

An Android Application on AITR Management and Bus -Tracking System

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ABSTRACT

An ARMA is an Android-based app that tracks a variety of student activities such as online E-Book availability, real-time bus monitoring, Covid-19 case information, Note alerts, college feedback, and events. The app accurately pinpoints the current position using the GPS feature, which is available on most smart phones today. The bus driver will update the bus location on the server, and students will then use GPS to locate the bus on a map. As a college information system, this software can be used. For a given client or member of staff. It is based on the firebase online database system. ARMA uses Firebase Authentication to provide secure Login/Signup features for various modules.

KEYWORDS: Covid-19, Android, GPS, Bus Monitoring

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1. INTRODUCTION

The use of databases and the operation of the Student Education System has changed as a result of computer technology, and their reporting and reports are now closely monitored from everywhere. Android plays a significant role. It encourages innovation in the handling of conventional structures. This Android platform was chosen because it allows students to receive real-time alerts for any new notifications. This ARMA project contributes to the college administration process in a number of ways. The main motivation for developing this software was to assist students with their day-to-day issues. This Application assists you in managing all student-related tasks such as timetables and notices.

Admins may use this application to access or upgrade Faculty data, as well as add new teachers. Add Gallery Images, Events, and Store Attendance, as well as update and delete notices. We have included Covid-19 Tracker in this app due to the increasing number of Corona posts. As a result, the student keeps track of new cases of Corona virus. All data is double-checked and verified on the server. The college administrator manages the Firebase database, which stores all of the data in a safe manner. The administrator also keeps track of student attendance in the database on a regular basis and updates it as required. The system cuts down on paperwork and saves time when it comes to sending updates to students. The aim of this project is to

create an Android app for students and staff at the college. Any Android smart phone, anywhere and at any time, can use this Application.



2. LITERATURE SURVEY

Paper 1: Research Paper on College Management system

This paper is being written for an academic degree engineering school in order to stay updated and encourage easy access to knowledge. Users must first register with the system, after which they will be able to view and change information according to the permissions granted to them. CMS is a network-based academic Application that seeks to provide knowledge to some or all levels of management.

Paper 2: Web Based Student Information Management System

This paper helps in the automation of the existing manual system, which is remotely monitored and controlled. It always provides accurate details. The knowledge collected over the years has been stored and can be accessed at any time. The data stored in the archive at regular intervals aids management in making informed decisions. As a result, using an online-based data management system is preferable.

Paper 3: Android Based Student Management System

It's a framework for keeping track of all kinds of student-related procedures including class attendance, bus monitoring, hostel food preferences, college ratings, and online availability of book events. Since it is based on the Android operating system and runs smoothly because it is based on an online system named firebase, the smart student management system is the best choice for this project.

3. EXISTING SYSTEM

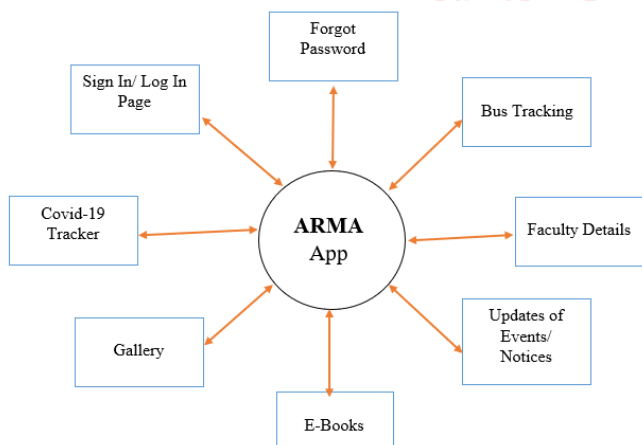
In schools and colleges, the traditional solution is to use a bulletin board to exchange information. And the teacher dictates the notes to the students before they write them in their notebooks. sometime few students out of college premises so as that they don't get that imperative notices. this can be creating some draw back there to Student. Students do not catch the bus on time. They occasionally miss the bus.

Existing System Disadvantages:

- Exact location of bus not track in real-time.
- Existing System is not efficient.
- No security.
- Large Memory required.

4. PROPOSED SYSTEM

In this Project, Two Application are built one for driver and other for student/admin. Student Application there is two module one for admin and other is Student

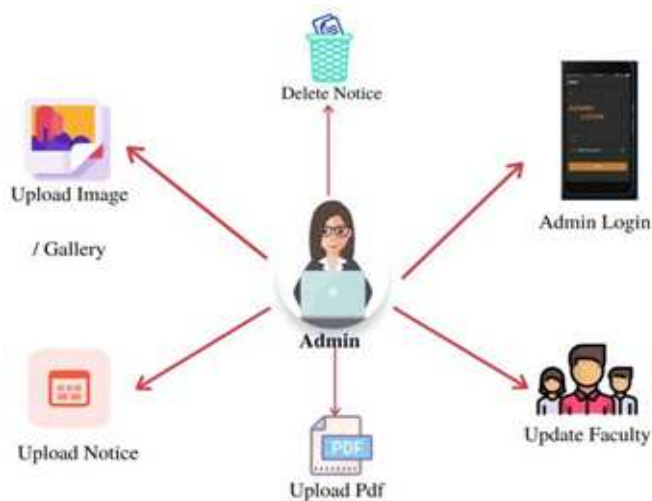


Workflow Diagram

Admin Module:

In Admin Module, admin have to following features:

- Admin Registration
- Admin Login
- Update Gallery
- Upload Notice
- Upload E-Book
- Update Driver



Student Module:

In Student Module, student have to following Rights:

- Student Registration
- Student Login
- E-Book
- Covid-19
- Bus-Tracker
- Gallery/Events

Driver Application:

Driver has to share location to store in database. Driver has to following features:

- Driver Registration.
- Driver Login
- Share Location

SYSTEM REQUIREMENT AND SPECIFICATION

1.1. Hardware Requirement

- Intel core i3 Processor or above.
- Minimum 100 GB HD.
- Minimum 4 GB of RAM.
- Standard Keyboard and Serial Mouse.

1.2. Software Requirement

The essential software used are:

- Android Studio IDE.
- Operating System.
- Android SDK (Minimum API 21).
- Firebase Database.
- Firebase Cloud Storage

ALGORITHM

Algorithm 1: K-means Algorithm

- 1) Let $X = x_1, x_2, x_3, \dots, x_n$ denote the number of data points, and $V = v_1, v_2, \dots, v_c$ denote the number of centres.
- 2) Select 'c' cluster centres at random.

Find the distance between each data point and cluster centre

- 3) Assign the data point to the cluster centre with the highest priority.

The distance from the cluster core is the shortest of all the distances.

centres in a cluster

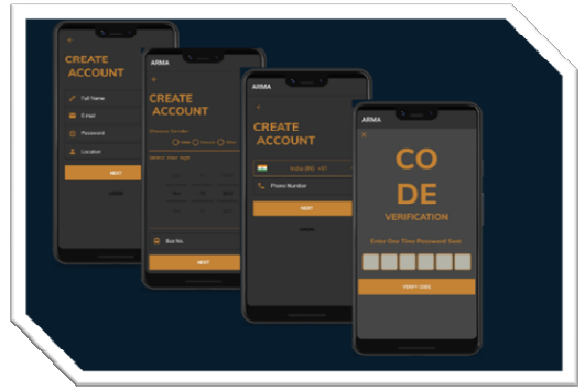
- 4) Recalculate the new cluster centre using the following formula:

number of clusters number of cases centroid for cluster j

$$\text{objective function} \leftarrow J = \sum_{j=1}^k \sum_{i=1}^n \|x_i^{(j)} - c_j\|^2$$

Distance function

➤ **SignUp/ Login:**



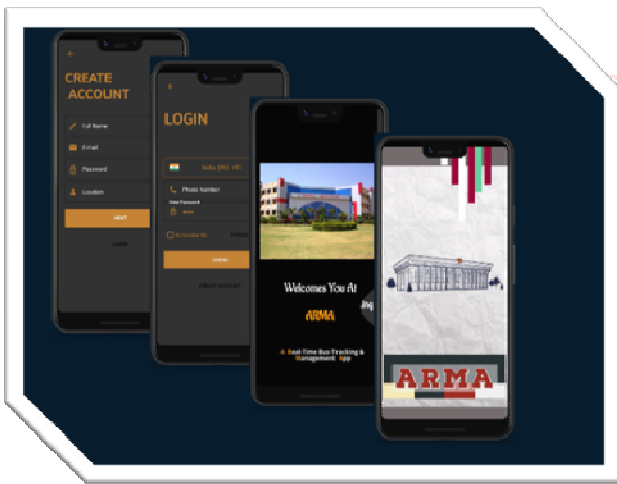
The number of data points in the i th cluster is defined by 'ci.'

5) Determine the euclidean distance and the newly discovered cluster centres.

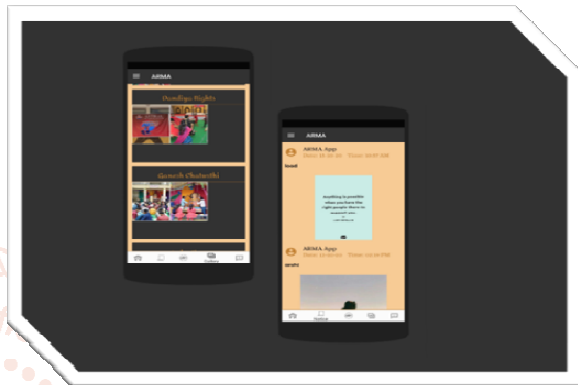
6) Stop if no data points were reassigned; otherwise, proceed from phase 3).

5. RESULT

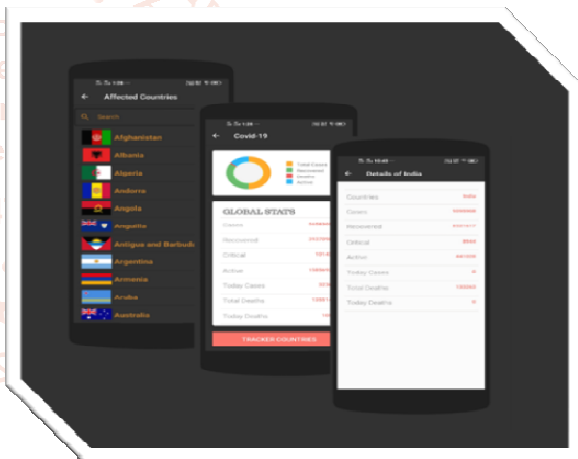
➤ **System Design:**



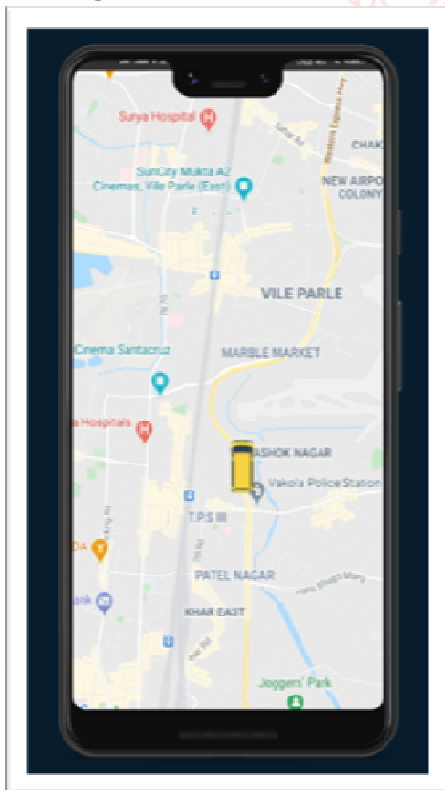
➤ **Updates /Events**



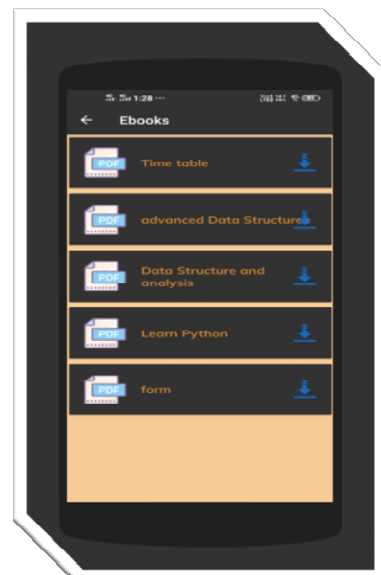
➤ **Covid-19 Tracker:**



➤ **Bus-Tracking:**



➤ **E-Books:**



6. CONCLUSION

An Android-based ARMA is dependable, time-saving, and simple to use. It will serve as a basis for designing and improving applications for viewing college information and tracking student bus locations, saving time for students. This app helps students to keep track of their covid-19 events,

latest events, and curriculum specifics from anywhere at any time.

The ARMA System is highly adaptable for use in any educational environment, with high ratings for simplicity, user-friendliness, usability, and efficiency.

Table 2 Comparison ARMA v/s other

Authors	Bus Tacking	E-Book	Notice	Covid- 19	Attendance
Vishwakarma R Ganesh	No	No	Yes	No	Yes
Ritika Dhiman	No	Yes	Yes	No	Yes
G. Shamitha Reddy	Yes	No	yes	No	Yes
Omka Tiwari	No	No	Yes	No	Yes
Arshi Sheikh	Yes	Yes	Yes	Yes	Yes

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