Mobile Web-Based Cross-platform Application for Student Management System

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Abstract: The main objective of this project is to increase mobility and automation in the student information management system at the institution.

In the previous version, all information had to be viewed on a website. At the same time when searching for any information, it is very difficult to access and it takes a lot of time to search for a particular website.

Therefore, to overcome this problem the Cross-platform smartphone-based app can be used to make the process easier, safer, and less flawless. The most effective information will be gained through this program.

All college related news will be accessible anywhere anytime just on a single click on your mobile device. This application allows access to all notices and college related news. Also, as soon as notice is published on the main portal all mobile devices will receive notification on their mobile devices. Notice notification helps to bridge the communication gap between college management, faculty and students. This feature will allow college management to convey important messages and information directly to students.

This application also connects students across all years and branches through a student discussion forum feature where students can post queries and discuss on topics. Only college students can access this feature; they can share study resources and convey some information.

This application also allows students to view their internal exam results and attendance. Attendance calculator helps students to predict their future attendance. Attendance section in the application provides graph and attendance percent breakdown which helps students to better analyze their attendance.

I. INTRODUCTION

The era of mobile technology opens the windows to the mobile application. Websites are vanishing and mobile phones are emerging. It is time to change the conventional website to apps, which has become part of our daily routine.. As automated systems are needed today, educational infrastructure such as colleges needs their own operating system to run applications. To develop an app that knows how to interact with a website.

The growing benefits of the automated system are now very high so many manual processes are automated. Therefore, in the digital world, there will always be a demand for a faster and secure method to solve or access something.

Changes in Information Technology (IT) allow institutions to use websites and applications .Keeping this in mind, we are introducing 'IPEC Student's App' the Mobile Application software which would be a miniature of the college Portal. This application uses minimalist features to provide user friendly interface and application, which saves there time and effort.

II. LITERATURE REVIEW

All researchers have aimed to develop and provide a generalized solution to monitor the various works that are carried out by a College for automation of various tasks. Provide up-to-date system information that has improved college college management efficiency and reduced student-college interaction.

With the rapid proliferation of smartphones and the rapid development of its related technologies, smart phones occupy a high market share in a number of handheld devices. Smartphones regarding the Android as operating system account for a large proportion of all the smartphones.

Among all the research papers we went through, we came across many things like one of them shows how industry's perception of cross-platform development can be changed.

In other research papers we see how hybrid development has emerged as a potential alternative to this need and is being used by companies to provide their services with a low investment and still offer a great service to their clients.

The evolution of cross platform has taken the attention of researchers and companies as a viable alternative to mobile

development. This paper suggests that hybrid development could be another way for companies to offer their services at a lower cost and still provide better service to their customers.

Flutter being a cross-platform framework can produce applications for various frameworks using a single codebase, these platforms include Android, iOS, Linux, Mac, Windows, Google Fuchsia, and the web. Flutter uses the Material. dart package that contains all the ui component designs that we know and love in the android family with the release of flutter 2 now and offers features such as null security which was very rare in the area of mobile application development.

 The most amazing feature of Flutter is the hot reload and hot restart options which when run after changes in the code, allows the app to show immediate changes in mere seconds as opposed to other native development tools which take up most of the development time in rerunning the application after the changes are made.

In a data-centric world with the availability of information on the web to satisfy the two folded objectives of secured easy access and quick processing, the web solutions, which connect users to information, are well equipped to provide the best facility to its users, and web browsers as a platform, are used to deliver services offered by large and complex applications. Javascript (js) is the most popular and pervasive web scripting language because it is supported by all web browsers.

Many online surveys conducted questionnaires to gain insight from mobile developers. Throughout the survey, They gathered quantitative data on framework popularity, framework usage, and common issues associated with cross-platform development.

Using this data, further work can focus on researching and solving real-world problems and thus can be of great value and validity beyond academics. Analyzing paper we came across how Flutter is an open source sdk for creating high-performance, high- fidelity mobile apps for IOS and android

An application that Manages College System is designed to provide a more easier way to the users to retrieve information quickly. Once the user opens this application.

Application is available in the Appstore.

It contains features such as attendance view, Notices, Sessional Marks, and browser mode. Some features demand high resources from devices and the cloud so we have designed an app in such a way that optimizes available resources and to make this happen we have to consider the feasibility of certain aspects.

Students can use the application with some authentication. Students can view and enter information anytime and anywhere. It also helps students to explore all the activities happening in the college.

Different reports and queries can be generated based on a number of student-related options, collections, exams, semesters, and certificates even across the college by giving notice.

III. METHODOLOGY

The overall system design consists of the following modules:
- **Module 1: User Module**

 In this module, we verify users by providing a username and password. If the username and password are valid then they will be taken to dashboard screens.
- **Module 2: Database Module**

The application uses Firebase's realtime database as its database because of its speed and scalability. This module stores all information about students, and models their data on specified operations. These operations can be storing student attendance, and notice data.
- **Module 3: Notification Module**

This module allows students to receive notification about any college-related information through notifications. The students can view notifications provided by the interface provided by the application.
- **Module 5: Discussion Forum Module**

This module is a feature where students can discuss their questions with students. This chat was done using a mobile app and all users involved in that chat receive a notification on their devices. In this module, the student can upload the notes, interact and indicate their projects with other students.
- **Module 4: Notice Service**

The notice service is for all students and college staff. As soon as a notice about the university/college is released on the college website, a notification is sent to all the students and staff mobile devices.
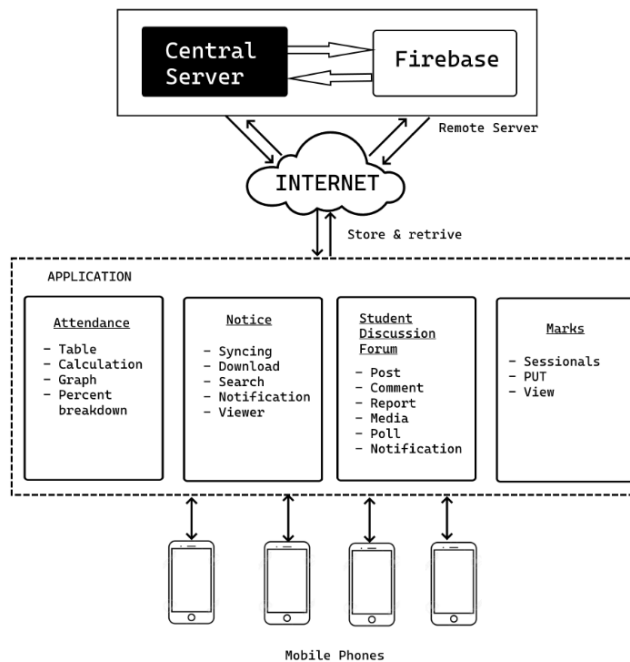
Figure.1. Block Diagram

IV. CONCLUSION

The system offers reliability, time-saving, and easy control. Students will view attendance, notices, and discussion forums using this application.

The application will greatly simplify and improve the management process. It provides high security and a system that minimizes work and resources required for traditional processes. The proposed system provides a way to display a responsive and attractive user experience.

Therefore, on the basis of the literature review and analysis of the existing system, we have come to the conclusion that the proposed system will not only assist the college automation but will also assist in digitizing the system and assist in deploying resources. successfully.

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