



INTERNATIONAL JOURNAL OF ADVANCE RESEARCH, IDEAS AND INNOVATIONS IN TECHNOLOGY

ISSN: 2454-132X

Impact factor: 4.295

(Volume 5, Issue 2)

Available online at: www.ijariit.com

GeoFencing: Location based services

Nilesh Prasad

nileshprasad.is15@rvce.edu.in

RV College of Engineering, Bengaluru, Karnataka

Swetha S.

shwetha.ise@rvce.edu.in

RV College of Engineering, Bengaluru, Karnataka

ABSTRACT

The geofence has come out to be the application which helps in the protection of the machine and the jobs that need to be carried out both inside the fence or backyard the fence. This surely helps the employer to hold music of the gadget and the jobs that are being carried out from the devices, which increases the effectively in the experience that the system is utilized in a suitable manner. One of the features of the product is Fencing where all the units will be given sure jobs which can only be performed when interior the fence and some jobs which will be active only backyard the fence. These points were already present in the Android Application side, now it needs to be applied in the Linux side. The approach that we have used is the geofencing API in the android side, however getting the geolocation of the laptop alongside with the latitude and longitude differs with the precise location. Therefore, we are going to use location-based offerings in order to get a specific area of the device

Keywords— Geofencing, Location-based services, MVC architecture, Geofence, Geolocation

1. INTRODUCTION

1.1 Model-View-Controller (MVC)

Model View Controller (MVC) [1] is an architectural sample typically used in web-based applications. It provides three main layers; model, view, and controller. Many builders use MVC as a fashionable format pattern. It is an entire framework. MVC provides three sorts of classes:

- Model:** Model lessons are used to enforce the good judgment of information domains. These instructions are used to retrieve, insert or replace the information into the database associated with our application.
- View:** Views are used to prepare the interface of our application. By the usage of that interface, users have interaction with our application.
- Controller:** Controller classes are used to reply to the user's requests. Controller instructions operate the users requested actions [2].

These lessons work with mannequin instructions and select the appropriate view that should be displayed to the consumer in accordance with consumer requests.

1.2 Location Based Services (LBS)

The location-specific reminder services are a really necessary characteristic of smartphones or tablets. While taking the user's place into account, they are in most cases used to set off the search to acquire location-based [13] records (e.g. surrounding shops, nearby friends, on hand condo cars). Thereby, an LBS is being asked the question about Location in particular beneficial check its accuracy and the applicable statistics is being by using a cell utility only on request through the user, that is to say, the requested location-specific statistics is being compelled by means of however being pushed to the user[15]. Recently, all essential cell running systems make recognised constructing guide for devoted LBS, awesome two regarded as Geofencing.

1.3 Concept of Geofencing

In this scenario, the smartphone device is able to signify the person about location-specific statistics in scenario the person two comes or leaves a committed zone, called geofence. This function is mainly used with the aid of location-specific notification two purposes as a dependable way for consumers to be notified about non-public to-do at splendid places. Another very manageable utility area offers location-based commercials [5]. Smartphone consumers that are on foot or driving shut round to an industrial geographical region are regarded to be viable customers and will be proactively reminded about two sales, gives or coupons. In many scenarios, it is now not efficient to reflect on consideration on whether or not a person is a Promising goal for proactive commercial or geo-notifications typically via simply gazing at the client's location.

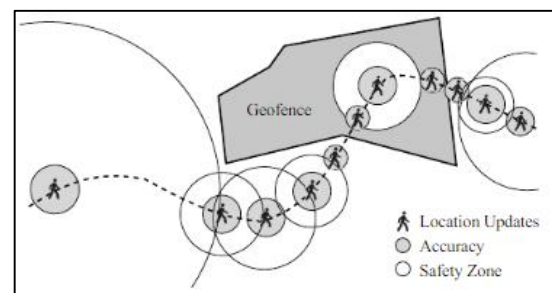


Fig. 1: Geofencing

1.4 Tools and technologies used with MVC

There are many equipment and technologies which can be used to advance web purposes with the help of MVC architecture.

Depending upon the activity of developers, they can use any of the tools and applied sciences to enhance internet application. Here are some equipment and applied sciences which can be used to develop a new application using MVC architecture:

1.4.1 Visual Studio: Visual Studio is not simply a tool but a complete improvement environment which provide us facility to create exclusive types of application. When we prefer to advance purposes using ASP.NET MVC framework then the visual studio is very useful for us.

(a) MYSQL Server: Relational database administration services to keep the database [4].

(b) SQL Server: A database engine to hold database simply like MYSQL server 3) MYSQL Workbench- a database sketch device [6].

1.4.2 Technologies

(a) HTML, CSS, JQUERY, AJAX for designing

(b) ODBC: Open Database Connectivity

(c) ASP.NET MVC used with Visual studio There are much other equipments and applied sciences which can be used with MVC architecture, but we have listed some of these tools and technologies which we are going to use in building our net application the usage of MVC structure [9].

2. LITERATURE REVIEW

MVC Architecture Driven Design and Implementation of Java Framework for Developing Desktop Application: To keep away from the issues of excessive complexity and low flexibility in Java-based totally application. Model-view-controller (MVC) framework is delivered to divide the complete software into the model [8], view and controller, which can enhance the software reusability and flexibility.

A Database and Web Application Based on MVC Architecture: With the motive of illustrating a profitable application constructed under MVC, in this work we introduce one-of-a-kind phases of analysis, design and implementation of a database and net utility the use of UML.

Research on L-MVC Framework: In this paper, the precept and basic components of the MVC pattern are analyzed. Another new very Lightweight MVC framework was created, written by way of PHP and deployed on Linux[11], and then was once applied to an on-line paper submission machine as a demonstration which ambitions to improve the code reusability and maintainability of small functions

Designing an MVC Model for Rapid Web Application Development: In this paper, we existing a mannequin for fast net utility development. This model is based on the Model-View-Controller structure (MVC) and has quite a few different useful aspects like security, shape technology and validation, database gets right of entry to and routing. This mannequin was once applied using the PHP programming language, however it can be implemented in other development languages and environments the usage of the identical concepts.

MVC Architecture Driven Design and Implementation of Java Framework for Developing Desktop Application: In this paper, we graph and put in force a Java MVC framework for growing computing device primarily based software which can separate the data, view and manager of the software.

A Comparative Analysis on Modeling and Implementing with MVC Architecture: A comparative study of a model, described based on the Model View-Controller architecture

paradigm which is constructed over the integration of the aspects and helps convenient access of network services. MVC method eases the horizontal improvement and preservation of large scale allotted net applications in three frameworks.

Geo-fencing enables remote monitoring of geographic areas: surrounded by using a digital fence (geo-fence), and computerized detections when tracked cell objects enter or exit these areas It is primarily based on passive Wi-Fi monitoring and Cloud Messaging. This new strategy let us efficaciously install location-based offerings indoors and provide giant electricity saving for mobile gadgets in contrast with the regular methods.

The implementation of mobile application: which includes iOS and Android version and web-based server end administration system. Mobile software now in a position visualized most of the instructional content and characterize right facts for park users. At utility background, it will be able to gather personal information.

Today, the emergence of m-commerce and Location-Based Services (LBS): characterize a new advertising task as properly as opportunities for retailers. The capacity to track customers' strikes through their smartphone Geographic Positioning System (GPS), approves outlets to refine their trading vicinity and deliver timely and applicable promotional techniques to clients in their instantaneous neighbourhood through geofencing.

With the increasing popularity of smartphones: location-based offerings became a hot topic and an exquisite range of solutions had been over the last years. The majority of applications are based totally on the thought to existing location-specific statistics in case the smartphone user asks for it [14]. A relatively small quantity of purposes is dealing with geo-notifications that are supposed to inform the smartphone consumer proactively about location-specific data in case a devoted sector is entered or left.

3. PROBLEM STATEMENT

Desktops and laptops had been the only endpoints firms dealt with for a lengthy time. Enterprises used normal purchaser administration equipment (CMT) to automate gadget administration and guide functions. Then came the cell device revolution. Soon they transitioned from being private gadgets to also being business enablers. Since this improvement took place at a later point of time, the options to control cellular devices such as MDM had been exclusive and disconnected from typical tools.

With a heterogeneous combination of gadgets coming into the workplace, IT had a tough time managing different gadget sorts and Operating Systems. There used to be a want for a unified solution that should control all endpoints seamlessly. With the introduction of Windows 10 and iOS 11, IT has derived the potential to manipulate both historic and new cell devices, laptops and pcs over the air. The convergence of technology will enable support of common platforms like iOS11 for iPhones and iPads, Mac High Sierra for iMacs and MacBooks, Windows 10 for rugged and mobile devices. Enterprise mobility carriers had been given the perfect probability to sketch a unified approach for managing all kinds of endpoints, apps and content used in a commercial enterprise ecosystem. Hence arose United Endpoint Management (UEM).

What we additionally want is to prioritize the person experience. The success or failure of any mobility initiative relies upon mostly on user adoption. Therefore, each UEM platform enables

the employer to allow essential enterprise approaches through cell apps that are effortless to access and use on any device. But UEM is no longer just about preserving customers happy. It should additionally make the job of IT less difficult with the aid of simplifying access manipulate and authentication and allowing users to manipulate their very own units and effortlessly troubleshoot problems besides relying on the help desk.

With a heterogeneous mix of units coming into the workplace [16], IT had a tough time managing special system types and Operating Systems. There was a need for a unified answer that should manipulate all endpoints seamlessly. With the introduction of Windows 10 and iOS 11, IT has derived the ability to manipulate both old and new mobile devices, laptops and computers over the air. The convergence of science will enable help of common structures like iOS 11 for iPhones and iPads, Mac High Sierra for iMacs and MacBooks, Windows 10 for rugged and cellular devices. Enterprise mobility companies have been given the ideal probability to graph a unified method for managing all kinds of endpoints, apps and content used in a business ecosystem. Hence arose United Endpoint Management (UEM).

One of the features of the product is fencing the place all the devices will be given certain jobs which can solely be performed when inside the fence and some jobs which will be lively solely outside the fence. These features were already existing in the Android Application side, now it wishes to be applied in the Linux side. The method that we have used is the geofencing API in the android side, however getting the geolocation of the laptop computer along with the latitude and longitude differs with the precise location[4]. Therefore we are going to use place-based totally services in order to get the exact vicinity of the device. The geofence has come out to be the utility which helps in the protection of the system and the jobs that need to be carried out either inner the fence or backyard the fence. This without a doubt helps the corporation to keep the music of the device and the jobs that are being carried out from the devices, which increases the efficiency in the experience that the machine is utilised in a suited manner.

4. OBJECTIVES

As the science converted with the generations, we need an administration gadget that suits some criteria's required for the Endpoints. The goals of the UEM Platform should be:

- (a) **Enable preference of system and OS:** To help the mobile devices and computers employees prefer to use, IT has to put into effect and aid a multi-OS UEM solution. As stated previously, patron choice will drive company IT decisions, not the other way around.
- (b) **Provide impervious get admission to cell apps and data:** Employees don't want to raise round exceptional units for work and non-public business. So alternatively of separating devices, it's the responsibility of IT to separate business and personal apps and data on the device [9]. Because users an increasing number of count on their gadgets to control extraordinarily private information, it's vital for IT to maintain the privateness and safety of that data.
- (c) **Ensure UEM aspects are easy to use:** Perhaps most necessary of all, the machine and app administration elements of the UEM solution must be easy to use.
- (d) **Simplify get entry to manage and authentication:** Giving users access to the apps and content material they want on any device requires the capability to now not simply authenticate the user on the device, but to protect access to character employer apps as well.

- (e) **Enable essential commercial enterprise processes:** The most important cellular apps are the ones that enable personnel to have crucial records at their fingertips to make core enterprise decisions.
- (f) **Develop and sketch with the user in mind:** The consumer ride has to be at the centre of any mobility initiative. If the device, app, or content is no longer something customers want or are able to use, then it truly won't be adopted no remember how an awful lot your IT enterprise pushes it.

5. ARCHITECTURE DESIGN AND UML

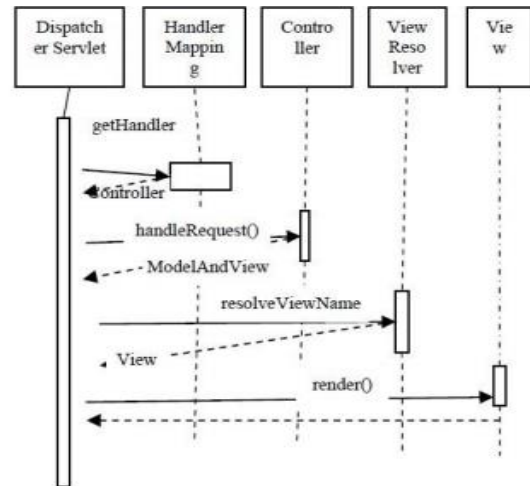


Fig. 2: Architecture

This describes the flow of information along the three components and given is the UML diagram for the structure:

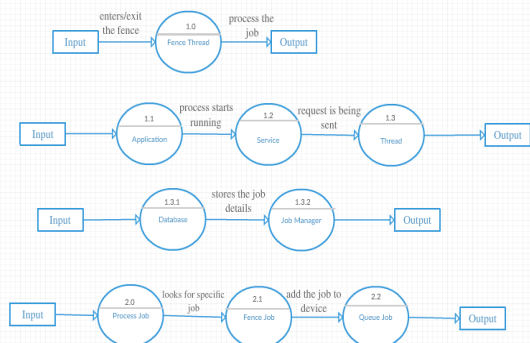


Fig. 3: UML diagram

6. RESULTS AND DISCUSSIONS

We have discussed MVC pattern architecture. We have discussed how it can be beneficial for growing web-based application [7]. We mentioned about the extraordinary advantages of the MVC structure as well as we also talk about some frameworks of MVC architecture. We grant an entire instance of MVC structure in which we increase an e-commerce software using distinctive tools and technologies.

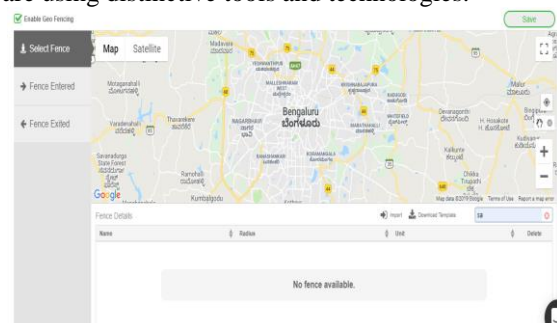


Fig. 4: GeoFencing applications

7. CONCLUSION

One of the foremost limits for this challenge to totally begin will be the lack of messages left for human beings to pick up early in the lifespan of the application. There would have to be a synthetic injection of generic, pre-generated messages inserted into the database. That way new customers will have some incentive to start using it, get accustomed to the UI and the idea [11], while more customers to be a part of and an organic system of clean messages will be generated with the aid of the users.

Over time with the database grows over time with extra and greater messages, a greater sturdy and performance pushed machine may additionally be required. I heard properly things about MongoDB however due to time constraints and no know-how I had to put it off the work list. More functionality is also a foremost consideration. Such as video and image capabilities. Able to leave brief period movies at locations. But this brings a large want for moderation as well as storage capabilities.

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