

# Mobile Application for College Organization

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**Abstract**— As the development of technology is increasing rapidly, the use of mobile phones have also been increased in our day to day life. Today’s scenario is that mobiles are very useful in everybody’s day to day life. Mobile phones are being used everywhere, hence for educational institute we propose an application that will eliminate the role of manual notice board which we see in educational institute. As often seen that student avoids reading notice board frequently. Thus we are developing a system that will display all the notice board content on it. This paper focuses on penetration of mobile apps. For security purpose to secure the authentication of user, to maintain integrity we are using the Armstrong number to encrypt the data with cryptography.

**Key words:** Mobile App, College Organization, Data Security, Armstrong Numbers, Authentication, Cryptography

## I. INTRODUCTION

A rapid increase in Mobile technology information retrieval and information gathering has become available at footsteps. It has changed the scenario of human beings daily work schedule. Every individual day to day tasks are being done with the help of this technology. Like online shopping, reading books, news etc. can be done irrespective of place you are or irrespective of time with the help of Mobile technology.

- The Ericsson(NASADAQ:ERIC) mobility report says that number of mobile users are expected to go 9.3 billion by 2019 and more than 60 percent of this statistics will be using smart phones.

As mobile phones are being used each and everywhere even now a day’s almost every college student have a mobile sets with them. So we proposed a system that will be medium of engagement with college managements and students.

Data that used to be provided to students by staff or college management were done by manual notice board or via website, but we will provide it by this mobile system. All notice will be delivered to the mobile by this mobile system. With the help of this system students will be able to view all the college happening on their mobile phones.

## II. NEED FOR COLLEGE ORGANIZATION TO HAVE MOBILE PHONES

Now a day’s almost every college has an effective mobile websites as there is a mobile increase of student using internet on their mobile phones. Many college organizations are targeting towards addressing mobile needs. Students have got so addictive to mobile phones that every college organization must focus to address the issue of providing data access by the use of mobile phones.

This mobile system which will be used by college organization will help in providing private data so the users. The mobile system will use features like push notification

i.e. sending notification from college server to mobile system user. Notification to the mobile system user which will be students like, submission dates, exam dates and details of college functions etc.

## III. RELATED WORK

### A. Working of an Existing System

In most of the organization conveying the message through notices is done by manually notice board. The management has to take a print of the notices. Which has to be circulate, then this printed notice is either attached to the notice board or some peon circulates the notices to each and every department, Which not only requires man power but also takes time and doing this you not even get the assured message conveyed successfully or not.

This notice do not have any filtrations method i.e. no privacy of the notices are maintained. Any department can view any departments noticed.

### B. Drawbacks of Existing System

Drawbacks are reading notice boards are often neglected by many students or what if the student is absent or not in the college wants to forward some notices to students. Then this existing system fails.

## IV. PROPOSED SYSTEM

The basic idea of proposed system is as shown in Fig.1 is the college system design which will be used in our system. Firstly Student has to get enrolled his account to this college system, with the help of his/her registered account he/she will be able to perceive their respective notices department wise, here the administrator will be responsible to create and post notifications, all the data will be stored in the database from which student can access their personal details whenever they want. All the notices will in push up format, which will help to convey the notices to as many students as possible. Student will not need to check his notices all the time, the notice will be pushed up to his mobile.

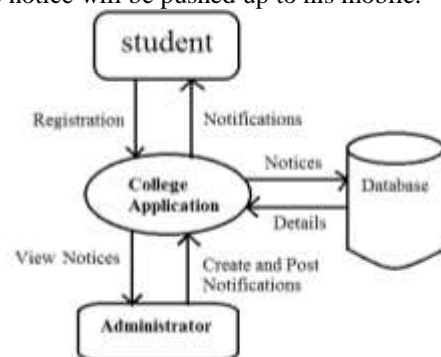


Fig 1: Block Diagram

The main purpose to propose this system is to convey the notices to as many as people as possible irrespective of place and time. Notice will be provided at finger tips. Our system will also help the environment by

saving so many notice papers. Our system will provide awareness to parents regarding the college day to day happening. Our system will be more user friendly than that of any web system.

#### A. System Overview

Let U be the Set of College Notification System,

$U = S, T, M, NU, Srv, E, G, N, PN$

Where, S, T, M, NU, Srv, E, G, N, PN are the inputs of the set.

S=Student

T=Teacher (Staff,HOD)

M=Management

NU=New User

Srv=Server

E=Encryption

G=GPS based route info

N=Notification

PN=Personalized Notification

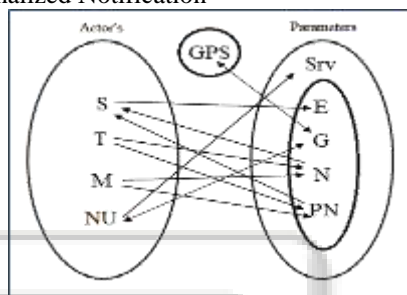


Fig. 2: System Overview

- Student registration is kept unique and Armstrong encryption method is applied to keep all the passwords secure.
- Teacher, HOD or management will put notifications which could be personalized to broadcast.
- New user will have a general public view of the application and can request college's route info based on GPS.

#### B. Characteristics of the Proposed System

##### 1) User friendly:

The system will give the user friendly experience as all notices will be at finger tips. No need to keep an eye on notice board all the time.

##### 2) College details can be viewed easily:

By the help of this system college details can be gathered easily such as its infrastructure or distance from home through GPS irrespective of time and place.

##### 3) Will Save the Environment:

It will help to save the Environment as there will be elimination of papers for notices, as seen lots of papers being used and wasted for preparation of various notices.

##### 4) Computer Operator Control:

Computer operator control will be used so as to eliminate the chance of any error.

##### 5) Ability To Authenticate Student Password:

When the student is going to register to the mobile system, his authentication of password will be done by ARMSTRONG NUMBER algorithm, which not give access to the notices if it is not a valid student. This algorithm will help to provides strong security to authenticate the valid student.

#### V. SECURITY ALGORITHM

Algorithm used to provide security to authenticate the right student or Staff. Is as follows:-

##### A. Encryption Process In Armstrong Number Algorithm:

There are four steps for encryption of data in Armstrong number algorithm.

##### 1) Step 1: Conversion to ASCII:

```
J A I H I N D extra extra
74 65 73 72 73 78 68 -25 -25
```

##### 2) Step 2: Addition of Armstrong Number:

```
74 65 73 72 73 78 68 -25 -25
(+) 1 5 3 1 25 9 1 125 27
-----
74 70 76 73 98 87 69 100 2
```

##### 3) Step 3: Creating two Matrices:-

a) Encoding matrix:

$$A = \begin{pmatrix} 1 & 5 & 3 \\ 1 & 25 & 9 \\ 1 & 125 & 27 \end{pmatrix}$$

b) Data Matrix:

$$B = \begin{pmatrix} 75 & 73 & 69 \\ 70 & 98 & 100 \\ 76 & 87 & 2 \end{pmatrix}$$

##### 4) Step 4: Matrix Multiplication:-

$$C = A * B = \begin{pmatrix} 653 & 824 & 575 \\ 2509 & 3306 & 2587 \\ 10877 & 14672 & 12623 \end{pmatrix}$$

Encrypted data is:

653, 824, 575, 2509, 3306, 2587, 10877, 14672, 12623

##### B. Decryption Process In Armstrong Number Algorithm.

There are four steps for encryption of data in Armstrong number algorithm:

##### 1) Step 1: Take Inverse Of Encoding Matrix.

$$D = (-1/240) * \begin{pmatrix} -450 & 240 & 30 \\ -18 & 24 & -6 \\ 100 & -120 & 20 \end{pmatrix}$$

##### 2) Step 2: Multiplication of inverse matrix and encrypted data matrix.

$$D * C = \begin{pmatrix} 75 & 73 & 69 \\ 70 & 98 & 10 \\ 76 & 87 & 2 \end{pmatrix}$$

##### 3) Step 3:- We will get the Decrypted Armstrong data.

```
75 70 76 73 98 87 69 100 2
```

##### 4) Step 4: Subtraction of Armstrong Number from decrypted data.

```
75 70 76 73 98 87 69 100 2
(-) 1 5 3 1 25 9 1 125 27
-----
74 65 73 72 73 78 68 -25 -25
```

a) Original Data:

```
74 65 73 72 73 78 68
```

#### VI. ADVANTAGES

- College Notices will be at Finger tips.
- Parents can get the details of college day to day happenings.

- Student who what's to get admit can perceive college details sitting at home.
- Most important it will save the Environment by saving so many Notice papers.
- Has the ability to deliver personalized information to students.
- This Native system will give more flexibility than that of any web system.

#### VII. DISADVANTAGES

- Compulsory needs an android phone.
- Power failure and viruses are the inherent problem.
- Must have Internet connectivity.

#### VIII. CONCLUSION

Thus we conclude that by accomplishment of such a system, we are going to develop a user friendly mobile system that will not only help the students but will also help the organization to operate smoothly.

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