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GEO Attendance System

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Abstract: *Most educational institutions still use the old-fashioned method of manually tracking students' attendance, we've created a "web-based attendance management system and mobile android version" to address the issues with manual attendance. The Attendance Management System is built on a web server and may be used on any PC or Android phone. The database is located on a distant server that the system talks with. The proportion of pupils that show up for class is automatically calculated. Without the need for any paper or pencil. The system's interactive design and automated processing of attendance management make it easier for end users to utilise. "Attendance Management System" may be used by any institution to quickly and efficiently track attendance and provide better outcomes in less time. Unique ID is provided to each staff member who will be scanned by the RFID reader thus giving the actual time and location of the employee. In this paper, we have proposed a unique integration of GPS and RFID technology for a smooth and precise attendance management system.*

I. INTRODUCTION

In certain academic system, teachers' attendance is critical for facilitators of learning. This shows why teachers should attend lectures and responsibilities. Most institutions still use conventional attendance systems. Teachers often complete the attendance form manually. A teacher might sign for an absent team member under this system. This attendance document might also be lost. A stricter method to avoid teacher attendance cheating is to call out each instructor's name and verify each student's presence. And Biometric like fingerprint, retinal scan, voice recognition, etc. Same issue with instructors' attendance systems; they can't tell whether professors attended complete lectures or school/college hours. Manual attendance procedures are difficult and time-consuming. A semi-automated method is needed to eliminate these issues. To minimise data loss and create a paperless, greener environment, we're developing a portable attendance system with an online database.

The programme will also eliminate wasted time, increasing class productivity. Paperless attendance systems exist; however, they need a computer or RFID reader, which increases hardware and maintenance costs. With this in mind, we've created a solution that requires minimum hardware and software while boosting the mobility of current attendance systems. Teachers' attendance is crucial for facilitators of learning in several academic systems. This demonstrates the importance of instructors attending lectures and taking on duties. The majority of colleges continue to employ traditional attendance methods. Manually filling out the attendance form is common among teachers. Under this arrangement, a teacher may sign for an absent team member.

This attendance record might possibly be misplaced. Calling out each instructor's name and verifying each student's presence is a more stringent approach of preventing teacher attendance cheating. Biometrics, such as fingerprints, retinal scans, speech recognition, and so on. Instructors' attendance systems have the same problem; they can't detect whether professors attended all of their lectures or all of their school/college hours. Manual attendance techniques are time-consuming and complicated. To solve these problems, a semi-automated solution is required.

We're working on a portable attendance system with an online database to reduce data loss and create a paperless, greener workplace. The software will also cut down on wasted time in the classroom, resulting in more production. There are paperless attendance systems, but they need a computer or an RFID reader, which adds to the hardware and maintenance expenses.

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II. LITERATURE REVIEW

Authentication is the process of determining whether a person is who or she claims to be. The biometric authentication process consists of several stages: measurement, signal processing, pattern matching, and decision making. Measurement involves sensing biometric characteristics and is necessary both for the creation of the reference model and for each authentication trial. For example, when voice verification is utilized, this stage involves recording one's voice through a microphone. Then the digital data are mathematically modelled. When the user wants to be authenticated, the device compares the received data to the user model and makes a decision mostly based on a pre-calculated threshold. Biometric authentication systems are not 100% accurate. There are two types of errors in a typical biometric system. A false reject (FR) error is the rejection of an authorized person trying to access the system. A false accept (FA) error is the acceptance of a person who is not in fact who he or she claims to be. These two types of errors are inversely proportional and in general can be controlled by a confidence threshold. To increase the security of the system, the threshold can be increased, which decreases FA errors and increases FR errors.

As we found in the current framework, there are bunches of issues confronting while at the same time utilizing the equipment-based attendance system. So, in order to defeat this issue and with respect to issues we had given and stage where client can undoubtedly take attendance and beats every one of the challenges. In the present era there is no any single instructed individuals who don't have android cell phones in their grasp. So, by taking it as a primary concern we fabricating an Android based application which gives a stage where instructors are go to their self by just entering in the college campus.

III. PROBLEM STATEMENT

Using as much of the teacher's time as is humanly possible in order to assure their presence. trying to maximize the use of your time by checking the attendance of students regardless of whether or not there are any activities taking place at the school, such as those hosted by the foundation and so on. If there are activities going on at school, it is difficult for them to calculate the appropriate consequence to give a candidate based on his or her attendance in comparison to the number of days the student is disruptive in class.

This procedure, besides being troublesome for lecturer, also affects students as time is expended on signing, verifying and submitting the attendance sheet manually. Therefore, a system that can manage and help the lecturers to take attendance easily has to be developed. This system must be created based on UMP regulation for attendance contains information about all students from a lecturer section. The system can be easily accessed by the lecturers via the web. This system must be able to manipulate and manage the data of the student attendance so that the lecturers do not have to analyze the student attendance manually. They only have to transfer the data, and the system will analyze all the data automatically.

IV. SIGNIFICANCE OF THE PROJECT

- It supports teachers in managing a student breakout.
- Our method helps in detecting students who falsify their attendance and keeping track of them.
- It enables the management to manage things from a distance.
- It saves time and effort.
- Fulfill the requirements of the administration.

V. OBJECTIVES

The Geo Attendance System Project aims to detect whether a student is attending the lecture seriously or not. Most students who don't take the serious lectures on the academic system follow the cheating way. But this project helps to avoid the negative outlook of the student. The goal of the study of the Geo Attendance System is to discover whether or not the student in attendance is making an effort to follow up with the content of the lecture that they are currently sitting throughout. The vast majority of students who do not take careful attention during the vital lectures on the structure of the educational system will eventually resort to cheating.

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Students who take part in this programme, on the other hand, are less likely to grow up with a negative outlook on the world. The goal of the study of the Geo Attendance System is to discover whether or not the student in attendance is making an effort to follow up with the content of the lecture that they are currently sitting throughout. The vast majority of students who do not take careful attention during the vital lectures on the structure of the educational system will eventually resort to cheating. Students who take part in this programme, on the other hand, are less likely to grow up with a negative outlook on the world.

VI. METHODOLOGY

The programme "Geo Attend" is used all over the world since it is compatible with Android smartphones. There are two unique sign-up options available: one is for faculty and staff, while the other is for administrative workers. Utilizes a clock event by controlling the on and off state of the clock's power supply. Provides authentication based on a fingerprint scan of the user. Display each individual thing on the schedule for the college on the page that serves as the entry. The prime goal of the system is to be able to take attendance using the web as an advantage without inaccuracy. To justify this, GPS coordinates are required for the program to determine the student's current location, based on the coordinates received.

The coordinates obtained are then mapped with the standard coordinate in the system database defined by the instructor in charge. Using GPS, we can obtain both x- and y coordinates up to 6 (10,6) decimal points with the help of ground and space satellites. To interpret the coordinates, the program is integrated with Google Maps APIs so that users can view the visual location of the coordinates received.

VII. SCOPE OF PROJECT

- The system is easy to operate and it can be used in crowded areas.
- It ensures the compliance for Student and the system provides accurate assessment of the individual area weather the student is in attendance area or not.
- Reduces time.
- Portable app and easy to handle.
- Provide double authentication.
- Strengthens security measures.
- Provide higher transparency.
- Reduces the number of touchpoints

VIII. FUTURE WORK

In the future we extend our project capabilities to larger geofencing area as in current we only provide limited work area. Also, various notification related to gate pass, half leave, holidays and such other notification will be sent to admin site. In future we can also extend this application for tracking on children, patients and can also be used for Car tracking purpose. Face detection can be added for more authentication. Managing extra events like online leave form , gate pass and many other access permissions.

IX. RESULT

As you can see, we are obtaining ~99% accuracy on our test set. Looking at above figure, we can see there are little signs of overfitting, with the validation loss lower than the training loss. Given these results, we are hopeful that our model will generalize well to images outside our training and testing set.

X. CONCLUSION

The system is "GeoAttend" application with dynamic highlights of Geofencing and GPS. This portable application is especially useful for school, colleges, hospitals, Banks and all other places where attendance is important factor. As our application is android based, user can use it in an easy manner without any extra efforts. This system overcomes all other difficulties and extra efforts required in existing system and also save time. Thus, from this

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we assured that after successful implementation of our project i.e. “GeoAttend” there is no any necessary for our college teacher’s to run from gate to our office for attendance when they entered in college.

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