java compilers, virtual machines, and class libraries were developed by Sun from 1991 and first released in 1995. As of May 2007, in compliance with the specifications of the Java Community Process, Sun relicensed most of its Java technologies under the GNU General Public License.

Many of the features in the C# language were created with four different design goals in mind:

There were five primary goals in the creation of the Java language:[23]

1. It should be "simple, object-oriented and familiar"

2. It should be "robust and secure"

3. It should be "architecture-neutral and portable"

4. It should execute with "high performance"

5. It should be "interpreted, threaded, and dynamic"

1. MongoDB :

As our backend . MongoDB (from "humongous") is a cross-platform document-oriented database. Classified as a NoSQL database, MongoDB eschews the traditional table-based relational database structure in favor of JSON-like documents with dynamic schemas (MongoDB calls the format BSON), making the integration of data in certain types of applications easier and faster. Released under a combination of the GNU Affero General Public License and the Apache License, MongoDB is free and open-source software.

First developed by the software company 10gen (now MongoDB Inc.) in October 2007 as a component of a planned platform as a service product, the company shifted to an open source development model in 2009, with 10gen offering commercial support and other services.[1] Since then, MongoDB has been adopted as backend software by a number of major websites and services, including Brave Collective, Craigslist, eBay, Foursquare, SourceForge, Viacom, and the New York Times, among others. MongoDB is the most popular NoSQL database system.[2]

1. HTML/CSS:

For developing Website which will be accessible via Desktop as we are focusing on cross platforms. HTML or HyperText Markup Language is the standard markup language used to create web pages.

HTML is written in the form of HTML elements consisting of tags enclosed in angle brackets (like <html>). HTML tags most commonly come in pairs like <h1> and </h1>, although some tags represent empty elements and so are unpaired, for example <img>. The first tag in a pair is the start tag, and the second tag is the end tag (they are also called opening tags and closing tags).

Cascading Style Sheets (CSS) is a style sheet language used for describing the look and formatting of a document written in a markup language. While most often used to change the style web pages and user interfaces written in HTML and XHTML, the language can be applied to any kind of XML document, including plain XML, SVG and XUL. CSS is a cornerstone specification of the web, and almost all web pages use CSS style sheets to describe their presentation.[citation needed]

CSS is designed primarily to enable the separation of document content from document presentation, including elements such as the layout, colors, and fonts.[1] This separation can improve content accessibility, provide more flexibility and control in the specification of presentation characteristics, enable multiple pages to share formatting, and reduce complexity and repetition in the structural content (such as by allowing for tableless web design). It obviates those portions of markup that would specify presentation by instead providing that information in a separate file. For each relevant HTML element (identified by tags), it provides a list of formatting instructions. For example, it might say (in CSS syntax), "All heading 1 elements should be bold." Therefore, no formatting markup such as bold tags (<b></b>)is needed within the content; what is needed is simply semantic markup saying, "this text is a level 1 heading."

CSS can also allow the same markup page to be presented in different styles for different rendering methods, such as on-screen, in print, by voice (when read out by a speech-based browser or screen reader) and on Braille-based, tactile devices. It can also be used to allow the web page to display differently depending on the screen size or device on which it is being viewed. While the author of a document typically links that document to a CSS file, readers can use a different style sheet, perhaps one on their own computer, to override the one the author has specified. However if the author or the reader did not link the document to a specific style sheet the default style of the browser will be applied.

1. Python :

In a longer run we want to switch to python for the sake of faster development. Python is a widely used general-purpose, high-level programming language.[15][16][17] Its design philosophy emphasizes code readability, and its syntax allows programmers to express concepts in fewer lines of code than would be possible in languages such as C.[18][19] The language provides constructs intended to enable clear programs on both a small and large scale.[20]

Python supports multiple programming paradigms, including object-oriented, imperative and functional programming or procedural styles. It features a dynamic type system and automatic memory management and has a large and comprehensive standard library.[21]

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1. Android :

Our Native app will be launched on Android first. As Android is growing in developing markets as Developed marked such as USA and Europe are getting saturated there is huge unlocked potential customer based.

That’s why we chose Android ecosystem first before venturing into other smartphone ecosystem. Android is open source and it offers flexibility to leverage its full potential in terms of sheer performance and various services which are provided by the maker of Android Google Inc itself. So coding overhead will be very less as we can make use of inbuilt libraries and other codebase which is freely available to use.

Talking about Android it is a mobile operating system (OS) based on the Linux kernel and currently developed by Google. With a user interface based on direct manipulation, Android is designed primarily for touchscreen mobile devices such as smartphones and tablet computers, with specialized user interfaces for televisions (Android TV), cars (Android Auto), and wrist watches (Android Wear). The OS uses touch inputs that loosely correspond to real-world actions, like swiping, tapping, pinching, and reverse pinching to manipulate on-screen objects, and a virtual keyboard. Despite being primarily designed for touchscreen input, it also has been used in game consoles, digital cameras, and other electronics.

Android is the most popular mobile OS. As of 2013, Android devices sell more than Windows, iOS, and Mac OS devices combined,[14][15][16][17] with sales in 2012, 2013 and 2014[18] close to the installed base of all PCs.[19] As of July 2013 the Google Play store has had over 1 million Android apps published, and over 50 billion apps downloaded.[20] A developer survey conducted in April–May 2013 found that 71% of mobile developers develop for Android.[21] At Google I/O 2014, the company revealed that there were over 1 billion active monthly Android users (that have been active for 30 days), up from 538 million in June 2013.And numbers are growing by every passing day.

Android's source code is released by Google under open source licenses, although most Android devices ultimately ship with a combination of open source and proprietary software.[3] Initially developed by Android, Inc., which Google backed financially and later bought in 2005,[23] Android was unveiled in 2007 along with the founding of the Open Handset Alliance—​a consortium of hardware, software, and telecommunication companies devoted to advancing open standards for mobile devices.[24]

Android is popular with technology companies which require a ready-made, low-cost and customizable operating system for high-tech devices.[25] Android's open nature has encouraged a large community of developers and enthusiasts to use the open-source code as a foundation for community-driven projects, which add new features for advanced users[26] or bring Android to devices which were officially released running other operating systems. The operating system's success has made it a target for patent litigation as part of the so-called "smartphone wars" between technology companies.

1. GPS:

For location locking. The Global Positioning System (GPS) is a space-based satellite navigation system that provides location and time information in all weather conditions, anywhere on or near the Earth where there is an unobstructed line of sight to four or more GPS satellites.[1] The system provides critical capabilities to military, civil and commercial users around the world. It is maintained by the United States government and is freely accessible to anyone with a GPS receiver.

The GPS project was developed in 1973 to overcome the limitations of previous navigation systems,[2] integrating ideas from several predecessors, including a number of classified engineering design studies from the 1960s. GPS was created and realized by the U.S. Department of Defense (DoD) and was originally run with 24 satellites. It became fully operational in 1995. Bradford Parkinson, Roger L. Easton, and Ivan A. Getting are credited with inventing it.

As in recent times many devices come within built GPS module. So location information is very much within the reach of any app developer by which he can use the ambient information provided by the GPS to provide user the best possible personalised information.

1. Google mapping API:

For accessing already available location based data. Google offers its API specifically catered for the location based application. It is free to use and embedding them in android Application is very easy. We can make use of already available data on Google Maps to make Location information which already there to users.

**Market Survey of Location Based Services**

Location based services can be defined as an information service provided by a device that knows where it is, and modifies the information it provides accordingly. Location data is a vital part of the mobile experience and enables some of the most widely used mobile apps, which can be used for geo-social networking, navigation and travel, retail and real estate searches, and mobile marketing and advertising. With the increase in the number of smart phone users, location-based technologies are emerging at faster pace, and hence, diversifying its business providing ubiquitous applications on location base data.

This report encompasses a detailed overview of the overall Location based services market with a qualitative viewpoint at every phase of segmentation. The global LBS market is broadly classified on the basis of technologies, services provided, applications, end users, regions, and target audience. The technologies under LBS market constitute cell ID, E-OTD, A-GPS, E-GPS, and hybrid technology. Among the various technologies, hybrid technology is emerging and is expected to grow tremendously in the near future. The sub segments of applications include mapping, infotainment and discovery, business intelligence and analytics, emergency support and disaster management, leisure and social networking, location-based advertising, games and augmented reality, and tracking.

The major industry verticals where Location based services are deployed include healthcare, transportation and logistics, hospitality, government, advertising, and retail. The governments across the globe are taking initiatives and investing hefty capital to promote the growth of this market. The retail, and food and beverages industries are the two major industries where LBS devices are increasingly being used in SCM to reduce the transportation costs. The Location based services market is segmented into five major regions, namely NA, Europe, APAC, LA, and MEA.

MarketsandMarkets expects that the increase in the number of Smartphone users will lead to further comprehensive smart alerts related to LBS. Though the adoption of these solutions was initially gradual, due to concerns about privacy, cost, government regulations, but these services are witnessing wide acceptance across various verticals.   
  
The market research report categorizes the global Location based services market on the basis of products, services, technologies, applications, verticals, and regions. It also forecasts volumes, revenues, and analyzes trends in each of the submarkets.

**Application Of Location Based Services:**

The role of location in digital life is changing as growing numbers of internet users are adding a new layer of location information to their posts, and a majority of Smartphone owners use their phones’ location-based services.

Many people use their smart phones to navigate the world: 74% of adult Smartphone owners ages 18 and older say they use their phone to get directions or other information based on their current location.

There is notable growth in the number of social media users who are now setting their accounts to include location in their posts. Among adult social media users ages 18 and older, 30% say that at least one of their accounts is currently set up to include their location in their posts, up from 14% who said they had ever done this in 2011.2 This trend is also showing up among younger users. An earlier Pew Internet survey of teens ages 12-17 found that 16% of teen social media users have their accounts set up to automatically include their location in posts.3

There is a modest drop in the number of smartphone owners who use “check in” location services. Some 12% of adult smartphone owners say they use a geosocial service to “check in” to certain locations or share their location with friends. That is down from 18% of smartphone owners who reported doing that type of activity in early 2012. A plurality of these geosocial service users (39%) say they check into places on Facebook; 18% say they use Foursquare and 14% say they use Google Plus, among other services.

Few more generic application which can leverage Location based Services includes

1. Recommending social events in a city[1]
2. Requesting the nearest business or service, such as an ATM, restaurant or a retail store
3. Turn by turn navigation to any address
4. Assistive Healthcare Systems[27]
5. Locating people on a map displayed on the mobile phone
6. Receiving alerts, such as notification of a sale on gas or warning of a traffic jam
7. Location-based mobile advertising
8. Asset recovery combined with active RF to find, for example, stolen assets in containers where GPS would not work
9. contextualizing learning and research
10. Games where your location is part of the game play, for example your movements during your day make your avatar move in the game or your position unlocks content.
11. Real-time Q&A revolving around restaurants, services, and other venues
12. More examples are listed in.[2]
13. For the carrier, location-based services provide added value by enabling services such as:
14. Resource tracking with dynamic distribution. Taxis, service people, rental equipment, doctors, fleet scheduling.
15. Resource tracking. Objects without privacy controls, using passive sensors or RF tags, such as packages and train boxcars.
16. Finding someone or something. Person by skill (doctor), business directory, navigation, weather, traffic, room schedules, stolen phone, emergency calls.
17. Proximity-based notification (push or pull). Targeted advertising, buddy list, common profile matching (dating).
18. Proximity-based actuation (push or pull). Payment based upon proximity (EZ pass, toll watch), automatic airport check-in.
19. Ad hoc networking[edit]
20. A mobile ad hoc network is an opt-in group of mobile devices in the same immediate area linked to a master device. These groups are then able to communicate freely with each other. This sort of social networking is used mostly during events so the host (operating the master device) can provide information, suggestions or coupons specific to the event.[9] Examples include Apple's iGroups[10] and Hot Potato.
21. Food sourcing[edit]
22. A less-used form of geosocial networking is one mostly used by fast food restaurants, like 4Food, in which customers check-in their orders rather than themselves. Users choose the ingredients of their order, name it, and are awarded points for every order based on their suggestion. Customers are given discounts and coupons for their involvement and the restaurant receives more customers.[11]
23. Freelancing[edit]
24. Freelancing networks are created with the specific purpose to allow users to find or post temporary employment opportunities. Users establish and operate a professional profile and are able to connect with past and possible employers, employees, colleagues, classmates and friends.[9]
25. Location-planning[edit]
26. With location-planning, or social-mapping, users are able to search and browse nearby stores, restaurants, etc. Users Venues are assigned profiles and users can rate them, share their opinions and post pictures. These networks use the location of mobile phones to connect users and may also provide directions to and from the venue by linking to a GPS service.[9] Examples include Google's Ogle Earth, Tagzania and forms of collaborative mapping.
27. Moodsourcing[edit]
28. Some networks use Moodsourcing as a recreational way to make user's status's seem more similar to personal interaction. In addition to checking in, users convey their current mood with a corresponding emoticon.[9]
29. Paperless ticketing[edit]
30. Paperless ticketing is a feature that uses smart phones as digital tickets for events and travel.[9] Besides becoming more convenient than the normal ticketing process, Paperless Ticketing eliminates wasteful paper use. Examples include Apple's recently purchased patent for a travel ticketing app, ITravel,[12] and Ticketmaster's smart phone application.
31. Social shopping[edit]
32. Social shopping service users create personal profiles to collect information on different items they find. Instead of simply updating their status on other social networks with a description or link of their purchases, users download software that allows them to grab images of those products to post on their own shopping lists. Some Social Shopping sites form affiliate relationships with merchants, who often pay percent commissions on sales that come as a result of their products being featured on other sites.[13] Sites have gone so far as to allow users to add their credit card number so their purchases are automatically checked in.
33. Some fashion corporations have invested in sensors placed in their stores and dressing rooms so users on Social Shopping applications have to physically be in their store or trying something on in order to gather points. This increases participation and encourages customers to try on other clothes.

As for economic impact, location based services are estimated to have a $1.6 Trillion impact on the US economy alone. That’s huge number indeed! So opportunity to grow there is humongous.

**Privacy Concerns:**

Privacy concern is the biggest issue while using any social service. Every now and then hackers try to hack the sites having huge user base . And many times what happens is that service provider itself collects the information about user against their consent and this is happening quite often.

In perspective of location based services it might be annoying and sometimes dangerous too. Continuous location tracking can infiltrate the privacy of the user leading to the negative feedback and over all user dissatisfaction. So to prevent that we will provide them total privacy feature so that user can be free of any worry regarding someone breaking into their privacy.

He will have the total control over his/her information and he can have final call on what to share and with whom.

**Conclusion:**

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