

## RESEARCH ARTICLE

### SMART NOTIFICATION SYSTEM USING INTRANET OR INTERNET

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#### ABSTRACT

For reading various notifications of every departments and events, for example in college a student need to visit and see the notice board or a website regularly to check if there is some new notices are available or not. Sometimes the student may miss out on an important notifications. To solve this situation the expedient is to give the user with a digital medium like to display those notifications on their smart/mobile devices such as an android mobile phone, then Push Notifications is the correct remedy for it. Whenever system provides updates/new notifications, the user only require to make the installation of that application on his android mobile phone or on webpage. Then user is free to utilize that specific app which afterwards checks for the updated contents frequently after particular instance of time which will be displayed on the user's device. The notification will arrive intelligently on user's screen by taking decision about recipient by considering available registered information which is stored in knowledge database. The future scope of this idea makes the user to get updates in real time and makes it completely the correct like traditional way to become the up to date with less disturbances, man power and work with high efficiency as per with the advancement in technology. The organizations may not need to display anything on the boards since all the users would receive the updates on their mobile devices. This is comparatively the latest prospect and expects more development, hence more above changes and modifications will make it grow even better powerful and adaptive which makes it more flexible to use in the future.

**Keywords:** Android, Push Notification, GSM, Zig-Bee, Server, Token, Wi-Fi

#### INTRODUCTION

Early days to display any information, circulars, and daily events are to be display in LCD with help of GSM and Zig-Bee. It was useful to display in early days but nowadays this is too difficult process because GSM has been used large distance area but if anywhere the tower problem is occurred it total damage the output display. It has to cover the smaller area and it manufactures small market hesitant to release in the world. The Zig-Bee has been used to send the information it only passing through the small coverage area to be transmit and receive the output. Zig-Bee is used mainly in the concentrators, data collectors, repeaters, and meters installed in the urban distribution. So using Wi-Fi to display the information passing very fast and large coverage distance to be accessed so to saving our time due to it act a transmit and receive the information at a time.

The use of traditional notice boards in schools/colleges leads to following problems:

1. Missing Notices or important memos created for students.
2. Waste of time and energy to go looking for the notice boards.
3. Human Error in pinning any related updates.
4. Students tend to forget important updates by just going through the notice boards.

To overcome all these problems this Smart Notification System is proposed.

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#### Scope

1. It can be used at School, Colleges, and Organization etc. for sending the day to day information continuously.
2. It can avoid the time latency as well as man power.
3. It is also useful for reducing the number of non-notified student's means every student can get the information

#### Objective

1. Minimizes the effort of lengthy job for managing the notices in the large-scale organization.
2. Sticking notices day to day is difficult process which require man power that can be overcome in this system.
3. Real-time and accurate data reception in less time.
4. As soon as the system is updated the users should dynamically receive the important updates

#### LITERATURE SURVEY

In this section we discuss the different Methodologies Reviews / Literature Reviews and Motivational Outcomes from it.

**Review of Methodologies:** There are number of studies in the literature on mobile messaging using Wi-Fi network and also smart electronic notices using Wi-Fi. For viewing different tabs for every section and events in college a user has to visit a notice board or a website regularly to check if there is some new content available. Sometimes the user may miss out on an important notice. To sort this problem the solution is to provide the user with a digital medium like displaying those

notices on his handheld device like a mobile phone. If that website provides updates, all the user needs is to do is install the application on his android device. The user then can use the application which then checks for updated content frequently and displays it on the device. In wireless data connection and uploading to traditional web servers, this things are expensive, user need to have data plans with finite use limits and steep overage charges. In router based system server initiates network through routers which performs transactions with stationary or mobile devices in the network, this is done without involvement of any internet connection which will help to cut the cost of sharing. Security will be ensured by checking availability, integrity, non-repudiation, authentication etc. It handles queening of messages and delivery to the target application running on the target device.

**Motivational Outcomes:** The different outcomes are motivated for the current system by reviewing the methodologies explained in Section 2.1 as follows:

- It is used in colleges to send the placement news, circulars, daily events, schedules etc.
- Used in hotels to send the food items and menu offers etc.
- It can be used in City Malls, Super Markets, etc. for advertising products through Wi-Fi.
- By using railway stations scheduling time to be Send and platforms the service offered by the railways
- To send the nursing homes using the staff attendance availability of the doctors, list of the specialized doctors and no of patients etc.

## SYSTEM OVERVIEW

This section contains the block diagram and the details about the modules that are going to use.

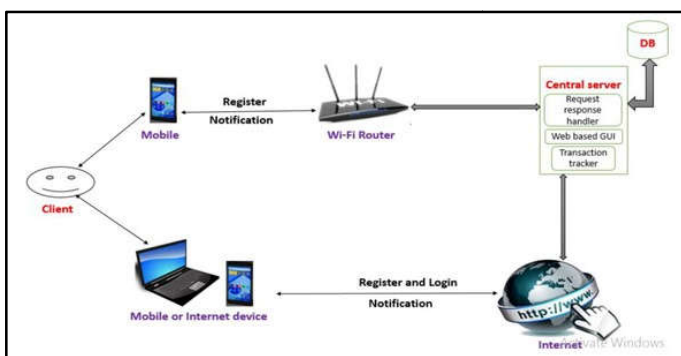


Figure 1. System Architecture

Various devices/blocks are present in architecture, following is the brief description of it.

1. **Database:** Storage requirement of system is full filled by it. It is used to store data related to all registration information in tabular form using MySQL.
2. **Central Server:**
  - Consists of various blocks for handling the system.
  - Depending on client side request via router or internet, it gives response depending on database and server side query.

- Provides GUI for server machine handler.
- Keeps tracking all transactions in the system.

3. **Wi-Fi router:** For intranet message broadcasting router plays major role, it will transmit data to devices within its bandwidth.
4. **Android Application:** An android application is the one that processes or fetches the newly updated data from the database and displays results to the students. The application retrieves data from a database per user request and displays the retrieved information on an android device. Users of this application would be able to analyze data faster hence make quick decisions as they would not be drowned in a flood of detailed information.

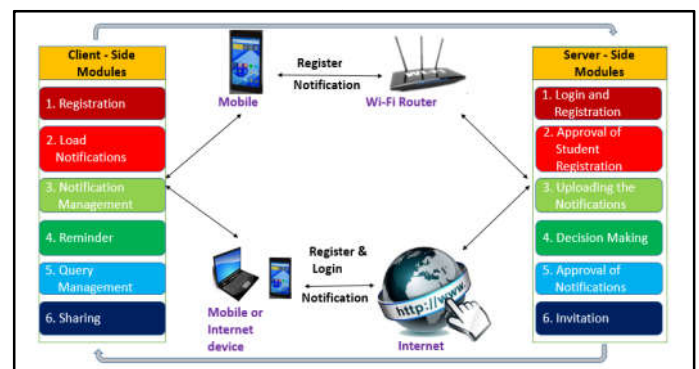


Figure 2. System Modules

## System Modules

**Client-Mobile/Desktop:** The client of the system can only view the notification or download file which have been sent by admin on their mobile. He can also see the notifications on the browser by using a URL, it is useful for the desktop users.

1. **Registration:** In this client have to register for getting the access of notifications. As a part of registration each student is having Name, Roll no, GR number, Division, Branch and Academic Year. Client should login while accessing notifications through Web/Desktop.
2. **Load Notification:** By authenticating from server side particular student will get the notification on his Smart phone as well as Desktop. In this the notification will be appear on the client device and client has to download that notifications in order to read it.
3. **Notification Management:** Client will have access to the notifications such as:
  - Store the notification in the device.
  - Read the notification from file.
  - Delete the notification.
4. **Reminder:** The notification which are coming from server side will have some deadline so it will give another close notification before that particular event.
5. **Query Management:** Client must able to report back if having any query regarding notification.
6. **Sharing:** We can advertise the system using some sharing devices.

**Server-Desktop:** Admin will have all the rights to manage and send notifications of the text type or any file to students of the particular department or all.

#### 1. Login and Registration:

- At the server side that webpage is having the login option to allow for the authenticated server user.
- Communicating with client side user for registration and login and getting their details.

2. **Approval of Student Registration:** Checking the authorization of registered user and provide authentication to the same by analyzing the database.

3. **Uploading the Notifications:** We have two methods for uploading the notification:

- By directly typing the notice in the text box.
- By uploading the any type of file with the name to which we have to send that notification.

4. **Decision Making:** By analyzing the notification and server side database the decision is taken about receiver. The notifications might be from different sources:

#### College Level Notifications

- **Student Section:** It includes notifications and circulars for all students.
- **Establishment Section:** It includes notifications related to staff appointments, notices, and common holidays.
- **Library Section:** It consists of notifications regarding to Reading hall, Library cards, Books, etc.
- **Gymkhana:** This section consists notification related to sports and physical events.
- **Exam Section:** Notifications regarding university exams and inter college exams.
- **Departmental Section:** These are notices to departments, departmental authorities, etc.
- **Professional Bodies:** Different professional bodies such as ISTE, Student Council, NSS, etc.
- **Events and Workshops:** Cultural events, Gathering, Common workshops, etc. belongs to same.

#### Department Level Notifications

- **Intradepartmental notifications:** Includes notifications related to belongings department, as well notifications from faculty members.
- **Departmental professional bodies:** Some Examples like ACES, CESA, MESA, TESA, ITERA, CSI, DHRUV, etc. are various professional bodies inside the departments, there notices will also be part of this section.
- **Training and Placement:** Company Recruitment related notifications comes under this section.
- **Interdepartmental Events and Workshops:** Workshops of dedicated departments as well events notifications can be part of it.
- **Project related Notifications:** Notifications related to BE projects will come under this section.

5. **Approval of notification:** Higher authority should give approval to the notification for forwarding it.

6. **Invitation:** By taking email-id as input server should able to advertise the system.

## REQUIREMENTS

**Normal Requirements:** These are the requirement which are clearly stated by the customer, so all these requirements must be present in project for customer satisfaction.

- The system should accept data from students/staffs and provide authentication.
- Teacher/higher authority must be able to send notification..
- Student must able to get notification within certain span of time.
- Sender and Receiver can login into the system from anywhere like online or offline
- The System should simple and user friendly.

#### Expected Requirements

These are implicit type of requirement. These requirements are expected by customer but not clearly specified by customer.

- The system should collect all the necessary information of user.
- In authentication, system should generate the database entry, store it, verify it and then authenticate.
- Maximum student information should be stored in database.
- The system should provide the specific notice to the particular user.
- System should work efficiently in every environment.

#### Excited Requirements

These Requirements are neither stated by the customer nor expected, but to make customer more satisfied, the developer may include some unexpected requirements.

- Notification will provide alert message before certain time span.
- Notification will be removed from system after date of validation.
- Auto decision making about the recipient of the notification.
- Student may provide suggestion for difficulties.

#### Algorithm

Algorithm Used in:

1. KMP (Kruth Morris Pratt) Substring Match Algorithm
2. Handoff Algorithm
3. Request Response Handling Algorithm

#### KMP(KruthMorrisPratt) Substring Match Algorithm

Algorithm kmp\_search:

```

input :
    an array of characters, S (the text to be searched)
    an array of characters, W (the word sought)
output :
    an integer (the zero-based position in S at which W is found)
define variables :
    an integer, m <- 0 (the beginning of the current match in S)
    an integer, i <- 0 (the position of the current character in W)
    an array of integers, T (the table, computed elsewhere)
while m + i < length(S) do
    if W[i] = S[m + i] then
        if i = length(W) - 1 then
            return m
            let i ← i + 1
        else
            if T[i] > -1 then
                let m ← m + i - T[i], i ← T[i]
            else
                let m ← m + 1, i ← 0
    (if we search here, we have searched all of S unsuccessfully)
return the length of S

```

### Example of KMP Algorithm:

```

1)Input:
    txt[] = "THIS IS A TEST TEXT"
    pat[] = "TEST"
Output:
    Pattern found at index 10
2)Input:
    txt[] = "AABAACAADAABAAABAA"
    pat[] = "AABA"
Output:
    Pattern found at index 0 Pattern found at index 9 Pattern found at index 13

```

### Conclusion

We can make our sharing faster and easy way of online communication with the users. The proposed system does not require any extra hardware. The system will be flexible to use at any domain at any time and also we can update our notification according users requirement. We can update notification at any time. It can be set up at public transport places like railways, bus station, and airport and also at road side for traffic control and in emergency situations like hospitals, temples, etc. Its cost is low and very easily handling method. It is fully involved with using papers and displaying of notices is avoided and the information can be updated by the every second of time.

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