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Advanced automation in educational institutions using cross platform mobile application

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Abstract: Till date there are few automatic attendance systems like biometric system, face Detection system etc. Although they are technically good but consumes a little amount of time. The idea of this research is to make the process even simpler compared to the existing technologies. To make it simpler and effective, a mobile application called school automation is developed as a part of this research. This can easily track attendance, marks and of students.

Keywords: face recognition algorithm , photobooth, phonegap.

I. INTRODUCTION

This application has two sections

- 1) Admin
- 2) Guardian

1) Admin

This section is for the people who are maintaining the application as well as the people who needs the admin rights will be given the login credentials, to login to this section .

As the person enters into admin section, he/she will have the optimal power to handle the application.

Here are few admin rights:

- 1) Entering the marks of student
- 2) Entering details of the student

One of the important functionality of this section is that the face recognition of the student is done here. For face recognition we are using face recognition API from mashape account.

We will use photobooth.js to take pictures from the webcam. There are main things to remember when using the Face Recognition API are

“Train” the Face Recognition API, which means uploading a bunch of pictures that will constitute the “database” from which pictures will be recognized.

“Recognize” a picture by uploading it to the Face Recognition API.



2) Guardian:

Guardian can see their wards performance including their attendance, marks and can also have the knowledge of the activities happening in the institution.

II. TECHNOLOGIES USED

The technologies used in this research are

- 1) Phone gap build
- 2) Face recognition API from mashape account.
- 3) Photobooth.js
- 4) AWS EC2 Server

Languages used are

- 1) Bootstrap
- 2) HTML
- 3) CSS
- 4) JS
- 5) PHP

III. RESEARCH AND WORKING

Research

- 1) *Attendance:* In this research we have tried to integrate eigen face algorithm for face recognition. Since eigenface cannot be integrated to a mobile environment, we have tried tracking.js which has successfully integrated but there was some problem in sending the values to the database. Later Face recognition API was used and was a successful attempt.
- 2) *Working of attendance system:* As we take the image from the webcam, this API compares the captured image with the images in the database and marks present for that particular student.

- 3) *Marks*: The initial thought of the research was to display the marks of the particular student to the corresponding parent or guardian only. Later, concept of total transparency has been added so that the parent or guardian will be able to view the marks of entire section.

Working

The marks of the student will be entered by the admin in an excel sheet which has a dynamic connection in the amazon s3 cloud

The Whole excel sheet will be reflected in the application as entered by the admin.

Other options provided in the application are

Information about School

About school is a section where the school promotes itself. This section will contain the images and videos and details of the school. It will also contain the ranks scored by the students and their images. This will be a static page and will be revised in terms.

Study Materials

This section will be divided into classes for example class-V Class-VI etc and each and every class will be having their respective study material. Study materials will be in a PDF form. Student can download it and can refer whenever needed.

Fee management option is also provided. It displays the details of the amount of fee paid, fee due etc.

Easy contact

This section helps in reducing the communication gap between the Faculty.

It provides three options for parent i.e

- 1) Call
- 2) Message
- 3) E-Mail

	Name : Ravindran vishal Father-Name : Ravindran Call message email
	Name: Sowmya varma FatherName: toppers dad Call message email

On clicking the call button, the call will be redirected to the parents phone number, similarly message and email does the same functionality. This option is provided in the hamburger menu which is designed in the navigation bar.

IV. APPLICATION DESIGN

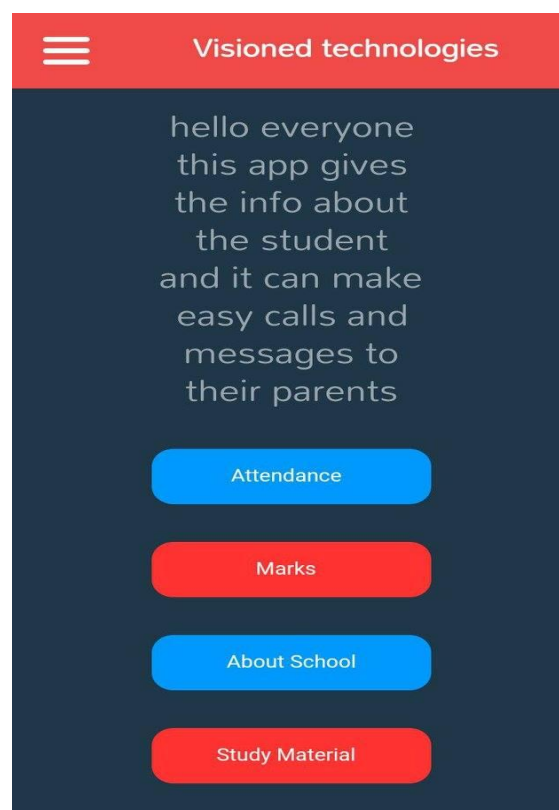
Here is the rough image which displays the initial screen of the application.



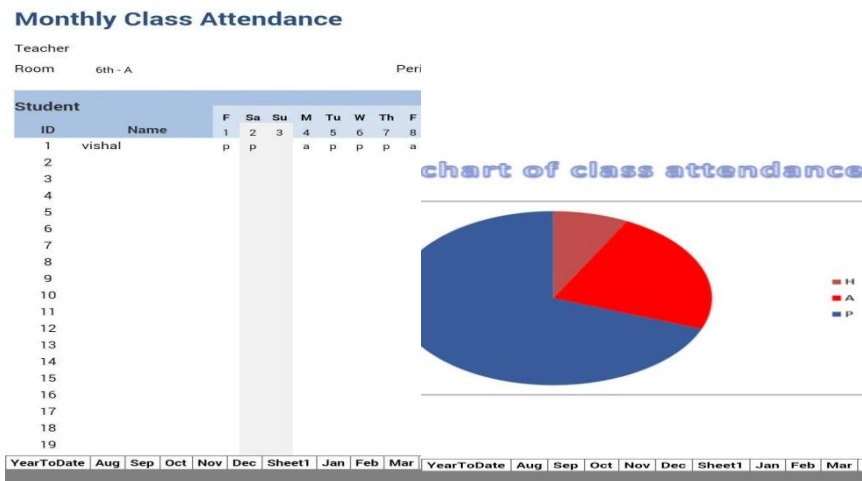
Admin will have extra button of face recognition.

Both the admin and guardians sections will be similar but the only difference is the admin can edit things where as the guardian cannot.

After logging in the following screen will be displayed.



Attendance details of the students can be viewed as shown in the picture below



A pie chart is generated for attendance. It is generated for monthly attendance or can be generated for any required period of time.

The attendance is automatically sent from the recognized faces in the database everyday.

Here H->half day

P-> present

A-> Absent

V. ADVANTAGES

- 1) *Attendance Automated:* Faculty need not waste time in marking attendance of the students. It has been automated by using this application.
- 2) *Anywhere and Anytime:* This application ensures the track of students to their parents. They can access the application at anytime (Internet access required).
- 3) *Fast, simple and easy:* It boosts interests for the people using the app and getting the information. Mobile application helps you to achieve faster results compared to a website.
- 4) *Promotion:* This app will totally promote the educational institute and advice every parent Use this application.

VI. APPLICATIONS

This Application can be used in any educational institution such as

- 1) Primary Schooling
- 2) Secondary Schooling
- 3) Under graduations
- 4) Other

The attendance module of this application can be used in business organizations. Similar methodology can also be used in IT sector.

VII. CONCLUSION

The concept of the mobile application, fulfills all the present day requirements of parents, management and students. It is secure, as it is provided with separate logins. Application also provides special features like email, call options etc. This includes all automated features and the application design is user friendly. It reduces the communication gap between parents and faculty, and solves the existing problems.

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