

# Android-based Student Management System

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**Abstract**—This project's main goal is to introduce mobility and automation to the way students manage their academic records inside of a learning environment. Information is often conveyed to students in real-world settings, like on a college campus, using a variety of channels, including notices, writing instructions, and spoken messaging. In order to facilitate quicker and more efficient communication among students in today's fast-paced environment, it is essential to not only rely on conventional modes of communication but also to embrace modern technologies like cell phone applications. An Android-based Mobile Campus application that would act as the main form of communication is the suggested fix for this issue. For the professors and lecturers, we will have an ADMINAPP to upload the resources, assignments, previous papers, and attendance. Students would only need to open the STUDENTAPP to view the assignments that are uploaded, access the resources, login and view their attendance, and access their specific course syllabus. (\*The above model of the android application will be implemented for our institute Hyderabad Institute Of Technology And Management (HITAM)).

**Index Terms**— Mobility, Student management system, Educational institution, Communication, Android-based.

## I. INTRODUCTION

The proposed project's type of primary goal is to provide a thorough student information system that substantially replaces the traditional paper records kept in educational institutions and colleges. The college staff may subtly upload attendance, results, and notifications to a secure internet portal with the aid of Android smartphones. For the purpose of encrypting sensitive data, the Android platform offers a variety of algorithms, some of which provide greater cryptographic guarantees than others. Today, nearly everyone has a smartphone and a data connection. We created StudentApp so that students may rapidly access some of the most important data without even having to log in. This Android-based student management system serves as the main database to

hold all of the regular school operations, keep accurate records of the previous few decades, manage crucial activities, and effectively handle administrative functions like:

- Attendance
- Syllabus
- FEE Details
- Academic Calendar
- E-Books
- Assignments
- Marks

## II. DETAILED DESIGN

The application's modules and sub-modules, which are based on Modules for the Student App, are included in the detailed design. The student must download and install the student app from the Google Play store before logging in with their college-provided student ID and password. The student credentials will already be kept in the database and are compared to those entered by the students to authenticate themselves. Basic college information will be included on the student app's main page, and information about the school's courses and contact information will be included on the About page. Students can check their attendance, view assignments, view notices, access professor information, and more with the Student app. In order for the students to view the assignments, the lecturers will need to upload them using the student application's upload assignments function. The administrator will also be able to submit the academic calendars for various academic years as well as the curricula for various departments and disciplines.

## III. APPLICATION DESIGN

The primary goal of the system design is to employ use case diagrams to describe the modules. By showing the use cases for all of the functionalities in the form of diagrams for the user's better understanding, use case diagrams assist us in understanding the flow of the application. The use case diagram illustrates how

a system is dynamic. It consists of three primary parts: Actors: which act as a person or object to activate a system's functionality. After every single functionality has been discovered, it is converted into a use case that will be used in the use case diagram. Relationships: The relationship between the actor and use case/system is examined when the actors and use cases have both been identified. When a student uses the application, the login page is the first page to show up. The learner can choose features and use the app on the homepage.



Fig1: Use-Case diagram for Student



Fig2: Use-case diagram for Admin

Modules for the Student App:

Student Login Page:

If the student wants to use the Student App, they must download the application from the play store, install and log in using the student Id and password. The student credentials will already be stored in the database and validated against the credentials used by the students. If the credentials are validated the student can log in to the student application.

Home Page and About Page:

The home page of the student app will contain basic information about the college and the about page will consist of details about the courses offered by the college and the basic contact details.

E-Books Page:

This page will contain the list of ebooks uploaded by various subject departments. The students can view the ebooks by directly downloading them from this page.

Assignments Page:

The assignments page will contain all the assignments assigned to the students by their departments.

Notice Page:

This page will consist of all the notices uploaded by the departments or the administration.

Gallery:

Various events take place in college and their pictures will also be taken by the college administration. Students can view these images on the gallery page which will be uploaded by the admin.

Attendance:

Students' attendance can be uploaded by the professors. In the Student app, the students can check their own attendance as well, in the form of percentages.

Syllabus and Academic Calendar:

Students belong to different departments and have different course syllabi. On the syllabus page, the student will be able to access their course syllabus by directly viewing or downloading them according to their departments. Students will also be able to view their academic calendars based on their academic year.

Faculty details:

As there are various departments in our college sometimes it becomes difficult to search for a faculty member.

The faculty details page will consist of details of various faculty members based on their departments along with their contact information so that the students can easily contact them.



Student Login

Enter Roll Number

Enter Password

LOGIN

Fig 3: Student App login page

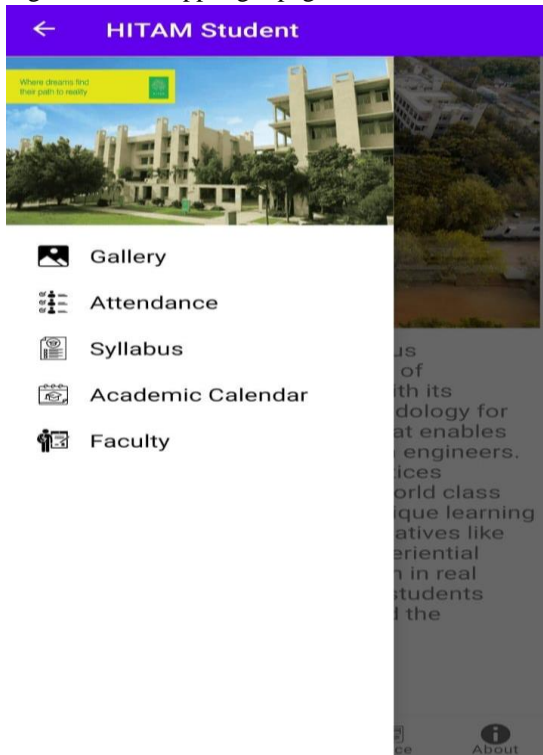


Fig 4: Student App menu page



HITAM is a top-ranked autonomous engineering college with 22 years of exemplary legacy. It stands out with its unique 'Doing Engineering' methodology for offering engineering education that enables the students to become hands-on engineers. HITAM implements the best practices developed in collaboration with world class partner institutions to create a unique learning experience for students. With initiatives like project-based learning (PBL), experiential platform for learning and outreach in real time engineering (XPLORE), etc., students at HITAM are able to learn beyond the



Fig 5: Student App home page

Modules for Admin App:

Upload assignments module:

The upload assignments module will help the lecturers to upload the assignments so the students can view them in the student application.

Upload Attendance:

Here in the Admin app, lecturers can upload the attendance of a particular class, and updates will be shown in the Student app.

Syllabus and Academic calendar:

The admin will be able to upload the syllabus of various departments and subjects. the admin will be able to upload the academic calendars of different academic years.

Upload Ebooks:

The faculty members/admins will be able to upload various ebooks which can be of the pdf, ppt, doc, Docx, or any other format required by the students required for their academics.

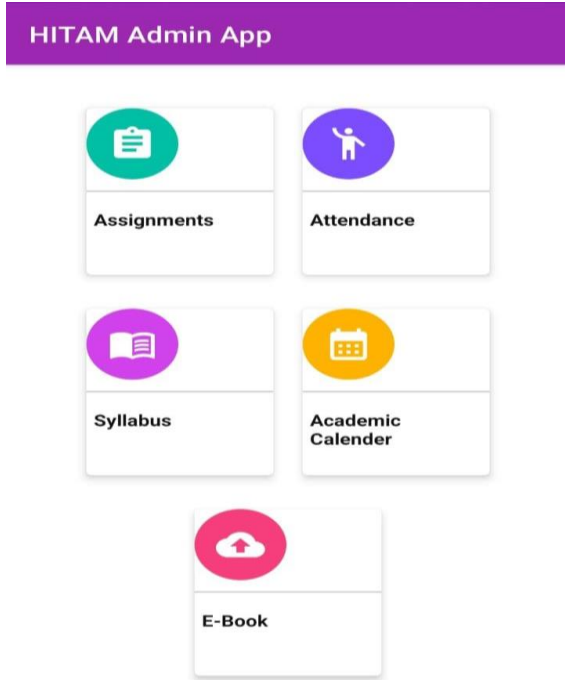


Fig 6: Admin App

#### IV. DATABASE DESIGN

The database should be designed in such a way that it should be easy to access and manipulate. Database definition and database manipulation operations should be performed accordingly to add, delete, and update values. In this project, we have used a Firebase database which is an open-source database and easy to use.

Firebase Real-time Database is a cloud-hosted NoSQL database that lets you store and sync between your users in real-time.

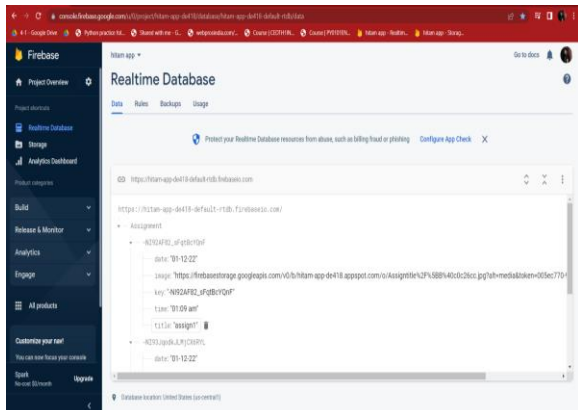


Fig 7: Firebase

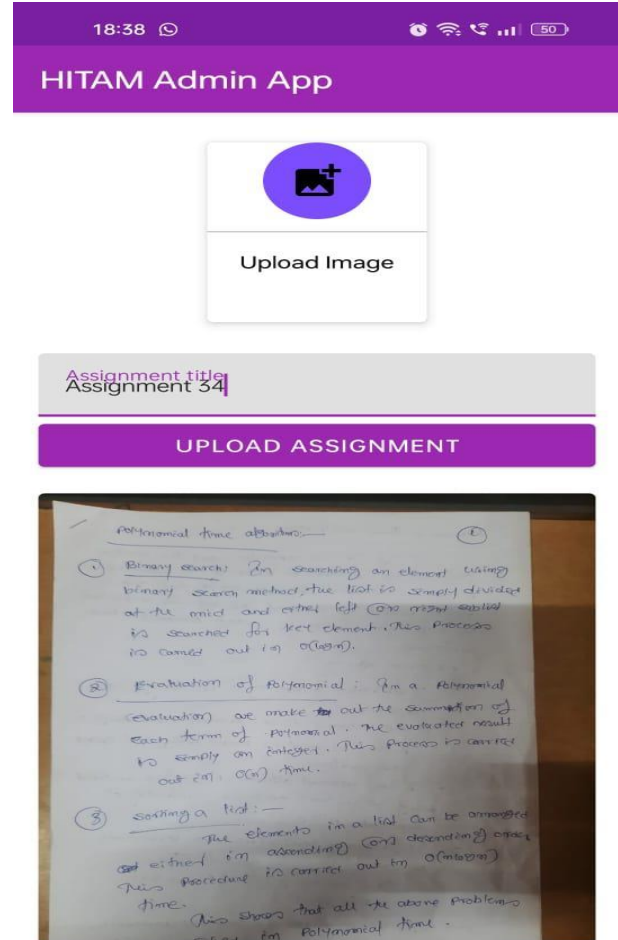


Fig 8: Working of upload assignment module

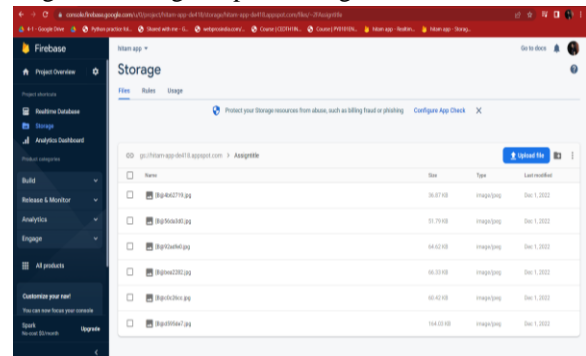


Fig 9: Firebase Storage

#### V. CONCLUSION

An Android-based mobile application for Student Management System is presented. The application offers reliability, time savings, and easy control. It can be used as a base for creating and enhancing applications for viewing results and tracking attendance for colleges or any workplace. Students can

view attendance and curriculum details using this application. Also, students can view details, and notifications anywhere and anytime.

#### VI. ACKNOWLEDGEMENT

We, the team working on the Android-based student management project have taken Hyderabad Institute of Technology And Management (HITAM) college as our case study and would like to express our sincere gratitude to our mentor Dr. S. Arvind for providing us with the fantastic opportunity to work on this project. Your guidance and mentorship have been invaluable to us, and we could not have completed this project without your help. Your support has enabled us to do extensive research, which allowed us to learn a lot of brand-new information about the subject. We are truly grateful for your constant encouragement, insightful feedback, and unwavering support throughout this project.

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