Project Ratification System using Firebase

Jagruthi Pulipati, Arepalli Gopi, R. Mohan Krishna

Abstract — The main objective and scope of this project are to overcome the practical problem of project submission and approval in educational institutions. This will cut down the physical efforts of students, staff and also the time frame period of completing this part of the project work. Students can streamline their project status every week and provide a report regarding the progress, which will be monitored by all the relevant professors. The application provides an interface to both the faculty and students to easily communicate about the project work with no difficulties. This portal integrates numerous features like student updating the progress of their project online to their guide; where the guide can verify it and can accept/reject the students' note; this response would be reflected in each student's dashboard; a guide can also post the information about his mentees weekly progress to the class in charge. This portal prominently serves as a repository of students' work as they are presenting in one place, and this reduces a lot of actual toil for both students and faculty. Thus, thereby automating the process of project management in educational institutions. This implementation can be achieved by making use of android application development tools like the Android Studio IDE, Java JDK, SDK tools and an emulator or a smartphone to test the working of this application. We make use of Google's Firebase for back-end support which allows us to build applications that need authentication, database, file storage, and server-side functionality without having to hold and handle infrastructure and software needed for server-side support.

Keywords - Android Application; Android Studio; Smart Phone; Android SDK; Java JDK.

I. INTRODUCTION

Over the past few years, the impact of technology upon education has been immense. The interaction tendency is enhanced by mobile applications. Technology in the guise of apps is helping those looking for some newness in the universe of education. Also, to feel the novelty, apps add an element of fun and easy access. The advancement that educational institutions have seen eliminated a lot many glitches that prevailed in the education system. A major one being the lack of interaction between the teachers and the students. Apps have been created to help reduce the gap between the students and the educators [3].

This project will focus mainly on automating the process of campus project management [1]. In the sense, students can update their project status weekly and provide information regarding the progress, which will be monitored by all relevant professors assigned to the project. The application allows the student to log in and enter all the details regarding projects such as project abstract, weekly progress, reports, etc.

All these details must be maintained in a database. Project guides can directly search for the projects and also the project in-charge can view the list of students working on their project weekly with ease. This application provides role-based authentication for project in-charge, project guide and student. Users can view their dashboards according to their roles. This portal has a user-friendly interface having quick authenticated access to information [2]. It provides the facility of keeping the details of the students and their projects in one place acting as a repository. It will mitigate the physical efforts [1]. This system can play a vital role in the institute to manage student information regarding their projects.

II. PROBLEM STATEMENT

Academic Project management is a major issue which is faced by many educational institutions; the main reason for this is that there is no automated system followed in institutes. College staff assembles all the project status' and project sources from students and stores them physically in some locations probably libraries or any mailing services. The faculty assigned for project management of any class has to properly maintain all the records of the students as they have to evaluate the marks based on the weekly performance of students. When they make use of mailing services, there may not be efficient ways to store, access and retrieve the data about every student easily. Alongside, the faculty might not be available all the time as they have other significant duties to execute. The same case applies to the student. The goal of this project is to reduce the physical efforts and increase efficiency by automating the project submission process in colleges [3].

III. EXISTING AND PROPOSED SYSTEM

Traditionally, in educational institutions, the project management is not automated. Every set of students are mentored by a guide who ushers their academic performance. Guide's have to personally interact with their mentees and get updates on their academics. Above all this, during the project, the mentee has to be constantly meeting their guide's for their project approval. Every week guides must keep track of their student's project progress.

This is a mundane process and not always students and guides are available at the same time during college hours. Besides this, it is not an easy task to maintain the work of students in one place safely. There is no way the guides and project in-charge will share information regarding the project status of students daily. In short, this becomes a laborious task for both students and faculty to keep up with. With this android application [4], the student can send a request to guide for the project.

On acceptance, he/she can design the project along with providing necessary information and submit it. In the guide's project view module, the guide can view the project content from the application and can assess their grades [2]. They can accept/reject the project content sent by their students by thoroughly evaluating it and this will be reflected in the student's dashboard. The Project Guide can also send the information about his student's weekly progress to the project in-charge every week with a time stamp. The project in-charge can view the weekly progress of students and can assess the marks. This also acts as a smart automated log containing information about projects [1]. Thus leading to a better ease of managing the projects of students [5].

IV. LITERATURE SURVEY

Sr. No	Year	Name of Author	Title of Paper	Techniques	Advantages	Disadvantages
[1]	March 2018	Syila Izawana Ismail , Rina Abdullah , Siti Aishah Che Kar , Nazuha Fadzal , Hasnorhafiza Husni , Hasiah M	Online Project Evaluation and Supervision System (oPENs) for final year project proposal development process.	PHP Technology, development tools used Macromedia Dreamweaver, Java scripting language, MySQL Database.	This project provides a detailed and easy interface for the universities to manage the project management system of final years.	This being a web application there is a high chance of non-university member taking an advantage to access this system.
[2]	2013	A. Abdulkareem, A. Adeyinka, U.I. Dike	Design and development of a University portal for the management of final year undergraduate projects.	HTML, ASP.NET, C#, MICROSOFT SQL SERVER 2005	This project was aimed at developing a portal for the management of the processes associated with undergraduate final year projects in the department of Electrical and Information Engineering of Covenant University.	This web application was simple and was only limited to a department in Covenant University and used the complicated and old technologies to maintain the system.
[3]	2012	Usman Naeem , Syed Islam , Arish Siddiqui	An Effective Framework for Enhancing Student Engagement and Performance in Final Year Projects.	A Theory Paper on constructing an effective framework for automating project submission and approval in universities	An effective framework for enhancing student engagement and performance in final year project module.	This paper was specific on the concept of learning among faculty.

Table 1: Literature Survey for Project Ratification System using Firebase

V. SYSTEM ARCHITECTURE AND FEATURES

The main objective of this android application is to automate the process of project management in universities by reducing the physical burdens of both the faculty and students during project submission [1].

With this application, we can overcome the problems of the existing system of faculty, where they get weary in storing all the project details of the student in physical places which becomes tiring [1]. Again the guides might not be available at all the hours for evaluating the students' project progress as they are already preoccupied with their duties. This application bridges that gap between the faculty and the student [3]. The user's here would be faculty who might have the roles of project guide as well as the project in-charge. The users are asked to register based on their roles and they will have to login which leads to their respective dashboards. The student can send his project details to his respected guide with necessary details [1]. The student can view his project status. The guide can view his mentee's project request and can accept or reject it. Guide can also send this information about his mentee to the project in-charge. He/she can add his mentee's. The project in-charge will be able to view the progress of the students and assess the marks based on his performance.
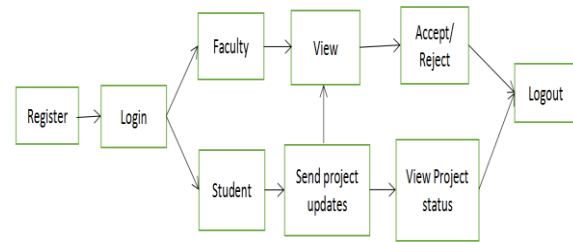

Fig. 1: Software Architecture of Proposed System.

Figure 1, gives a brief insight into the application's architecture which shows the interaction between different user modules.

VI. MODULES

The implementation consists of 3 modules.
- Project Guide
- Project In-Charge
- Student

Project Guide Module:

The project guide is a user who mentors a set of students, guides them and monitors their performance during their academics. The project guide has to first register in faculty registration as a project guide. After registering as a project guide, he has to login with his credentials which directs him to guide the dashboard.

The project guide can then add mentees; he/she can view the project requests sent by his mentee which consists of the project details along with the time stamp. After viewing, he/she can accept or reject the request by adding a comment or feedback to the student. The guide can also send the information about how many of his mentees are on track to the project in-charge.

Project In-Charge Module:

Project In-charge is a user who is assigned to every branch. He gets to evaluate the project progress of the entire class weekly. This information will be directly sent by the project guides who will mention the list of their mentee's who submitted their project that week. The project in-charge can only view the details and can reward grades.

Student Module:

The student user has to first register as a student by providing the necessary details. After registering successfully, they will be directed to login page where they must sign in using their credentials. After successful login, this will lead to students' dashboard. The student can send his project details to their respected guides by giving needful input. This will be submitted to the project guide along with the time stamp.

At the time of submission every week, the project status will be displayed as pending in the "view project status module". When the project guide accepts/ rejects or gives any comment/feedback it will be reflected in the student's module.

VII.   RESULTS

Figure 2, is a screen that will be displayed when the application is launched on your smartphone.
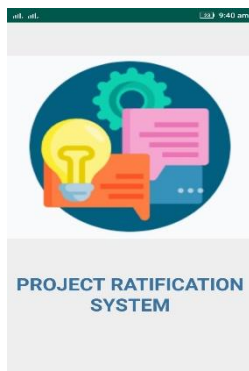
Fig: 2 Launching page

This page consists of the icon and the project title and when clicked anywhere on this splash screen it navigates to the login page. This serves as the launching page of the application [4].
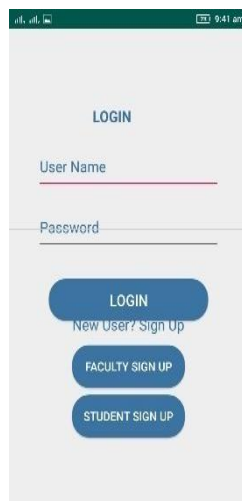

Fig: 3 Login Page

Figure 3 refers to the Login page which when clicked anywhere on the launching page directs to this page. The Login page consists of username, password fields to be filled by the user to login to his account. It also consists of faculty sign up and student sign up buttons. If the user

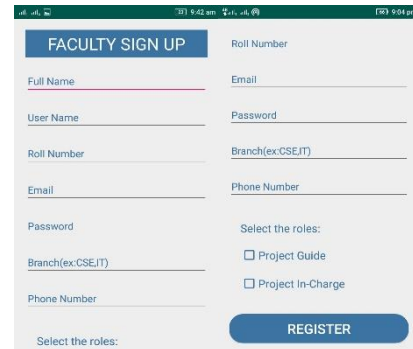is not registered, then they have to click on those buttons based on their roles.

Fig: 4 Faculty Sign up Page

The figure 4 displays the faculty sign up page when the faculty sign up button is clicked which is present in the login page. If the user is new, then he has to register himself with the necessary details like full name, user name, password, branch, email, and the most important field which is role. He has to check the checkboxes as per his roles. Only after filling all the details correctly, the user can click on the register button otherwise it would raise an error asking the user to fill the details. When clicked on the register button, the details are stored in firebase directly in time and it shows a registration successful pop-up [5].
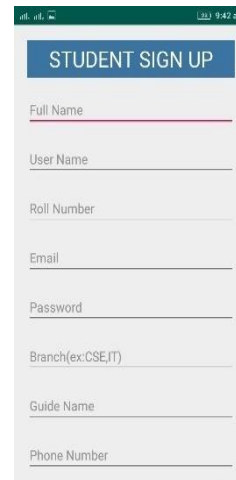

Fig: 5 Student Sign up Page

Figure 5 represents the student's sign up page. When the student user has not registered with the application, then they must first sign up here by filling in the necessary details like username, password, roll number, email, branch, guide name, and phone number. Here, the most important field is the guide field, branch field, and the username. Based on these fields only the user would be able to log in again into this application [4]. After filling the details, the student has to click on the register button so that all his data can be stored into the firebase real-time database [5].

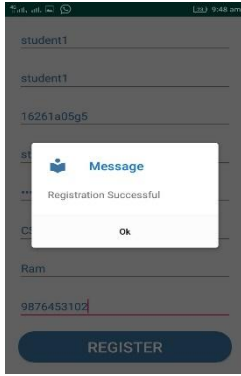# Project Ratification System using Firebase

Fig: 6 Student registration successful

When either of the users try to register when it's their first time, they need to fill all the details in the fields and after clicking on the register button it displays a registration successful pop [4] up as shown in figures 6 and 7.
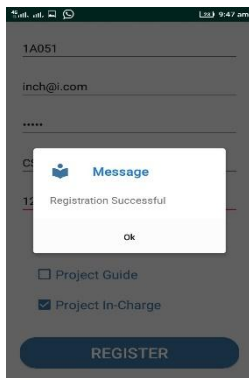

Fig: 7 Faculty registration successful

These screens indicate that the details of the user are stored into the database successfully [5]. It also indicates that these credentials can be used to login to the accounts.
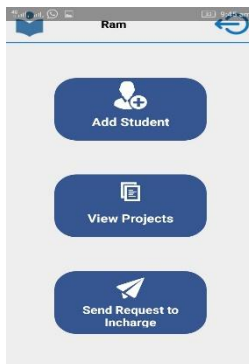

Fig: 8 Project Guide Page after login

Figure 8 is the home page of the project guide. On the top of this home page consists of his/her username in the center, with a logout button on the extreme right. There is the book symbol which when clicked gets the user back to the home page. This home page also has three buttons namely add student, view projects and send requests to the in charge. Each button as specified implies the functionalities and when clicked directs them to the corresponding pages.
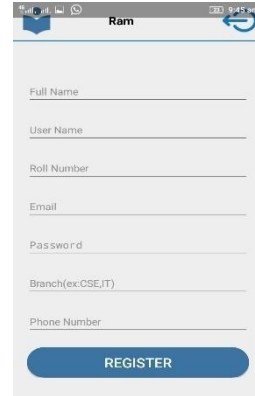

Fig: 9 Add student's page in the guide's portal

Figure 9 is the page that is displayed when the "Add Student" button is clicked from the guide's home page. Here the guide can add the students as his/ her mentee. The details must be all filled otherwise the system raises an error [5].
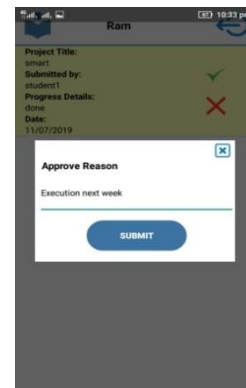

Fig: 10 View Projects Page in Guide's portal

Figure 10 displays the view module where the guide can view the project progress details sent by his/her mentee. The guide can view the details and can accept/reject the project progress sent by the mentee. They can also comment or give feedback about the project which must be reflected in the student's dashboard.
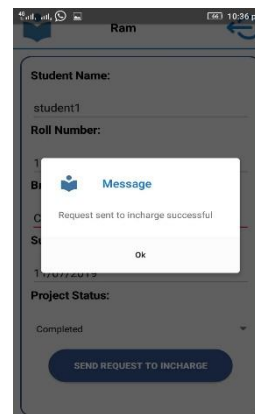

Fig: 11 Guide sending information to in charge

Figure 11 is the page where the guide can send the list of his mentees who have finished their work in that particular week on time along with their project status to the project in charge.
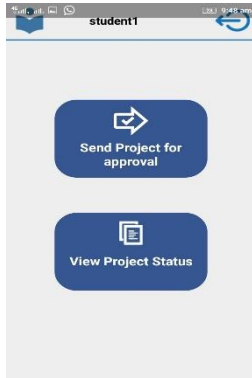

Fig: 12 Student Home page after login

The student when signs in into his/her account [4], the home page of any student appears like that in figure 12. The header consists of the book button which brings back to the same home page again when the student is in other further pages and a logout button on the top right corner. The student's dashboard consists of two buttons namely the send project for approval and view projects status which when clicked will direct to the corresponding pages [4].
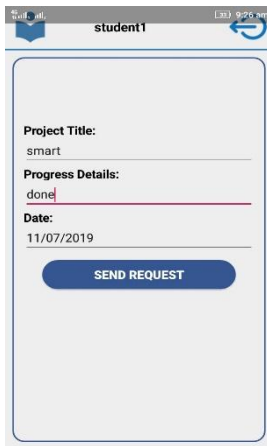

Fig: 13 Send Project details for approval

The student when clicks on the "send project for approval" the page navigates to the page as shown in figure 13 [4]. Here the student has to fill the necessary details and can click on send button which will send this information to their guide.
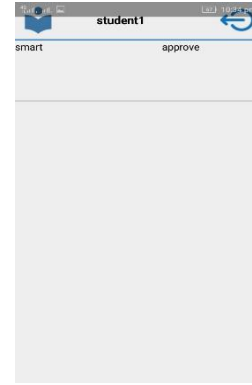

Fig: 14 Student View about project status

Figure 14 gets displayed when the student clicks on the "view project status" button which is present on his dashboard [4]. Through this, the student can view their project status. At the time of submission, the project status is displayed as pending but when the guide accepts or rejects, the status is changed accordingly. This will be displayed along with the time stamp.
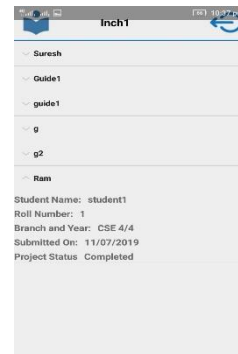

Fig:15 Home page of the Project in charge

Figure 15 is the home page of the project in-charge. The user name along with the book button on the top left corner which directs back to the same home page when we are in the other pages and a logout button on the top right corner. The in-charge will only have a view functionality where she can view the details of the guides about student's weekly progress. Then based on this they will come to know how many students are on track and how many aren't.

VIII. CONCLUSION

The ultimate goal of this project is to automate the project management process in universities and educational institutions. Using this android application, the faculty and student both can have a good repository to store all the project details from the time of project title approval. This gives ease of access to all the resources of projects along with the date and becomes handy to the project guides as well as the project in-charge to assess the marks to students based on their performance. This application succeeds in providing an easy to use interface for the users to register, login and do the project submission related work.

Project Ratification System using Firebase

This project, which was aimed at designing and developing an android portal for the management of the processes, associated with final year projects in the universities has been achieved. The aim and objectives of this project have been actualized. Although there were challenges during the programming phase, but a way was discovered to solve them. The ultimate achievements are: it has been able to automate the allocation of guides to students, students can communicate with their guides and vice versa, student can send their initial reports and the respective guides can review and update the reports and send it back to them and the project in-charge. This project is utilized by any educational institutions which was intended to this specific category of users.

FUTURE SCOPE

The present project can be extended by incorporating the following additional features like allowing the students to upload the project details in the form of images and documents, by including another module namely the Head Of the Department where he/she can view the project progress about the students in every section of that branch, we can also send an email notification to the student after the entire project is successfully and officially accepted, also strong security algorithms can be included within to verify the users authentication.

REFERENCES

1. Syila Izawana Ismail, Rina Abdullah , Siti Aishah Che Kar, Nazuha Fadzal, Hasnorhafiza Husni, Hasiah M, "Online Project Evaluation and Supervision System (oPENs) for final year project proposal development process".
2. A. Abdulkareem, A. Adeyinka, U.I. Dike, "Implementation of University portals for an organization to undergraduate projects", *International Journal of Engineering and Computer Science*, vol. 2, no. 10, pp. 2911-2920, 2013.
3. Usman Naeem and Syed Islam, Arish Siddiqui, "An Effective Framework for Enhancing Student Engagement and Performance in Final Year Projects".
4. https://developer.android.com/guide
5. https://firebase.google.com/docs/database

AUTHORS PROFILE

Ms. Jagruthi Pulipati, a Final year Student of Bachelors of Technology in the field of Computer Science at Mahatma Gandhi Institute of Technology, Hyderabad. She has developed projects in the fields of Android Application Development, Web Technologies, Data Analytics. Her areas of interests in research include Data Analytics and Web Technologies.

Mr. Arepalli Gopi, an Assistant Professor in the Department of Computer Science and Engineering at Mahatma Gandhi Institute of Technology, Hyderabad. He has a work experience of over 3 years. He was involved in many projects and has published several national and international journals.

Mr. R. Mohan Krishna, an Assistant Professor in the Department of Computer Science and Engineering at Mahatma Gandhi Institute of Technology, Hyderabad. He has a work experience of over 5 years. He is interested in the fields of cyber security and IOT.