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Android Mobile Application for Social Workers Unification

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ABSTRACT

Cleanliness is the need of the hour. A small step from the end of every Indian citizen can be a big step for protecting the environment. The idea is to develop a mobile application that motivate people to engage themselves in various kinds of social works like planting trees and assist in cleaning the environment to control the pollution. This application helps the individual social volunteer to find the other such social volunteers living in the particular locality that is requiring the help and invite them to join the event by sending them a push message The person notified, if interested, can join the group chat for interacting with other social volunteers and bring out an effective idea to help the needful. Once the volunteers have done their job successfully the volunteer can exit the group and will be rewarded with some points. This mobile application is implemented using Android Studio.

Keywords- Mobile app; Android Studio; Firebase; GPS; Chatting

1. INTRODUCTION

India is at the bottom of the list in the Environmental Health category, it ranks 178 out of 180 (The Economic Times, 24 Jan 2018) as far as air quality is concerned. So, it is now time to take step. Along with the government, it is the duty of every citizen to ensure a clean home and clean street to enable a peaceful living. Nowadays mobile applications like Facebook, Twitter, Instagram plays a crucial role in everyone's day to day life. These applications help people stay connected to each other [7] and enables users to create and share content quickly, efficiently and in real time. It also enables users to participate in social networking.

In this paper, we have proposed a mobile application that provides an interactive environment among the social volunteers who wants to serve their own country by doing all kinds of social works like cleaning, recycling of wastages, planting of trees, etc. to create a pollution free country. This mobile application helps to group the people who are interested to serve the society and then carrying out the social works effectively.

First the user needs to register in this application by filling their details and create account. While creating the account, the user needs to read and agree to the rules and conditions for using this application. User details are stored in the Firebase realtime database. Then, the user can user their registered email and password to login at any time and add events by entering the information about the events like event name, description, date, time and location of the event. The information about the events are also stored in the realtime database. Data is synced across all clients in realtime, and remains available when your app goes offline. Once the event is added, the user can click the event and find the other users near the event location and select more than a required number of users. After selecting the users, invite them by sending the notification to participate in the event. Those who receive notification can either accept or decline the received notification based on their interest and availability on the event day. Users who accepts the notification are directed to the group chat where every other participants of the event can share their views or discuss about the further implementation of the event and bring out a better idea to complete the work. Finally, when the work is completed successfully the participants can exit the group and automatically the users will be rewarded with some points. The scoreboard in the users homepage will display their points earned for their work. The user can also take photo of the event and post in their account where other users can like or share the post. The user will also be reminded on the day of the event.

I. LITERATURE SURVEY

1. Global Positioning System

Authors: Palash Uddin, Zahidul Islam, Nadim

Published Year: 2013

The GPS, elaborated as Global Positioning System, is a satellite-based navigation system made up of a network of 24 satellites placed into orbit by the U.S. Department of Defense in 1973. GPS was originally intended for military applications, but in the 1980s, the government made the system available for civilians [3]. GPS works in any weather conditions, anywhere in the world, 24 hours a day. The proposed system uses GPS and any mobile phones having an Android operating system to track the location of a person whenever necessary.

2. Android Based Instant Messaging Application Using Firebase

Authors: Sai Spandhana Reddy Emmadi, Sirisha Potluri

Published Year: 2019

Chatting applications enables us to stay in connected anytime, anywhere from any part of the world. It provides text-transmission over the Internet [10]. Messages are transmitted between two parties i.e. The sender and the receiver, it can also be between more than two parties (group chatting) [7]. The proposed system uses the group chat application for interacting with the group of people.

3. Push Notification on Android

Authors: Rasha el Stohy, Nashaat el Khamsey, Haitham el Ghareeb

Published Year: 2016

Push notification service on Android (PNS) is an important aspect for application developers, Unlike SMS and Bluetooth; PNS are free and have no coverage problem [6]. Push messaging in many situations is a vital aspect of the usability and functionality of an application. The proposed system uses PNS to notify the particular people about the event.

I. EXISTING WORK

Most of the existing social work mobile applications are based on the education, stress relief, food wastage management. The user does not have any proper mobile application to unite the set of social volunteers who are interested in doing social works like cleaning, creating awareness among people, recycling of wastages and carrying out the works in a very effective and fastest manner.

II. PROPOSED WORK

The proposed mobile application enables the user to create account and can add any number of events in their account. Then the user can find the other users around the event location by enabling the GPS [2] and select more than a required number of people among the suggestion list. After selecting a group of people, the user can create a message about the event along with the group chat link and send it as a push notification [6] to the selected group of users. The users who receives the notification can either accept or decline the request. The social volunteers who wants to accept the request can click on the link received in the push notification and will be directed to the group chat for interaction with the other participants of the event. It provides an internet based instant messaging application which provides the user to communicate with other users in a fast and convenient way [10]. The volunteers can exit the group once they have successfully completed the work.

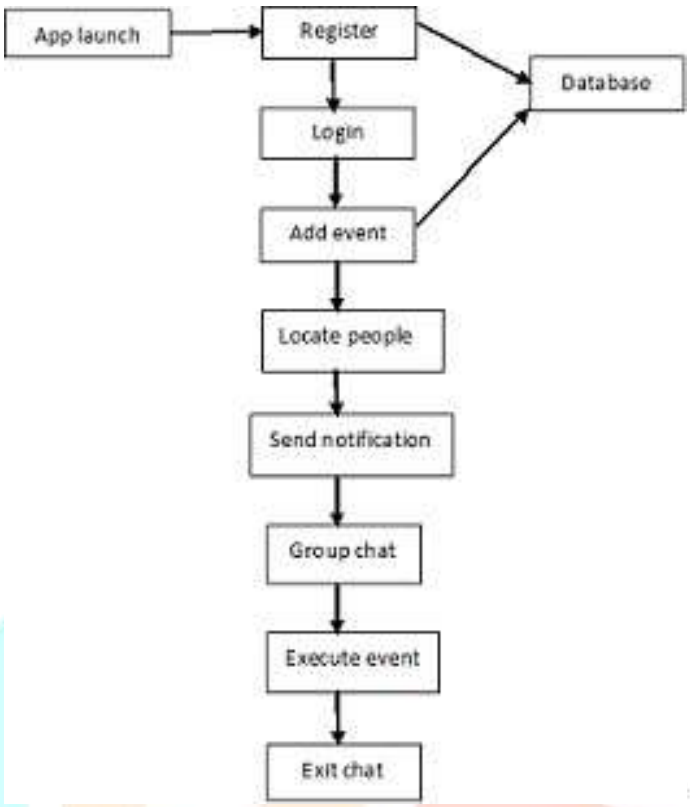

Figure 1: Flow diagram

IV. MODULES

A. Login Module

Firebase Authentication is useful to both developers and the users. Developing and maintaining sign-in set-up may be a bit difficult and time taking. Firebase provides an easy API
[10] for sign in. The user must register their credentials to use this application**.** The application will ask for a username and password, previously created in the Database. The user must use the valid username and password to sign into the application. This authentication process is to avoid some malpractice.

B. Event Module

This module is developed for the users to create the events. The user can add the event by providing the event information such as event name, event description, date, day, time and location of the event. The user can also edit or cancel the event in this module.

C. Track Module

GPS works in any weather conditions, anywhere in the world, 24 hours a day [3]. Once the event is added, this module uses the GPS tracker to find the users in and around the event location and send them a notification of the event.

D. Chat Module

This module provides an interactive environment for the participants of the event. Here the participants can share their views and ideas and make decisions on how to complete the work in a most effective way. After the successful completion of the work, this module let the users to exit the group.

V. IMPLEMENTATION

A. Android Studio

Android Studio is the official integrated development environment for Google's Android operating system, built on JetBrains' IntelliJ IDEA software and designed specifically for Android development. It is available for download on Windows, macOS and Linux based operating systems. It is a Java integrated development environment for software, and incorporates its code editing and developer tools. Android Studio provides the fastest tools for building apps on every type of Android device. Android Studio supports all the same programming languages of IntelliJ (and CLion) e.g. Java, C++, and more with extensions, such as Go and Android Studio
3.0 or later supports Kotlin and "all Java 7 language features and a subset of Java 8 language features that vary by platform version.

B. Firebase Realtime Database

The Firebase Realtime Database is a cloud-hosted database. Data is stored as JSON and synchronized in realtime to every connected client. When you build cross-platform apps with our iOS, Android, and JavaScript SDKs, all of your clients share one Realtime Database instance and automatically receive updates with the newest data. The Firebase Realtime Database lets you build rich, collaborative applications by allowing secure access to the database directly from client-side code. Data is persisted locally, and even while offline, realtime events continue to fire, giving the end user a responsive experience. When the device regains connection, the Realtime Database synchronizes the local data changes with the remote updates that occurred while the client was offline, merging any conflicts automatically. The Realtime Database provides a flexible, expression-based rules language, called Firebase Realtime Database Security Rules, to define how your data should be structured and when data can be read from or written to. When integrated with Firebase Authentication, developers can define who has access to what data, and how they can access it.

Figure 2: Realtime Database

I. RESULT

The final system will result as a real time communication application which provides the users to communicate to each other with an ease. The mobile application permits the user to add event and invite other users of this application to the event by sending notification. Also, the mobile application allows the users to communicate and share their ideas with other participants of the

event easily and accomplish the work. This application would be a great help for grouping social volunteers where they are needed and carrying out the task soon.

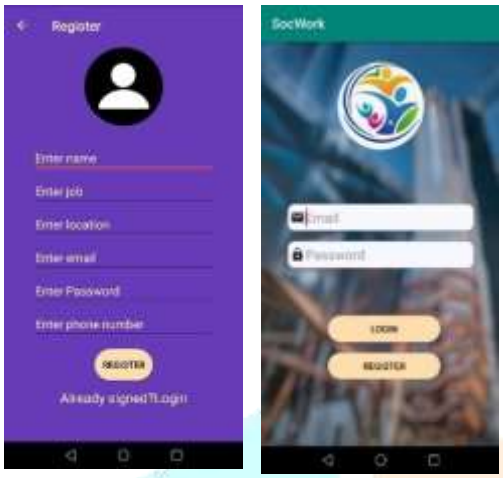

Figure 3: Register and Login

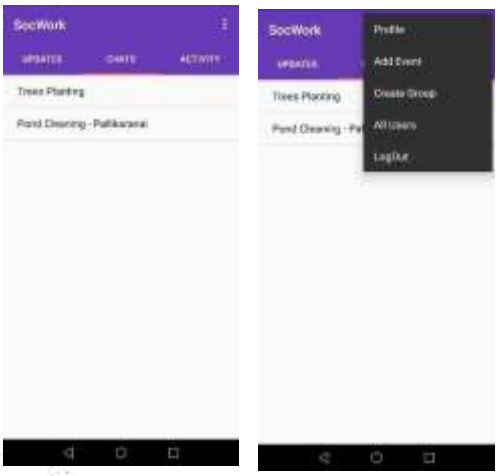

Figure 5: Home Page

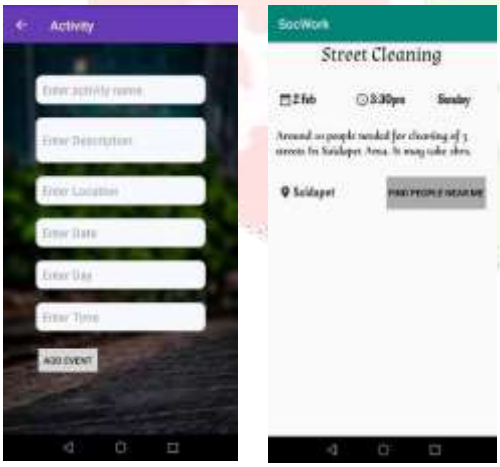

Figure 4: Event Register and Event detail

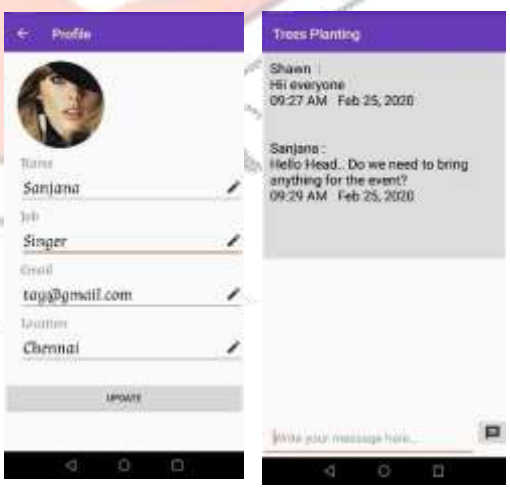

Figure 6: Profile Updation andGroupchat

I. CONCLUSION AND FUTURE ENHANCEMENT

The proposed mobile application will surely help the individual social volunteer to find people like him/her and gather and manage them to do the social works. This application will be a great help for each of us to do our best to control pollution and to help restore ecological balance.

In future the application may further developed to include some features such as data mining to find frequently participated users and live streaming of the event.

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