

Design and Implementation of Fix to Flexible Time Extension GPS System to Avoid Unexpected Traffic Emergency

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ABSTRACT: In today's world things has become faster and punctuality a must, especially in institutes likes schools, colleges and offices. The attendance systems have been made with automatic responses and is being used everywhere, this has made the attendance procedure easy to handle and the most accuracy but the main issue in this system is being considerate on legitimate reasons, for example if reporting time is 10 o'clock in the morning and the person reaches 5 or 10 minutes late due to traffic jam or cross roads in the area even then he/she is considered as late. 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 time. This especially is a concern in the metropolitan cities of our country where traffic is uncertain yet constant and sadly stagnant in the major areas of the cities. To overcome this problem we are tried to develop a program in which if the person reaches a predefines range from the office area and is just getting late because of the parking traffic or the delay of the lift he can send a signal or message from his phone, and when the attendance system receives this signal it conforms the persons position with the help of GPS and then grant him a grace time so that he is not considered late. But the grace time would be provided for a fixed distance only, when it is confirmed that the person can reach within the specified grace time. This not only saves the attendance but also reduces the problems of being impatient and the chances of over speeding and other accidental damages due to hurry can be avoided. The program will not only be helpful to the employee but will also let the employer keep a track of the data and understand the punctuality of their employee .

KEYWORDS: punctuality, SAS: Smart attendance System, GPS: Global Positioning services.

I. INTRODUCTION

The Smart Automated attendance System:(SAAS) is designed in a way such that when the employee 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 employee's current location to check whether the employee has reached the range selected by the institute and give them an advantage of a certain time delay again decided by the company. The entire system mainly works on the internet and Global Positioning services to make it accessible to multiple users at the same time and provide the location of the employee/student. The system also includes a biometric sensor that fetches the image on sensing a finger and compares it with the existing records of the employees to give a confirmation of the arrival of a specific employee to the company.

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1. Concept:

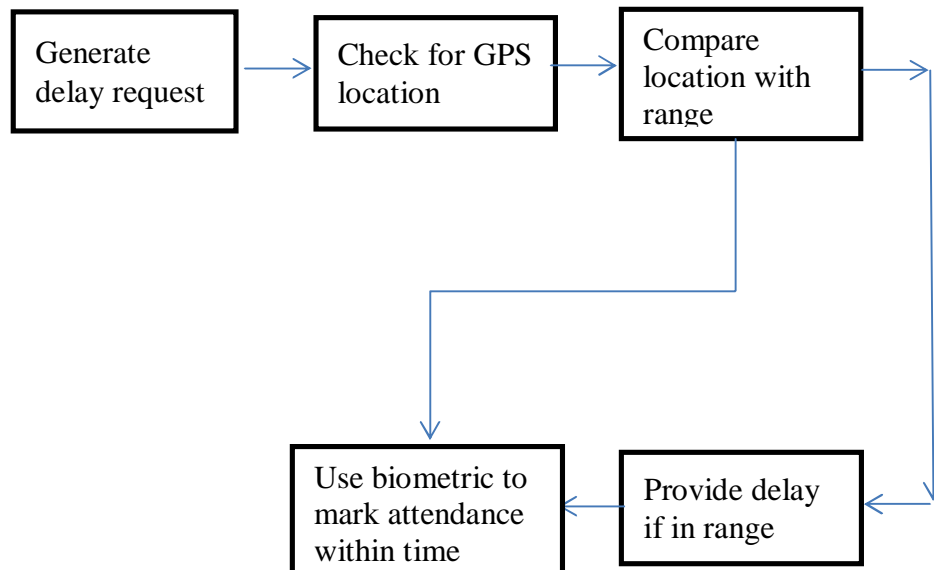


Figure-1 block diagram

The figure 1 shows the procedural working of the Smart Automated Attendance System. It shows a systematic representation of the working of the project giving a brief idea. The first block representing “generate delay request” explains that the employee is delayed due to some issues because of which person wishes to take a delay and thus it logs in to our website and enters the username and password. After signing in person is relocated to the next page that shows a button, if in the range from the institute’s location decided by the employer and generates a delay request on pressing the delay button.

2. Website design:

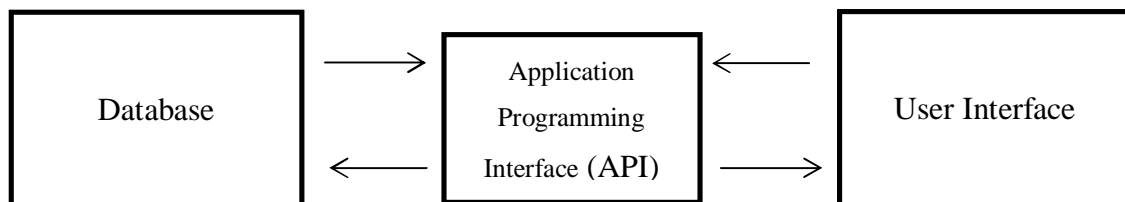


Figure 2 software process

The figure 2 website process 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.

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II. SYSTEM MODEL

Software: 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. Database: It virtually stores the data of the employee so that it can be accessed as a when passed an API for it. The database mainly stores the personal details of the employee, employee id, user defined password for login and its delay request record. XAMP: XAMPP is free and open source cross-platform web server solution stack package developed by Apache Friends, consisting mainly of the Apache HTTP Server, MariaDB database, and interpreters for scripts written in the PHP and Perl programming languages. XAMPP stands for Cross-Platform (X), Apache (A), MariaDB (M), PHP (P) and Perl (P). It is a simple, lightweight Apache distribution that makes it extremely easy for developers to create a local web server for testing and deployment purposes. Everything needed to set up a web server – server application (Apache), database (MariaDB), and scripting language (PHP) – is included in an extractable file. XAMPP is also cross-platform, which means it works equally well on Linux, Mac and Windows. Since most actual web server deployments use the same components as XAMPP, it makes transitioning from a local test server to a live server extremely easy as well. MySQL: It is an open source relational database system (RDBMS) based on structured Query Language (SQL). This language generally runs on all the platforms, including LINUX, UNIX and Windows. Although it can be used on, wide range of applications and online publishing and is an important component of an open source enterprise LAMP. LAMP is a web development program that uses LINUX as its operating system, Apache as its web server, MySQL as the relational database management system and PHP as the object oriented scripting language. **Hardware:** Biometric Sensor: Secugen Hamster Pro 20 is the fingerprint sensor used in this concept to receive and compare data from the user.

III. PROPOSED METHODOLOGY AND DISCUSSION

Welcome Page, Login Page, Session Page, Logout Page, Configuration, Database creation all information available on *figure 3*.

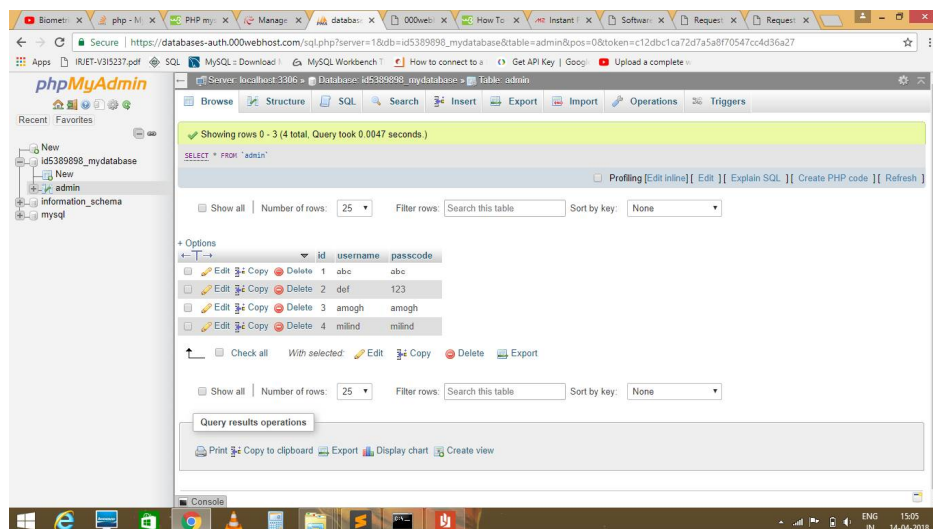


Figure 3 Database creation

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HTML is a format that tells a computer how to display a web page. The documents themselves are plain text files with special "tags" or codes that a web browser uses to interpret and display information on your computer screen. HTML stands for Hyper Text Mark-up Language, An HTML file is a text file containing small mark-up tags; the mark-up tags tell the Web browser how to display the page, An HTML file must have an htm or html file extension. Create Your Own Page It's time to create your own page. Use your text editor to create a page, which contains the following: • the required HTML page codes • link to another web page • an email link • a picture/graphic • a list of information, which is mansion in *figure 3*.

We begin our program with start of HTML script. Body tag embedded inside the <html> tag. Where we create our table. Set width attribute of table tag with (value="345"), another attribute bg color is used to set background color. Create a textbox of user name field. First, create row using (<tr>). Set table heading (<th>), and a column (<tr>) inside this we create a textbox using <input> script. We create another textbox of password field within inside <td> tag. create a submit button using <input type="submit"> tag. Merge two column using colspan=two. Moreover, signup declare inside anchor <a> tag to make it link. Close body (</body>) tag and HTML (</html>) tag. When working with an application on computer, open it, do some changes and then close it. This is much like a Session. The computer knows who you are. It knows when you open the application and when you close it. However, on the internet there is one problem: the web server does not know who you are and what you do, because the HTTP address does not maintain state.ASP solves this problem by creating a unique cookie for each user. The cookie is sent to the user's computer and it contains information that identifies the user. This interface is called the Session object. The Session object stores information about, or change settings for a user session. Variables stored in Session object hold information about one single user, and are available to all pages in one application. Common information stored in session variables is name, id, and preferences. The server creates a new Session object for each new user, and destroys the Session object when the session expires. All of the products that we're about to install require a database on the server in order to store content such as web pages, forum postings, and information about images. When you come to install and configure the products, you will be asked to provide details of a database that can be used. Therefore, if you intend to install any of the products, you MUST first create a new database on your web server. There are various web database technologies, but one of the most popular is MySQL.

IV. EXPERIMENTAL RESULTS

Analysis based on Login Page, Request Page, Extension Page

1) Login Page:

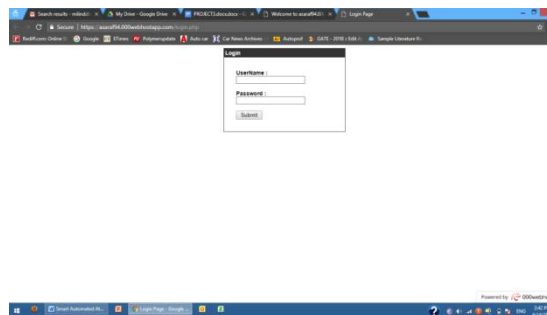


Figure-4 login page

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The image is the login page shown in *figure 4*. The employees can login to this page once they wish to request for a delay. The login page is designed so that we get the information as to who requires the delay. The delay provided depends on the company's policy. The website provides multiple accesses to the employees' respective ids. On submitting the username and designed password, the user can get an access to the delay option.

2) Request Page

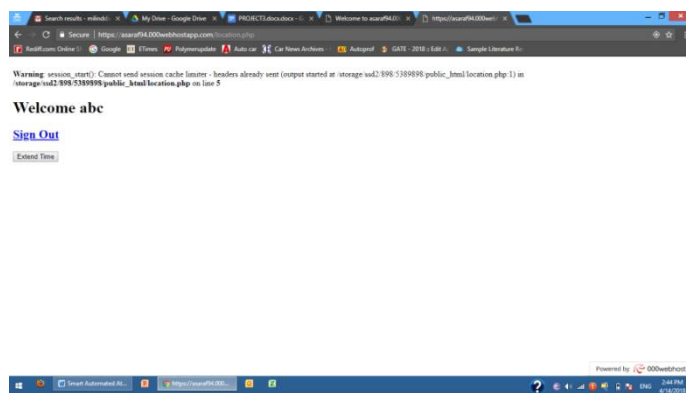


Figure-5 Request form

The *figure 5* is the request page. The employee will be moved to this page once he logs in and an option of sign out will be visible and if in the desired range then "extend times" option will be visible on the screen that's explain in *figure 5*.

3) Allowed Extension

The "extend time" button is pressed the popup of delay is activated. Once the delay is activated, the employee gets an access to the extended time shown in *figure 6*.

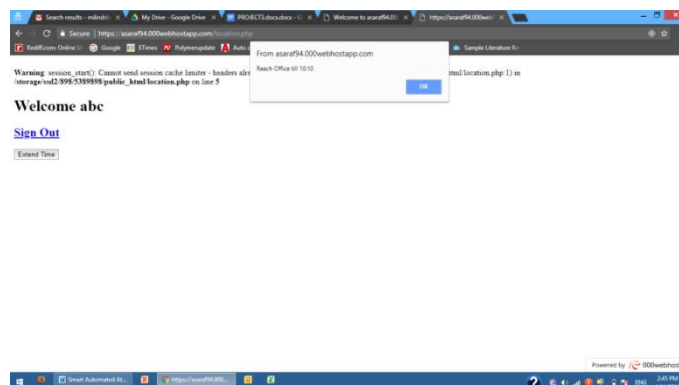


Figure 6 final extension allowed page

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TROUBLES AND TROUBLESHOOTS

1. Trouble: The errors in the code written.
Troubleshoot: Reading the error lines and then finding out the errors and resolve them.
2. Troubles in making the website:
 - i. Warning: session_start()[function.session-start]:Cannot send session cache limiter – headers already sent
Troubleshoot: Do the session start before any echo in the code.
 - ii. Cannot modify header information - headers already sent by (output started at)
Troubleshoot: 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 used this link and took help to solve the error.
 - iii. No connection between login page and welcome page.
There was no exit function in the login page and so the connection was not established.
 - iv. **Warning:** session_start(): Cannot send session cache limiter - headers already sent (output started at /storage/ssd2/898/5389898/public_html/location.php:1)
in **/storage/ssd2/898/5389898/public_html/location.php** on line 5
Troubleshoot: This warning is still in the website because we are using a free host to host our website and so the session is limited and that is why the session cache is limited and the warning is displayed. It would be rectified once we will use the paid version.

V. CONCLUSION

Task successfully covers the basic ideology behind the inspiration of latecomers, it facilitates the need of the employee as well as any employee who has to be in time, following points that cover the major portion “delay or extra time to the employee a database to the employer in a way reducing rush driving and hence ensuring the safety of the employee”.

VI. FUTURE SCOPE

1. Mobile Application: We can make mobile application for different platforms popular among the users to provide easier access to the users and handling applications on the phone will be simpler.
2. Accurate Geolocation: In the future use, we can fetch Google API to enhance the location accuracy provided by Google. It is a part of the updating because for each database entry we require one API and each API is heavily charged. Thus can be used later when the project will be used for a particular organization.
3. Increase in the data field: We can increase the data field stored in the database to increase the number of data storage as per the requirement of the situation.
4. Automatic request for delay once you are in the range and you may get late. For example, your reaching time is 10 o'clock and from your current location it will take you 15minutes atleast and it is already ten minutes to ten then as soon as the you enter the range you will be provided with a delay, you need not stop and pass a request and wait for its approval the application will automatically take care of most of it.
5. Artificial Intelligence: The similar concept can be implemented by using artificial intelligence also. This method can be implemented in areas where the user can be alerted as soon as the user reaches closer to the place where he/she can complete their tasks. For example, if a person adds in their commotion list of visiting the departmental store, so as soon as the person is about to get closer to a departmental store he/she will be intimated but it will be on the user whether they need to continue or move in the direction of departmental store.

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