ConnectMe-Mobile App for Campus

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A B S T R A C T

The main goal of this project is to add mobility and automation to the student data management process of the educational institution. In a real-world setting, such as a college campus, information is in the form of notices, a handwritten handbook, or a verbal message that is distributed among students. Today, it is essential to use not only predictable forms of pronunciation but also new forms such as mobile phone technology to facilitate faster and easier communication between students. The communication method is Android. The main idea of this project is to implement an Android-based Mobile Campus application for the development of an educational institution and educational system. The application is used by students, teachers and parents. In the previous system, all information had to be viewed in a hard file or on a web page. At the same time, if you are looking for any information, it is too difficult to get it and it takes a lot of time to search for a specific website. Therefore, an application based on a smartphone using Android can be used to solve this problem, making this process easier, safer and error-free. This system provides more effective information. Once sensitive data is stored on the device, apps can ensure it's kept secure by encryption. Applications also exchange sensitive data with remote servers. The Android platform offers several algorithms for encrypting sensitive information. Some of these algorithms offer stronger cryptographic guarantees than others regarding data protection. Encryption algorithms are harder to break if there is more unpredictability in the random numbers generated for encryption. One way to bring unpredictability to Android is to use the Secure Random class. The need for encryption is twofold. First, encryption makes it difficult to read and use sensitive data stored by the application on the device. Second, encryption adds additional protection to sensitive data exchanged between applications and the remote server.

Keywords : Android, mobility, encryption, secure random.

1. Introduction

In this era of mobile technology, most of our work depends on smartphones and their applications. Mobile apps provide clear solutions to many daily activities such as online food ordering, transportation, hospitalization and so on and provide convenience to users. Smartphones have simplified our lives by making us experience everything we need at our fingertips. We have come up with an application that meets the needs of students and faculty in the current market structure, using modern technologies such as Java, smartphone operating system, global positioning systems etc to provide various solutions to the needs of the students in a university campus. "ConnectMe-Mobile App for Campus" is an Android application that connects students and faculty with the university primarily through smartphones. The application has features such as homepage, about us, research, education and training, incubator, information center, contact us, chatbot, navigation, news and notifications, view lecture notes, etc. Faculty members also have additional features such as sharing lecture notes and sending messages.

2. Methodology

Students' campus life can be hassle-free by consolidating multiple functions under one platform. This app uses Gmail's integration with Firebase to authenticate users, for educational use only. The program also has an open Q&A forum to help students and teachers communicate. Use Firebase Cloud Messaging (FCM) to deliver real-time notifications and target users to students. Navigation is carried out with a GPS-based system that helps to find routes to different places on campus and is carried out using augmented reality as well as conventional navigation and a responsive chatbot for instant assistance, fostering seamless communication and convenience for students and teachers.
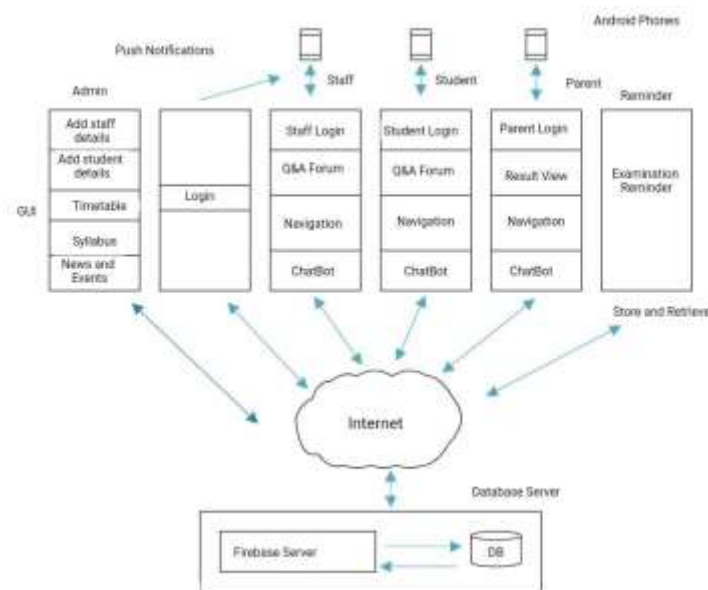
Fig: Methodology flow

Module wise flow of the proposed system:

1. Login Screen:

This function controls the behavior of the home screen, which is the home screen of the application. This screen has a login button that uses Gmail login with   Firebase authentication.

2. Q&A Forum:

This is an open forum where users (students/faculty) can ask questions. These questions can be answered   by the student or the lecturer. The forum has fields   like title, category, link (optional), question description.

3. Notification Board:

It offers notifications and instant communication to various faculty and student groups. In addition to them, images can be sent along with the content of the news and the   loading time of the content. All the users can receive instant notifications.

4. Navigation:

Navigation is done with the help of Google Maps and augmented reality. The Beyond AR framework is used for augmented reality navigation. Users must select their source and destination and select the type of campus navigation.

5. Chatbot:

Developing a chatbot involves defining its purpose and capabilities, integrating natural language processing and backend systems for seamless interactions, and prioritizing user-friendly design. Thorough testing, optimization based on user feedback, and deployment to the chosen platform are crucial for a successful chatbot implementation. Continuous monitoring and iteration ensure ongoing improvements in performance and user experience, making the chatbot an effective and valuable component of the overall system.

3. Comparison Table

The presented papers encompass a development of android app , each with unique methodologies and techniques.

In [1] A comprehensive survey on the paper " An Android Application for Campus Information System" discusses about Android-based campus solution app to enhance information exchange within universities. The app facilitates streamlined attendance, internal record management, and real-time notifications for students, parents, staff, and alumni.

The next [2] The paper underscores the growing importance of chatbots in diverse sectors such as marketing, medical, education, and banking. It specifically focuses on a basic Myanmar chatbot using AIML for educational purposes. The literature review highlights applications in Arabic, Indonesian, and university-related FAQs.

The [3] The paper discusses the development of a mobile learning app using Bootstrap, JavaScript, and CSS, tested on Android versions. It suggests further research for compatibility with Blackberry and iOS and proposes integrating the app with the Student Information System of Diponegoro University.

The [4] The paper emphasizes the widespread influence of mobile devices, particularly smartphones, and the dominance of mobile operating systems like Android, iOS, and Windows Mobile. It highlights Android's open-source nature, key features, and its role in the Android Application Development College Challenge (AADCC), a contest by Google fostering creativity and teamwork among college students in mobile app development.

SL No.	Title	Authors	Advantages	Disadvantages	Accuracy
1	An Android Application for Campus Information System	Reetu Malhotra, Deepak Kumar, D.P Gupta	An online campus information system enhances accessibility, communication, and personalized learning experiences, offering convenient and efficient information management for students and faculty.	However, it introduces potential technical challenges, security concerns, resistance to change, dependency on internet connectivity, and initial implementation costs.	90%
2	Smart College Chatbot Using ML and PYTHON	Hrushikesh Koundinya K, Ajay Krishna Palakurthi, Vaishnavi Putnala, Dr. Ashok Kumar K	The chatbot system at Matrusri Engineering College, powered by AI and ML, offers enhanced user engagement and personalized responses.	Yet, its reliance on a human-curated database may limit adaptability, potentially leading to incomplete or inaccurate responses for diverse queries.	85%
3	Mobile-Based Learning Design with Android Development Tools	Oky Dwi Nurhayati, Kurniawan Teguh M	The mobile learning system provides flexible, accessible education with a user-friendly interface.	However, it may face limitations with compatibility and accessibility for users with older Android versions or limited smartphone access.	95%
4	The Android Application Development College Challenge	Rishabh Agrawal, Nikita Gupta	The Android application development college challenge cultivates student creativity and Android development skills, contributing to the dynamic evolution of mobile computing..	However, potential downsides may include heightened competition, student stress, and limitations in skill evaluation..	93%

Fig 2. Comparison Table

4. Advantages

The advantage of a mobile application is that it facilitates the use of offline data.

● The ongoing activities of the college can be easily sent through push notifications and can also be sent to a target group or any user.

● User-friendly design helps users to use the app easily.

● The application offers study materials provided by the faculty that help digitize the existing system.

● An open discussion forum allows for a lot of interaction between students and faculty.

● The navigation feature helps users, especially freshers and visitors, to reach their destination in the campus without any problem.

5. Conclusion

The system offers trustability, time savings and easy control. scholars and their parents will also view results, attendance and class details using this operation. Also scholars can view details, announcements anywhere and anytime. The operation will greatly simplify and speed up the result medication and operation process. It provides high security and a system that reduces the work and coffers needed in traditional process. The proposed system provides the new way of computing and displaying an operations with responsive and seductive stoner- interface. therefore, on the base of literature check and by assaying the being system, we've come to a conclusion that the propose system won't only prop the robotization to the council, but will also help to digitize the system and in turn help to emplace coffers efficiently..

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