

# A Location Specific Framework to Unite Trainers and Learners

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**Abstract**— The joy meeting an expert, for a craving learner. The proposed framework connects the ones who are eager to share knowledge to those who are passionate to learn. The system allows anyone to sign up for teaching or learning regardless their profession. Major features of the proposed framework include displaying the location of trainers and trainees as well as it provides all their contact details. The users can interact within the platform by making use of real time messenger application developed using Firebase. This empowers our app's backend, it includes authentication, real time instance updates and data storage. The framework also incorporates Google maps API's to locate users as well as filter the trainers according to the interest of trainees. The application is feasible for those who have decent information on a specific topic and can influence and impart an individual with rich amount of data. From a learner's perspective, anyone who wants to learn anything new, can join the platform and connect with trainers.

**Keywords**—real time messaging; firebase; real time instance update;google maps API;

## I. INTRODUCTION

Over the last decade, the number of people taking online courses and therefore using technology as a tool to enhance their education has increased drastically. Online education is a rapidly fluctuating sector that primarily focuses on enduring and delivering quality education and excel in professional communication[9]. It is difficult to learn everything in classroom since the world is significantly changing with rapid advancements in each and every platform. Most of the students are not able to pay for classroom teaching because of poverty. On the other hand, students have access to internet technology on their fingertips which can be used efficiently. Most of the times in traditional classroom teaching approach, students are not able to clarify doubts because of lack of communication skill. Such problems are solved by the growing social media, internet and remote applications.

In this era of digitization, society is aware of benefits that can be gained from social media networks and build an effective bonding among the community. With an end goal of providing an application that helps learners and teachers to share knowledge and guide the needy who is seeking

education, a framework is proposed. It helps various professionals to exchange their ideas and communicate to solve issues raised to learners. People exchange information in vernacular languages but there is need to express it to the outside world with a global language. The proposed framework will let the learners and trainers to read and understand the massive growth in technology. Though one who is not a trainer by profession but has enormous amount of knowledge can share it for free of cost on such platforms which can be beneficial to the needy.

## II. BACKGROUND STUDY

Location tracking is becoming very much popular in these days. Any location or place can be identified in terms of the geographical coordinates. The location is tracked using any one of the services of the Google [8] i.e. Google maps API, Google Geolocation API, Google places API [1].The benefits of the geolocation are far-reaching and are being leveraged in every part of enterprises – manufacturing, retail sales, financial services, insurance, transportation, utilities and governments. People tend to use geolocation for effective utilization of resources and manage their time. Most of the applications work only when the GPS is enabled. Delivery and asset management, Content customization and delivery and many other services are dependent on geolocation. Identifying the physical location of users by using devices by system using the google maps API [4] and pointing out markers for specific actors and places are really helping people to encourage the use of google maps [6]. In this author is taking the advantage of geolocation for educational sectors and cross the horizon of network learning [9]. It has become possible to provide an excellent web service rapidly. In this paper we will be introducing FIREBASE, which is a real-time database that can communicate [2]. directly from the user. When JSON data is saved to firebase, all users immediately received the changes along with web app. There are many technologies that make backend development an easy task like Ruby on Rails, or services like Heroku but a lot of development time is consumed during building these technologies. Most of the backend concerns are taken into account by the firebase and therefore it is taken as Backend as a Service (BaaS) [2].

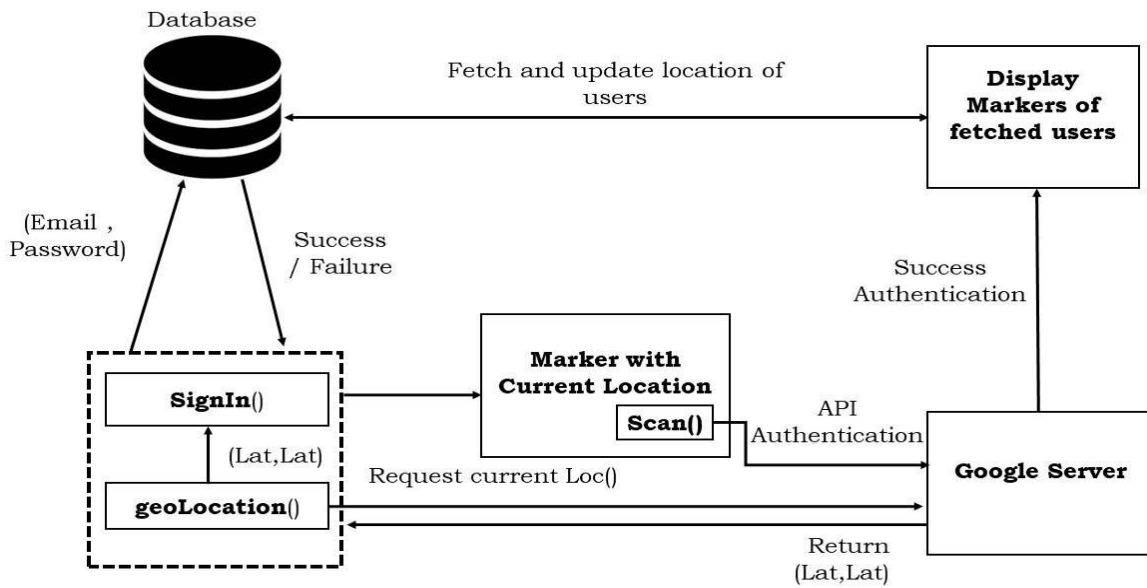


Figure 1: Block diagram of location module of proposed framework

### III. PROPOSED FRAMEWORK

The proposed web application is location specific system. The web application encourages the learners who are really in need of resources and accordance of trainers to gain knowledge. This system enables the learner to track the teachers onto the google map and contact her/him immediately, or else can communicate by using the application's built in chat feature. This reduces the burden of the learners to physically meet the trainers. The google map API is deployed in the web application with real time location tracking technique. This will let the user to get the location of the trainers and meet them in emergency situations. The web application also has integration with the firebase for real time messaging which eases the user to instantly connect to the preferred trainer with respect to his location and clarify his doubts. This will ease the access to knowledge and also help to improve the literacy of the people in the community.

The proposed framework in Figure 1. Encompasses of primarily 2 modules

#### 1. Google Maps Integrated Module

##### a. Google Maps API

The Google Maps is a web mapping service application and technology provided by Google, that powers many map-based services, including the Google Maps website, Google Ride Finder, Google Transit, and maps embedded on third-party websites via the Google Maps API. The Google Maps JavaScript API lets you integrate Google Maps in your own web pages. By using the Google Maps API, it is possible to embed Google Maps site into an external website, on to which site specific data can be overlaid. Version 3 of this API is specially designed to be faster and more applicable to mobile devices, as well as traditional desktop browser applications [6].

##### b. Sign in Module with Location Access Control

This module has a well optimized login system. Behind this the current location of the user is automatically fetched if the location access is allowed in the browser. The fetched latitude and longitude is sent to database for popping out markers on to map. The same operation is done to all the users who have logged in and the details are stored in the database. The Geographic coordinates i.e. latitude and longitude of the current location the geographical coordinates will be obtained with the help of Geo-location API. `getCurrentPosition( )` method retrieves the current geographic location of the user and the hosting device. The location is expressed in terms of geographic coordinates i.e. latitude and longitude. `var lat = position.coords.latitude( ); var lng = position.coords.longitude( );` these values are sent to database.

##### c. Scan Module

Identifying the physical location of users by using devices that can passively or actively determine their location. As the accuracy of geolocation technology has improved[8], there are more use cases for location-based networking than ever before. The scan page is provided with a button that scan the current location with respect to the domain the user has chosen. Here the location of the users corresponding to the domain are selected and their latitude, longitude are dumped with markers on the map. The query is written in such a way the domain of the logged in user is matched with all the other users in the database and only those users whose domain is matched the latitude, longitude of the users are popped in the map with a marker.

The locations will have all the matched users' values and these values are passed to pop the markers. On clicking the markers, an event listener function is called this will display the

info window with the user details (contact, email, current location).

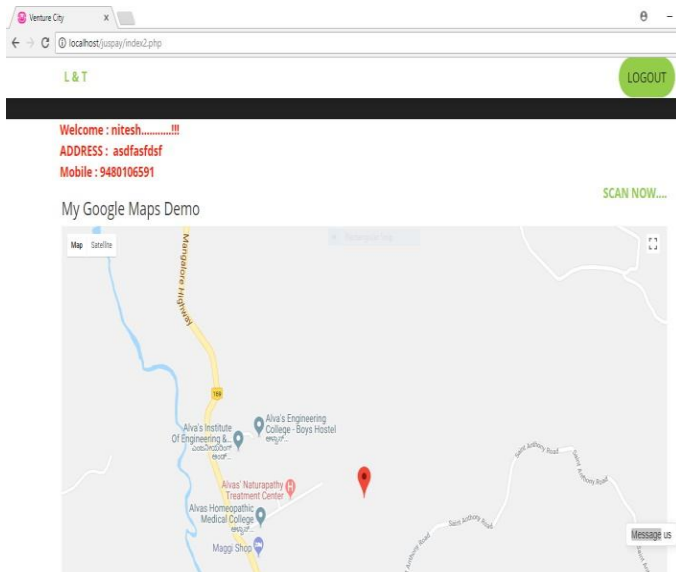


Figure 2: Map showing current location of logged in user

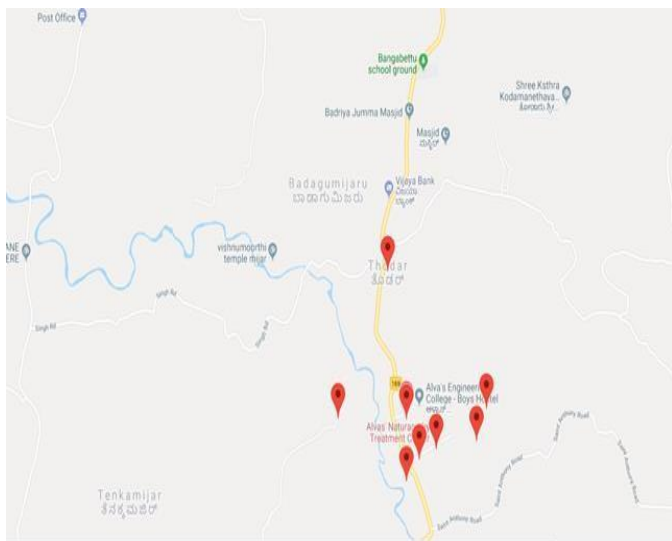


Figure 3: Map showing the scanned users of the system

2. *Firestore real time cloud messaging.*

In the proposed framework we introduce FIREBASE, a real-time database that can communicate directly from the user[5]. When JSON data is saved to firestore, all users immediately receive the changes along with web. Firestore will help us build modern applications faster than ever, with the use of built-in static file hosting, user management, and security rules. Firestore cloud messaging (FCM) inherits Google cloud messaging's (GCM) core infrastructure[3] but simplifies the client development. Developer's no longer needs to write their own registration or subscription retry logic. Now, we integrate FCM in the proposed framework, also FCM includes a web console called Firestore Notification.

a. *Integrate with Google cloud platform*

This undertaking utilizes Google cloud stage to oversee and firestore which uses the center highlights like Firestore Authentication, Firestore Real-time Database, Cloud Storage, and Firestore Cloud Messaging. Distributed storage for Firestore is firmly coordinated with Google Cloud Platform. The Firestore software development kit (SDK) for Cloud Storage store documents specifically in Google Cloud Storage cans, and our application develops. This encourages our application to effectively coordinate with other Cloud administrations.

Firestore engages application's backend, including information stockpiling, client verification, cloud informing and constant moment updates of articles. The administrations given by firestore is picked by the requirements. This will introduce the application with fundamental standards for the application. The database venture URL, stockpiling pail and the programming interface key are created and setup in the content. These qualifications are confirmed with the Google cloud when the task is served.

b. *Initialize the firestore authentication*

The first Page initiates the firestore authentication, when the user clicks the *Sign\_in()* with Google button, this will trigger the *Sign\_in()* function. This will authorize Firestore using Google as the Identity Provider. At this point the *onAuthStateChanged()* function is triggered and changes the identity of the page. This function gets passed a Firestore User object when triggered.

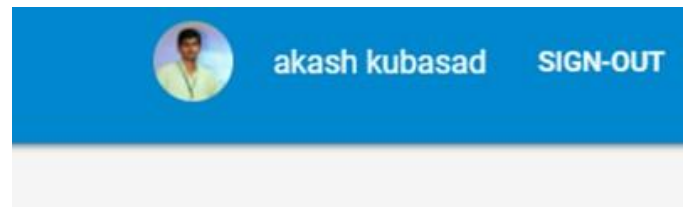


Figure 4: Snapshot of Authentication using Firestore

c. *Maintaining Firestore real time database*

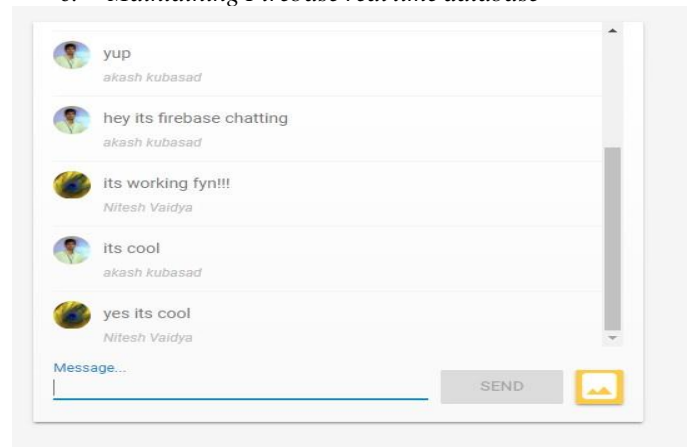


Figure 4: Snapshot of Real time messaging using Firestore

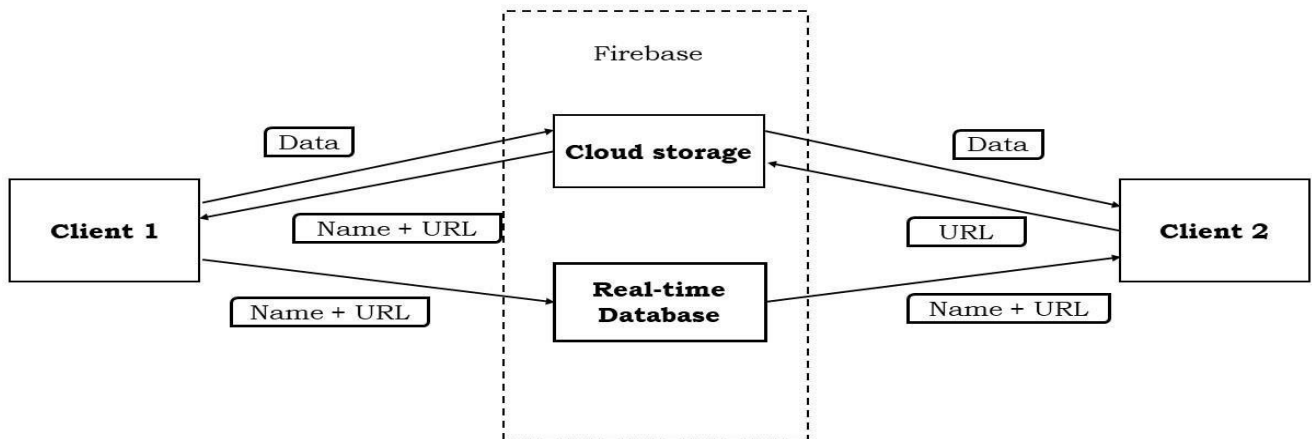


Figure 5: Architecture of Cloud messaging of proposed framework

The Firebase Real-time Database is a cloud-facilitated database. Every customer share one real-time Database case and naturally get refreshes with the freshest information[7]. The real-time Database gives an adaptable, articulation based tenets dialect, called Firebase real-time Database Security Rules, to characterize how information ought to be organized and when information can be perused from or written to. At the point when incorporated with Firebase Authentication, engineers can characterize who approaches what information, and how they can get to it.

This helps the framework to easily create an inbuilt messenger that is flexible, scalable and utilized real time updating of the message objects to firebase and notifying the clients connected

IV. CONCLUSION AND FUTURE ENHANCEMENT

Proposed framework provides an opportunity for learners to interact with trainers and share their knowledge upon the respective domain on a common platform. This framework provides specific benefits such as, ease of accessing location of trainer, a private chat box for sharing and imparting Facts and a common platform to share study materials. This framework in future can be incorporated with a blog section where it would be beneficial for users to write blog as well as conduct webinars on trending technologies.

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