Advanced Automated Attendance System Project

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Abstract: *The Advanced Automated Attendance System is designed in such a way that when the person is getting late but is near to the destination, he/she can simply login to their unique id on the mobile application and can request for delay simply by clicking a button. The application fetches the user location and compares it with the range to check whether the person has reached the range selected by the admin and give them a leverage of a certain time delay again decided by the admin. The entire system mainly works on the internet and Global Positioning services to make it accessible to multiple user at the same time and provide the location of the person/student. The system also includes a biometric sensor that fetches the image on sensing a finger and compare it with the existing records of the persons to give a confirmation of the arrival of a specific person to the source.*

Index Terms - Android Mobile Application, Designed Website, PHP, Postman Software, Android Studio, Digital India

I. INTRODUCTION

1.1 Basic Principle

The Advanced Automated Attendance System is designed in a way such that when the person is getting late but is near to the institute's location, he/she can simply login to their unique id on the attendance website and can request for delay simply by clicking a button. The website fetches the user location and compares it with the person's current location to check whether the person has reached the range selected by the institute and give them a leverage of a certain time delay again decided by the admin.

The entire system mainly works on the internet and Global Positioning services to make it accessible to multiple user at the same time and provide the location of the person/student. The system also includes a biometric sensor that fetches the image on sensing a finger and compare it with the existing records of the persons to give a confirmation of the arrival of a specific person to the admin.

Once active, location can easily be tracked from anywhere and at all times using the Android Mobile Application**.** The website is mainly a user interface that is supported by the backend that keeps the track of the data and passes the data to the user interface as per the command by the user. As soon as any key to submit a request is pressed, that request then moves to the API for relevant data gets temporarily stored in API and then the content is fetched from the database and is sent back on the website as an output. Thus, we can say that the API acts as a bridge between the user interface(website) and the backend data.

1.1.1 Concept of Automatic System

- Improving the efficiency of applications of mobile tracking and attendance systems.

- One Step Towards Digital India.

- Reduces chances of getting late due to minor delays on the way.

1.2 Idea behind the project

II. The attendance system has been made automated almost everywhere and it has made the attendance work very easy but the main issue in this system is time i.e. if the reporting time is 10 o'clock in the morning and the person reaches 5 or 10 minutes late then also he is considered as late comer. Sometimes the reason behind this maybe that the person is stuck in the parking traffic or is waiting for the lift and so he was not able to log in or punch in on time. So, the person is considered late even though he reached the office or college in time but was unable to enter the premises because of some parking issues or lift issues.

 III. DESIGN AND IMPLEMENTATION OF PROPOSED SYSTEM

2.1 Algorithm

1) Log in the mobile application.

2) Get detected for the range criteria.

3) Request for delay.

4) Location checked and stored in server.

5) If in range, request is approved.

6) Delay generated and provided by the server.

7) Biometric verification to ensure the effectiveness of delay.

8) Exit from the mobile application
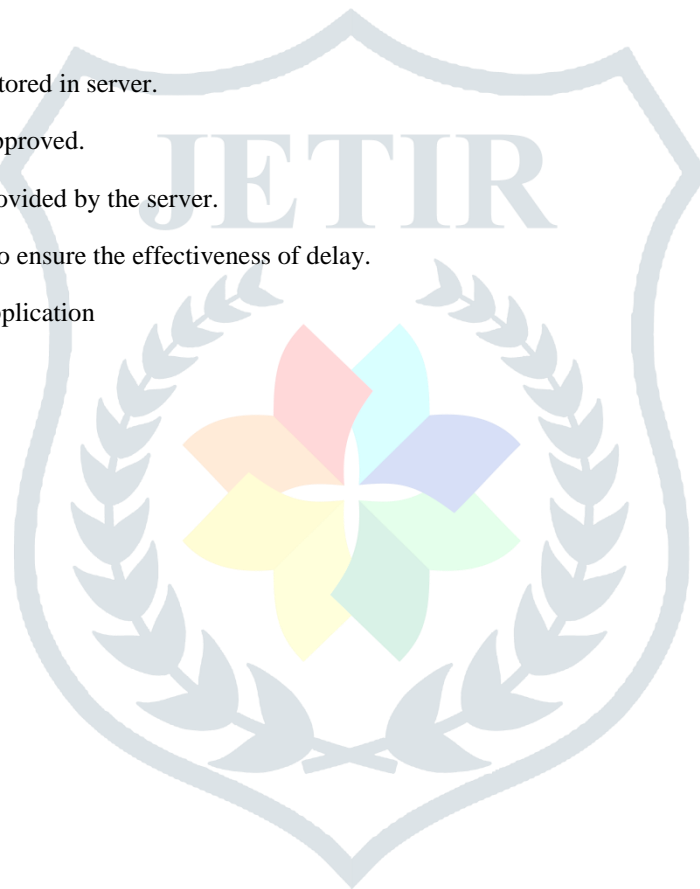
2.2 Design (Flow Chart)
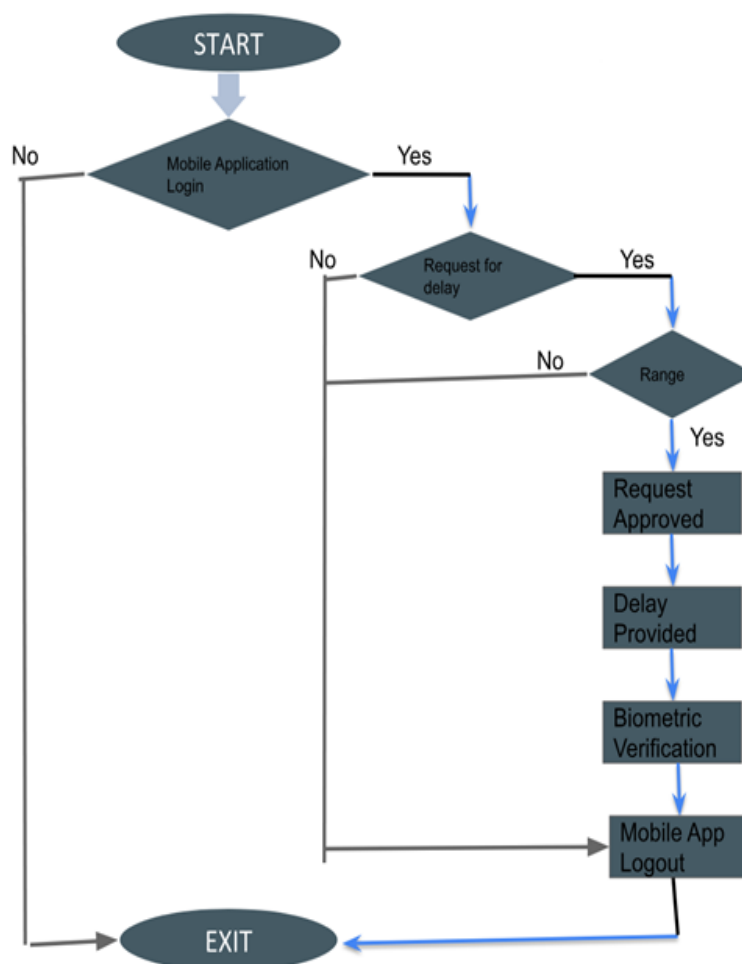

Figure 1 Flow Chart of Proposed System

2.3 Implementation

2.3.1 Hardware Modules

1) **Designed Website:**

The website is used to let the users access their account to request for delay. The website is used to provide a universal access to the users and making very easy to process request on the go. The web page will be https://asarf94.000webhostapp.com/. The internet service provides the location of the user and compares the location distance.

2) **Android Mobile Application**:

The application made using Android Studio is the official integrated development environment (IDE) for Android application development. It is based on the IntelliJ IDEA, a Java integrated development environment for software, and incorporates its code editing and developer tools.

2.3.2 Software Description

1) **Database**: It virtually stores the data of the person in the form of char and int so that it can be accessed as an when passed an API for it. The database mainly stores the personal details of the person, person id, user defined password for login and its delay request record.

2) XAMPP: XAMPP is a free and open source cross-platform web server solution stack package developed by Apache HTTP Server, MariaDB database, and interpreters for script written in the PHP.

3) MySQL: It is an open source relational database system (RDBMS)based on structured Query Language (SQL). All the databases stored in PHP run on SQL.

4) PHP: It stands for Hypertext Pre-processor, widely-used open source general-purpose scripting language that is especially suited for web development and can be embedded into HTML. In our project all the coding for the website has been done using PHP.

5) Postman Software: Postman is a powerful tool for performing integration testing with your API. It allows for repeatable, reliable tests that can be automated and used in a variety of environments and includes useful tools for persisting data and simulating how a user might actually be interacting with the system.
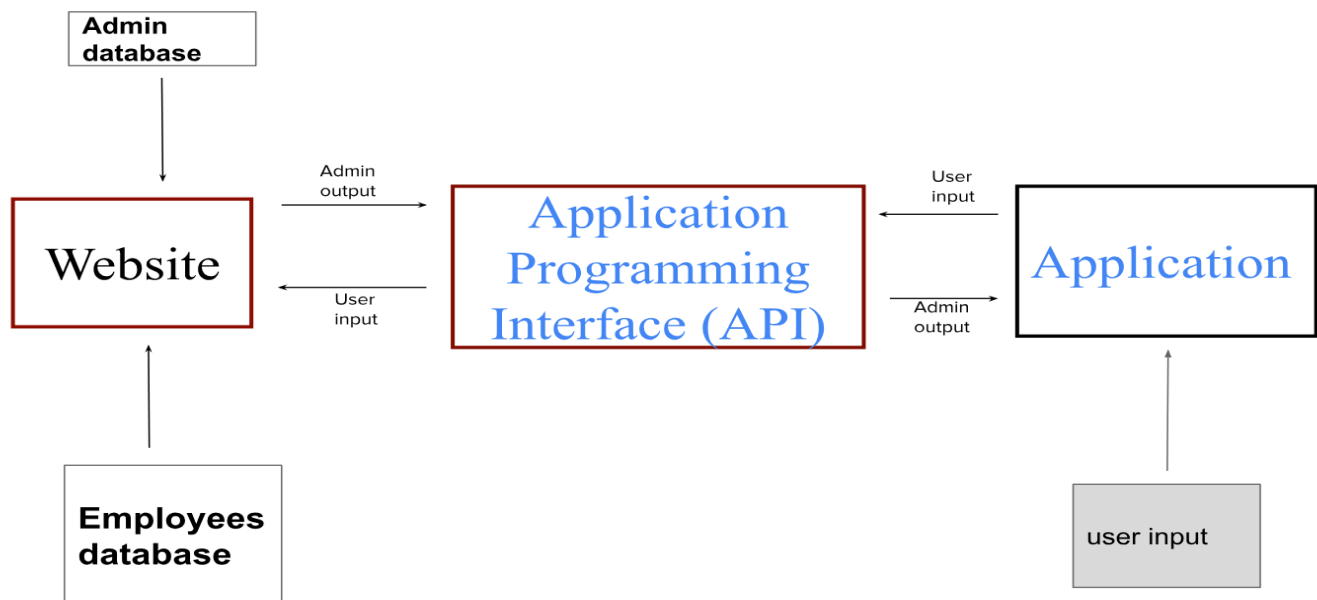
IV. EXPERIMENTAL SETUP

Figure 2 Block Diagram

V. WORKING

First of all, we need to have a valid mobile android Platform using google android studio for the installment of the mobile application and to initiate the user profile. From there, we can visualize the attendance throughout the system from anywhere and anytime.

When the person with valid user ID logs in the application, the person has to allow the application to use the location of the mobile's GPS system. And when the person requests for delay, the location will be detected and checked with range criteria. Now if the location is in range, the delay request will be generated inside the server and will be accepted and shown to the person. Biometric Reader verifies it with the server to check if the delay request was successful or not. If it is successful it will verify the biometrics of person and will tell whether person made it in the delay request or not.
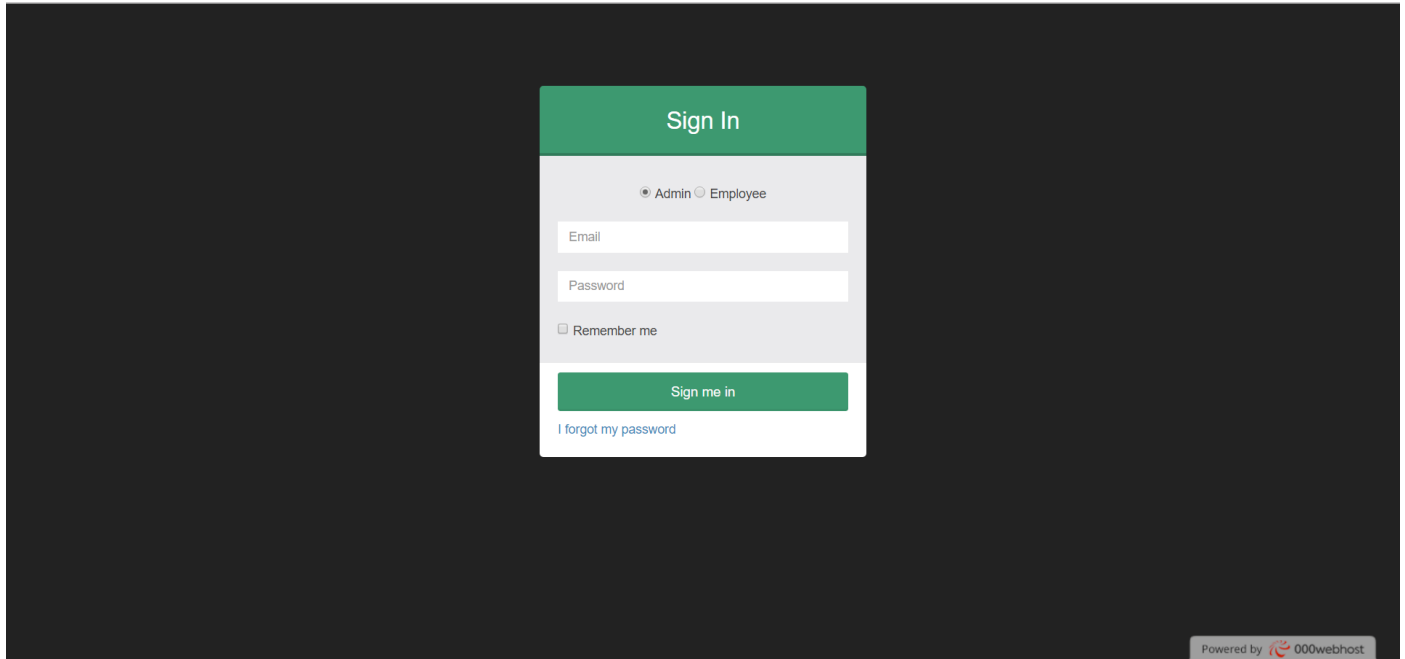
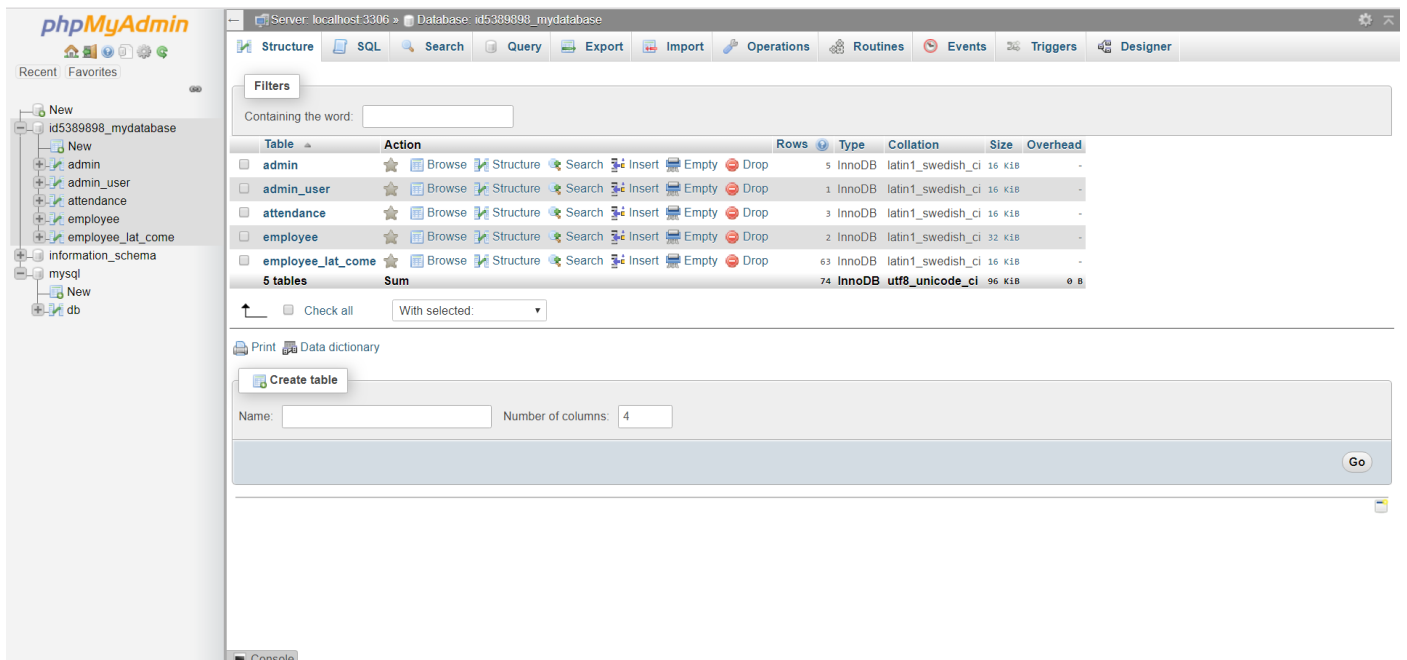**Figure 3** Login page

Figure 4 Request page
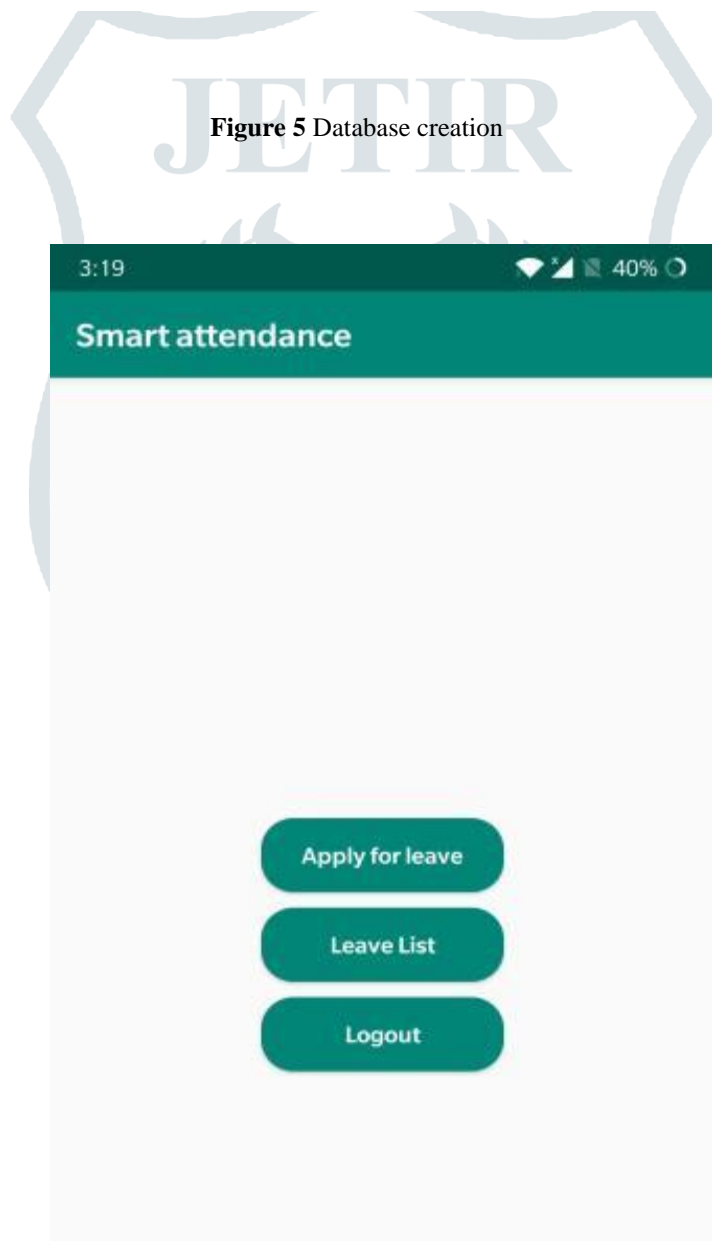
Figure 5 Database creation

Figure 6 Mobile Application main page

VI. FUTURE SCOPE AND CONCLUSION

We can make web-based app to increase the accessibility for non-android users. We can interlink this project with main direct servers for better efficiency and more uses. We can integrate the firebase API in the project for enabling notifications between admin and user. We can provide an option for second delay in rare case of first delay not being used due to an emergency. We conclude by saying that we have developed a mobile application and a website for smart automated attendance system and achieved this project's objectives.

REFERENCES

1) http://php.net/manual/en/intro-whatis.php(introduction about php)
2) https://en.wikipedia.org/wiki/XAMPP
3) https://searchoracle.techtarget.com/definition/
4) http://www.nextscreen.in/blog/6-advantages-of-choosing-php-over-other-languages/(php advantages)
5) https://medium.com/@mindfiresolutions.usa/a-comparison-between-mysql-vs-ms-sql-server-58b537e474be (ADVANTAGES OF MySQL)
6) https://www.gps.gov/ (gps)
7) https://www.eetimes.com/document.asp?doc_id=1278363
8) https://www.paperstreet.com/blog/how-to-fix-warning-session_start-function-session-start-cannot-send-session-cache-limiter/(To solve the session error)
9) https://stackoverflow.com/questions/8028957/how-to-fix-headers-already-sent-error-in-php?utm_medium=organic&utm_source=google_rich_qa&utm_campaign=google_rich_qa(To solve the header error)
10) https://in.000webhost.com/(To make the website)
11) https://www.toolsqa.com/postman/api-testing-with-postman/(for API testing using postman software)
12) https://developer.android.com/studio(for app development)