

To Automate Entire Placement and Training Cell for The College using Android Application with Cloud Computing

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Abstract: Placement and Training (PAT) cell is the bridge between students and companies visiting the campus for recruitment so all the data and activities of PAT cell are important. Our system aims at reducing human efforts and errors by automating important tasks of PAT cell such as displaying notices, maintaining information about students, student eligibility, company criteria, training sessions, interview schedule, preparation seminars, etc. To achieve this automation we have created an Android application and a web panel. The Android application has four modules such as Training and Placement Officer (TPO), Students details, Company details and Training sessions. Web panel has a simple interface to allow TPO to send bulk push notifications to all students who have installed the application. We have used Hypertext pre-processor (PHP) and My Structured Query Language (MYSQL) technology as back-end to create and access database on the cloud. TPO, Students and Human Resource (HR) department of recruiting company have different access privileges and unique login credentials for the application which are authenticated online for security purpose. Full adaptation of this system will result in efficient data management for PAT cell and improved selection ratio for students. Let there be n number of students, n number of streams, n number of recruiters the placement process will run smoothly. Being an Android application it is portable and acceptable by majority of users.

Keywords: automation, android, web panel, database on the cloud, online authentication.

I. INTRODUCTION

The overall use of internet and applications in Smartphone has increased tremendously. Smart phones can run on variety of platforms like iOS of Apple, Android of Google, Windows of Microsoft, etc. The increasing advantages of automated system now are at highest position thus many manual processes are automated. Since the automated system is demanded now-a-days, educational infrastructures like colleges needed their manual system to function on computer system. One of such system which is of major importance is training and placement automation for campus recruitment. Though some manual functioning systems of colleges are automated like maintaining attendance record, library management [2]. Smart phones supporting Android are used by almost all students in Vidyavardhini's College of Engineering and Technology (V.C.E.T) so they can take full advantage of this system. Computer based online systems are designed to improve existing Systems [1].

Our goal with this project is to highly automate the PAT cell. As every college maintains the data of every student in its database we have decided to use the same database of the college. It serves the purpose of complete automation as no one have to manually input the data specifically for this application and chances of error are very less because entries made by the college in a database are done after proper verification. Also required information of student such as name, student id, date of Birth, year of admission, stream, contact number for SMS, email id, marks of previous grades and semesters, ATKT,

etc. is already present in the database so we can fetch the data according to the requirement. Student id is of very importance for Placement and Training application (PATapp) as it is unique so naturally fits as the primary key in database and student can view its own details using id. PATApp does not allow any student to alter any information; read-only access is given to the students so that there is no risk of multiple and fake entries. This makes PATApp highly reliable for the TPO to use during the entire process of placement in the college.

After online authentication of login details in PATApp TPO can view or update records of students and companies stored in the database on the cloud; fetch list of eligible students from the database which qualify company criteria, and send them SMS, email message or push notifications. Students can set a reminder in the application for a particular activity; view academic details; view company details; view recent updates, and they can also download material required for preparation of placement from Training session module. Login credentials for company module of application are provided by TPO to Human Resource (HR) department of recruiting company. HR can view student details; update company details; specify company criteria, and can share the venue with students using Google maps if the interview is at other premises.

We have also created the database for company details having fields such as company id, name, criteria, package, and student branch from which the students will be

allowed to appear for the interview. The input to the PATApp includes the database entries from various tables and updates made by TPO or HR of the company via the application. Output includes the sorted list of students according to criteria of the company which can be notified via SMS or email from the application or via push notifications using application or the web panel.

II. PROBLEM DEFINITION

In an existing system, all processes are handled manually. The TPO have to refer all the records kept for years to simply know the details. This is so tedious and time-consuming and this process becomes more difficult when the number of students increases. There are many limitations for the existing systems. In existing Placement and Training cell, all the work done at V.C.E.T is by human intervention due to which there were maximum chances of errors. The communication gap between students and TPO is maximum which makes the system time consuming. Lists were produced for each company, and students had to regularly travel in to review the notice board for any updates. The process was slowing; valuable academic time was diverted from activity that is more useful [1].

At V.C.E.T the records were stored in modified, excel sheets hence sorting is a problem. The excel sheets were less optimized e.g. suppose we want students having only 2 ATKT but then the students with 0, 1 and 2 ATKT were also selected whereas required result is only of student having 2 ATKT. Searching is done manually based on the company criteria TPO will identify the eligible student by looking the excel sheet. TPO has to see each and every students marks and their eligibility. No searching method is provided. The student will get notify through traditional notice board only. There may be chances of loss of opportunity [1].

Also, the students don't get accurate information about entire placement process and has to search a lot about the preparation materials. There has to be a completely automated system for PAT cell which streamlines all the tasks and gives expected and accurate results with minimum efforts [3].

III. EXISTING SOLUTION

Currently, there is no such specific online system used by the college dedicated to placement and training cell. For broadcasting notices, Google groups are used which sends emails to the entire group. Students are required to subscribe to each and every group separately so that they will receive the notification specific to the joined group. Many such groups are to be subscribed. If the subscription is not successful the student will not be able to enroll for activities and will not receive notices. And for maintaining the students record excel sheets are used for each and every activity separately and it does not allow easy automatic computation. Ediffy an android application is used which allows TPO just to broadcast messages to subscribed students. Validation of student's information is to be done manually after filling the form as no database

for verification is available to Ediffy and it is not at all college specific.

IV. PROPOSED SYSTEM

Our proposed system is a one stop solution for the existing issues. Considering all the tasks that are important for TPO and need to be performed efficiently are included in the application. Our concentration is not only on performing calculations on data and generating lists according to eligibility but also on providing students with all-round help regarding every activity of the Placement and Training process.

To prevent the application from crashing issues the databases are stored online and not on the application thus making it light enough to run on the majority of Android devices. Our system makes sure that all major activities are performed from the application by the user with the help of user-friendly interface and efficient functionality. The pages are linked in the most convenient manner making it easy for the user to jump from one task to another. Each user is provided with different features and security. The TPO can give an approval to edited information done by the student. In addition, TPO can search the eligible student based the company criteria and can generate the list. Also TPO can send an automated email to the eligible student [1]. Broadcasting of notification is the main task for TPO as no student should miss the opportunity so along with bulk push notifications PATApp also provides SMS and email integration so that no one misses the notices.

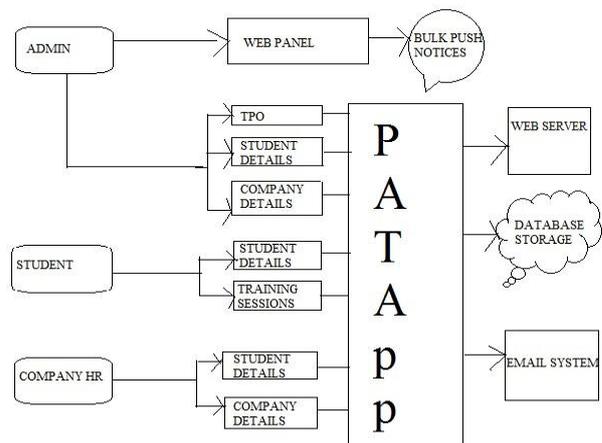


Fig.1 BLOCK DIAGRAM

The proposed PATApp system is intended to avoid all the drawbacks of the existing system. It will add some more features than the existing system. The proposed system is a cost effective way of doing the manual processes done in the existing system. This helps the organization to win the war in the existing competitive world [1]. The proposed system is a college specific Android application having access to the entire database of college and which will let the TPO and student access information easily and communicate properly. Student id which is already given by the college to every student is used by students to see details and keep them updated with all events of PAT cell.

V. IMPLEMENTATION DETAILS

The term Implementation has different meanings ranging from the conversation of a basic application to a complete replacement of a computer system. The procedures, however, are virtually the same. Implementation includes all those activities that take place to convert from old systems to new. The new system may be totally new replacing an existing manual or automated system or it may be a major modification to an existing system. The method of implementation and time scale to be adopted is found out initially. Next, the system is tested properly and at the same time, the users are trained in the new procedure. Proper implementation is essential to provide a reliable system to meet organization requirement [1]. To understand the implementation of how the access privileges are decided and what tasks can be performed by the different users we have created use case diagrams of major users and their tasks.

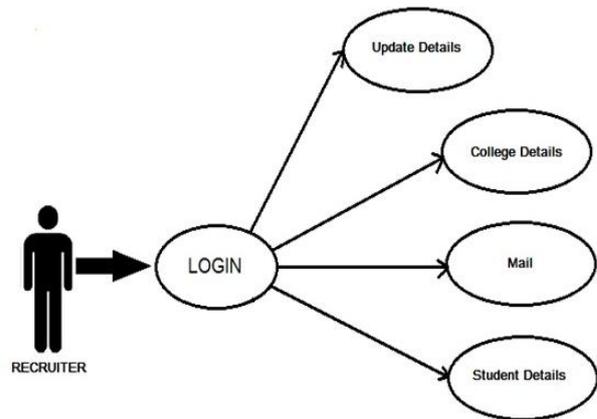


Fig. 4 TASKS OF RECRUITER IN PATApp

In case HR department of recruiting company wants to add new requirement or view student details it can be done once they log in with the id and password given to them.

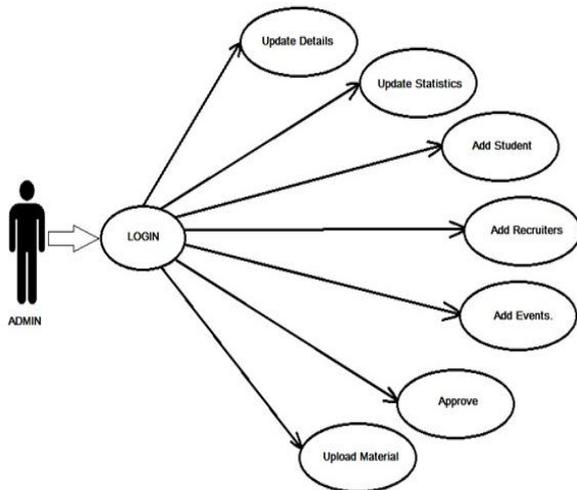


Fig. 2 TASKS OF TPO IN PATApp

TPO has the most options and highest privileges in the system may it be the application or the web panel.

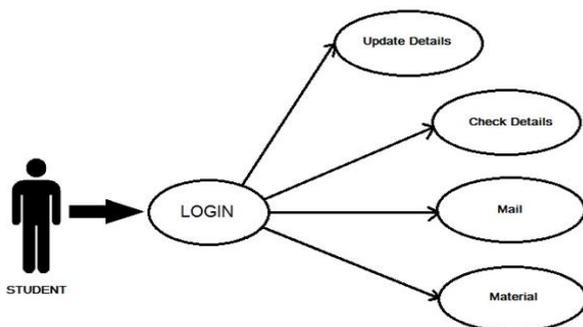


Fig. 3 TASKS OF STUDENT IN PATApp

Students use the student id to get in the system and can view the updates, set reminders, check the location of the interview, can also send an email message from the application to the TPO if they have any query. Also the students can download the notes from the links specified making it easy for them to prepare.

VI. TECHNOLOGIES AND TOOLS USED

Designing an automated system requires proper combination of different technologies. Android Programming in our system is done using Android Studio which is compatible with Windows Operating System. For creating temporary databases we have used an application server called WAMP which means Windows, Apache, MySQL, PHP. PHP is a server-side scripting language which can be used for general programming or web development [5].

MySQL is an open source Relational Database Management System (RDBMS). Projects that require full-featured database management system often use MySQL [6]. After testing the connectivity between the application and the database on the local-host using WAMP we have used services of www.hostinger.in to upload the databases and files in PHP to make the application independent of any local-host. Hostinger allows us to create and manage databases easily and save PHP files to connect application with it. Now any user of our application can access data from anywhere. Google Cloud Messaging (GCM) is used for integrating push notification feature as shown below.

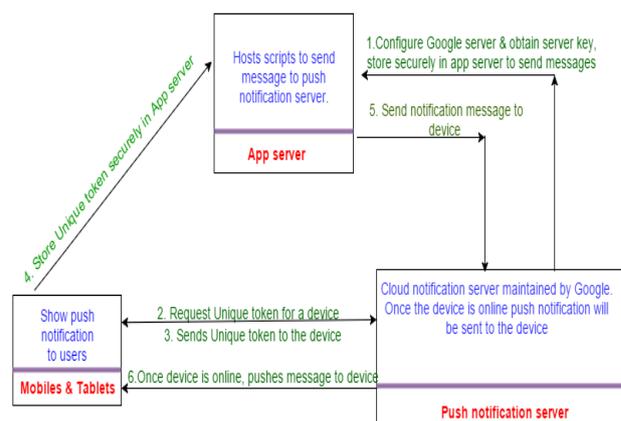


Fig. 5 GCM ARCHITECTURE

To implement push notifications we can use cloud services of various service providers like Azure, GCM, Parse, Amazon etc.

But we have implemented push notifications using Firebase services which provide us with easy to use dashboard so that TPO can use it easily.

VII. RESULT AND CONCLUSION

The existing system is not automated and is very time consuming for both the TPO and students. The proposed automated system is efficient and is of very benefit to Vidyavardhini’s College of Engineering and technology.

Now, the chances of errors are very less as compared to the manual system and speed of process has also increased. Students can now concentrate more on academics and improve the result. TPO can invest time in developing relations with more companies to recruit students from VCET which can result in improved placement record. Below are some screenshots of the system which gives an idea about the functionalities provided by our system and how they can be used with its simple and user-friendly Graphical User Interface (GUI).



Fig. 7

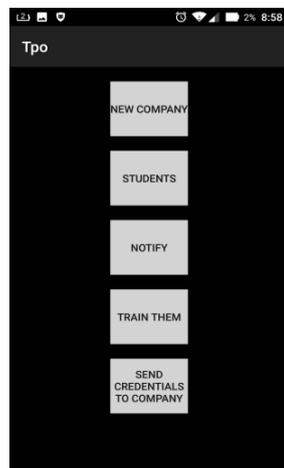


Fig. 8

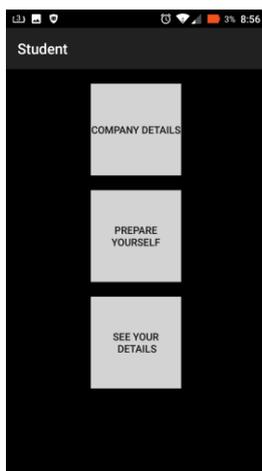


Fig. 9

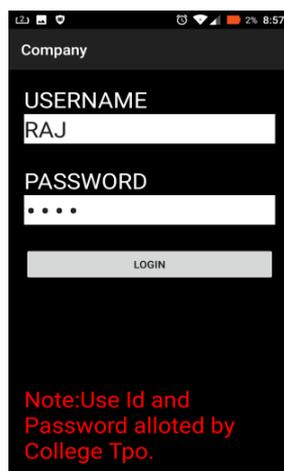


Fig. 10

Note: Use Id and Password allotted by College Tpo.

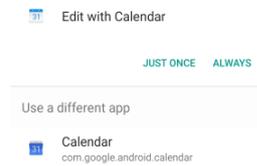
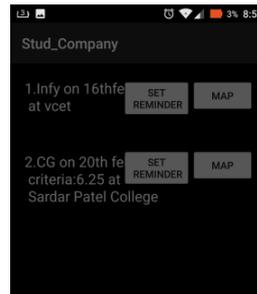


Fig. 11

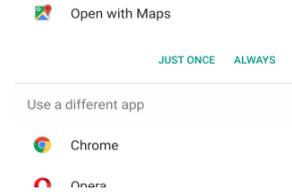
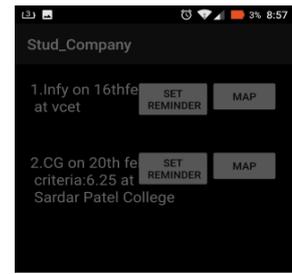


Fig. 12

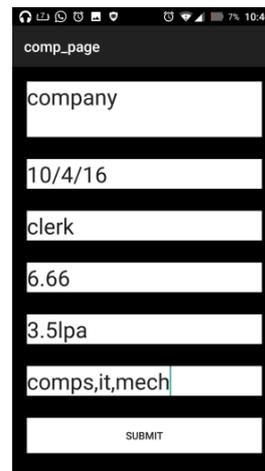


Fig. 13



Fig. 14



Fig. 15

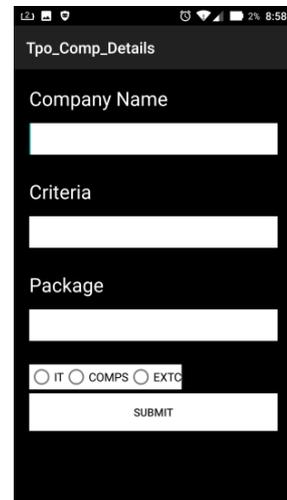


Fig. 16

Overall the system provides quality implementation of all tasks and the entire Placement and Training cell is automated. The system has considerably reduced human efforts and saved resources like time and money.

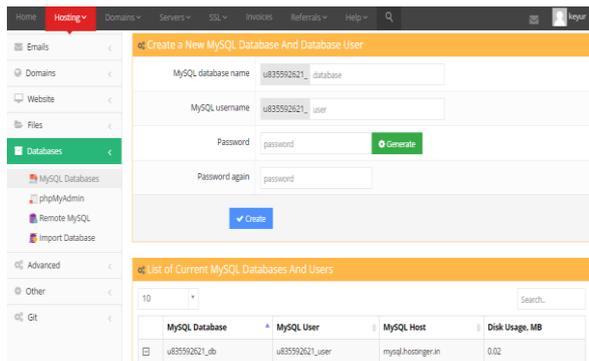


Fig. 17

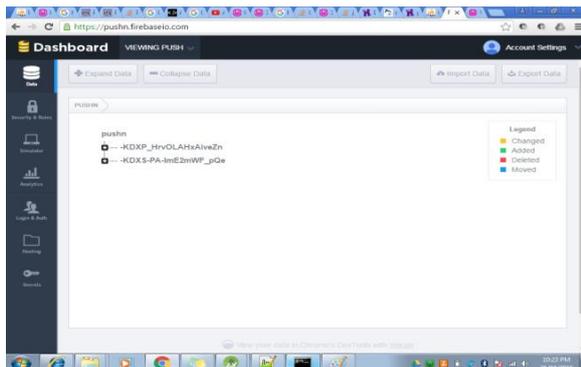


Fig. 18

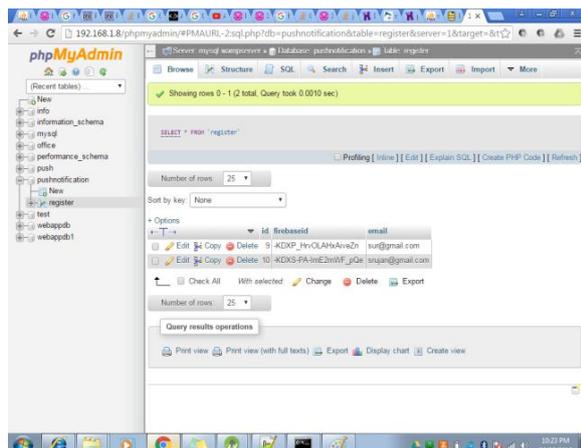


Fig. 19

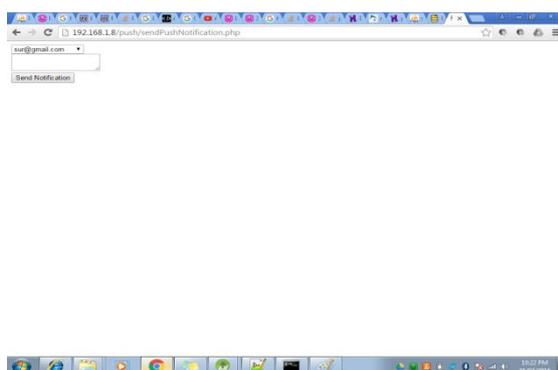


Fig. 20

VIII. FUTURE SCOPE

The system is designed after taking into consideration all the requirements of students and Placement and Training department but there can be improvements in some areas and we accept the drawbacks of our system. The system can be extended further to provide a forum for discussion where the alumni students and current students can discuss the events and also staff members can participate in it and give valuable advice. The Exam cell of the college can also be linked with our system so that there is no need to keep two separate systems and the database of exam cell can be connected with college database which will help in double verification of marks and other important details.

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