

COLLECTING ATTENDANCE IN VIRTUAL MEETINGS: OAMS

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ABSTRACT

This research paper is based on the idea for development of an android mobile application i.e., OAMS (Online Attendance Management System) which can be used to collect and organize the attendance of student during an online class. In today's scenario when the world is facing the outbreak of a virus, everything went online, from professional meeting to the classes of kindergarten, all types of interactions is happening in online mode, so there should be a method which should work on recording the presence of an individual during an online gathering. This paper proposes a method for collecting and recording the presence of individuals during an online meeting. This objective is very much achieved by creating a mobile application which enables attendees to mark their presence in their respective meeting. The methodology and functioning of the proposed android application is discussed in this research paper.

Keywords: *Android, Biometric Authentication, firebase database, device-ID.*

I. INTRODUCTION

Attendance is the basic record of engagement of different roles, gathering in either offline or online mode. The record of attendance sometimes plays an important role in deducing information about the interest of attendees. This project tries to reduce the complexity of collecting and processing of attendance by using a mobile application based on android operating system for mobile phones. The presence of attendee is recorded with the consent of the attendee by using

biometric information of the attendee and the device-Id of the device used by the attendee to mark the presence. These two specification of the attendee helps in recognising the correct attendee and help in reduction of false attendance or proxy attendance.

With the use of simple GUI tools for android this app collects the attendance of its attendee whenever the leader of the meeting asks the participants to mark their presence. This project uses firebase database to store the information gathered through the application.

II. RELATED WORK

There has been a lot of development for building an attendance system to help reduce the paper work and manual errors.

In this effort P. Shivaram in his paper "design and development of android based attendance system" published in 2014, designed a software which enabled teachers to take attendance of students with the help of android device. This model is useful for collecting attendance in offline mode i.e., when the teacher and students are present in the class and the teacher has the responsibility of collecting the attendance.

Dulyawit Prangchumpol in his paper "Face Recognition for Attendance Management System Using Multiple Sensors" uses camera module to detect faces of student to mark the attendance.

Dwi Sunaryonoa, Joko Siswantorob, Radityo Anggoroa, in their paper "An android based course attendance system using face recognition" proposed another solution using QR code for

classes and student face to mark attendance for the student in the particular class.

These papers were mainly focussed on developing the attendance system in which either one module of the system or all the modules are located in the campus of college and there was no solution for remote attendance, this paper tries to solve the problem of attendance collected in virtual meeting and classes.

III. PROPOSED METHODOLOGY

The proposed methodology is to allow participants to mark their presence in the meeting when the leader of the meeting asks them to do so. The leader of the meeting would be the one who will allow the participants to mark their presence and the leader can also stop recording the presence of attendees whenever needed. All these operations will be performed by simple click of the button which is discussed in more details in upcoming sections.

Registration: The first step to use the app OAMS is to register yourself on the app. The registration is fairly simple and requires minimal information from the user. The user at this stage describes its willingness for the role i.e., leader or attendee. Information collected for leader is only the name of the leader and email id, while the information collected from attendee is name, email, and device-id of the mobile device through which the attendee is registering on the application. This device id is very much needed in correct identification of the user while recording the presence of the user.

The registration process invokes a trigger which invokes email authentication process from the firebase database, it sends an email to the provided mail which contains a link to verify the user. Unless the user does not verify itself, till then the user won't be able to use the application.

Roles: This android application would work with two different roles which will enable to

distinguish between the leader of the meeting and the attendees of the meeting, all the operations in the app will be very much dependent on the role of the current user.

The leader of the meeting can create the meeting room and will invite the participant of the meeting through a 6 character long secret code which will be used by the attendees to join the room. The sole purpose of this room is to record the presence of the attendees. The leader of the meeting will have the record of all rooms which he/she created. A single meeting room can also function as recurring meeting room just like daily morning routine meetings in organisations. The leader of the room can delete all information related to the room however the participants will still have their record of their presence in the room

The attendees of the meeting will join the meeting using the code provided by the leader of the meeting. Attendees of the meeting will have the facility to mark their presence once the leader of the meeting allows them to do so. There would be a colour coded button to mark the presence. When the button is grey then the button will not function to mark the attendance, and if the leader allows to mark their attendance, then the colour of the button will change to green indicating that the attendees can mark their presence. The attendees will have their own record of participation in rooms and they can view their presence in any of meeting at any point of time. The attendees will have the facility to leave the room if they unintentionally joined irrelevant room.

Recording Attendance: The presence of attendee is recorded by using the device id of the android device. Device id is the unique id assigned to each android device at its first boot up. At the time of registration for the role of attendees, the device id is captured and stored in the database and this device id is attached with the current user. When the user presses the button to mark their presence, then biometric authentication service is activated from on the android device which tries to authenticate the user by using fingerprint of the user, also at the same time the device id is fetched and if biometric authentication is successful and device id stored in the database matches with the

current device id for the current user, then only the presence of attendee is marked in the respective room. This project only allows one user per android device to add extra robustness to this application just in case if the user tries to mark proxy attendance for another user, then the current user will not be allowed to do so.

Underlying Features: This application will provide method to change/reset user password. It will trigger an email to the registered email account which will contain a link to reset the password.

IV. RESULT AND DISCUSSION

The android application OAMS when tested in online engagement of students found to be effective and was able to perform the task accurately. The biometric authentication service of android device worked as expected and the record of engagement is stored in the database as discussed. The leader of the meeting was able to view the presence percentage of each of the attendee in the recurring meetings and the attendee were also able to see their presence percentage in each of their meeting rooms. The biometric authentication along with the android device id was fully able to recognize and eliminate any attempt of proxy presence and restricted the attendee to do so. This application is found to be fulfilling all the objectives which it was supposed to performed.

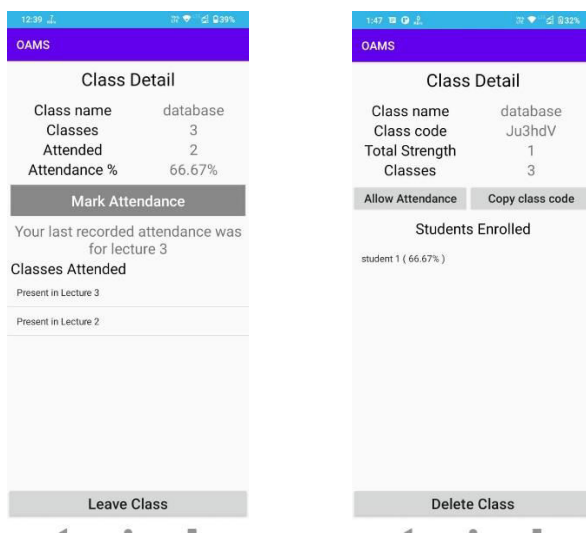


Fig. attendee view

fig. leader view

V. CONCLUSION

This paper applied the knowledge of android technology with firebase cloud database system to develop an android application which will help in recording presence of attendees in an online meeting with the click of a single button. This application uses biometric authentication service of android device to authenticate the user and matches the device id to correctly identify the user and mark the present of attendee and restricting the vulnerability.

VI. FUTURE SCOPE

This app uses fingerprint to authenticate user, we can provide option to attendee to mark their attendance by using their face Id, this can be accomplished by using haar cascade to identify different users.

For recurring meetings such as online classes, there can be a system to notify the students about their percentage of attendance if their attendance in a certain class fell from a certain limit, this will help students to have a proper upkeep of their attendance.

Messaging and chat feature can be added to this application to provide better reach of attendees to their authorities.

VII. ACKNOWLEDGEMENT

This work is inspired from the difficulty which arises due to unavailability of tools to record the presence of attendees in online gathering. The proposed model is deployed and tested to group of students and teachers in collaboration with Er. Sapna Pal as our project guide at SRMCEM, LUCKNOW.

VIII. REFERENCES

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