

# Department Information System-Web Application

S. Pavithra, Suhailah Begum, Shraddha Pai. P,  
Shreya Pai. P  
Electronics and Communication Engineering  
St. Joseph Engineering College  
Mangalore, India

**Abstract**— Nowadays all sectors and firms use web application to hold the details. It becomes very necessary to have a web application that supports less human efforts. The database has come into light with an intention to store huge data. Institution is one such place where huge amount of data is generated and processed, this necessity has given us an opportunity to develop the project named ‘Department Information System-Web Application’. This application creates an environment which supports access of college department admin, staffs and students. This information system serves as an effective communication channel. It lets the institution exchange information within the department and makes fast, secure interaction. However, effective communication is only possible when the organization is able to capture and store all the required data, and have a means of processing this information and presenting the results to the user. Web applications use a combination of server side scripting language (PHP) to handle the storage and retrieval of the information, and client side scripting language (JavaScript and HTML and SQL) to present the information to the use in the web browser. Considering the security, as it is a prime concern for any web application, encryption and decryption of the data is performed.

**Keywords**— *Android, JavaScript, PHP, SQL, HTML*

## INTRODUCTION

A college department network for college with student login, administrator login, Mentor login and staff login. The administrator has the highest authority. This account may be handled by the Head of Department or any other senior authority. This website notifies students about various college events. Only administrator and the staffs have the authority to post events. Students can view those notifications and react accordingly. Whenever a new event or notification is posted, students are notified.

(1) Administrator login: He/she can add staffs/mentors along with their details. The administrator can set a specific username with password for each staff as well as mentors. Any number of circulars can be posted by the administrator and viewed. The administrator can also add class along with the subjects assigned to that class with specific staffs. Admin can view the attendance report, internal marks and the documents uploaded by staffs and students. Admin can view the student details updated by the administrator.

(2) Mentor login: Each mentor can add specific number of students assigned to them by the department. Mentors can

K. Aarya Shri  
Electronics and Communication Engineering  
St. Joseph Engineering College  
Mangalore, India

keep track of student and their details. Student details include Name, USN, address, email address, contact number, gender, year of study, section, image and date of

birth. Also the Mentor can set a specific password for each student with their username as register number. Mentors can view documents such as certificates/leave letters posted by students.

(3) Staff login: He/she has to enter username and the password set by the administrator. Once logged in, staff can create their profile which can be viewed by the administrator. The details can also be updated accordingly. Notices can be sent to the students (assignments or any other notice). Attendance of the students can be taken and percentage of attendance will be calculated for each student automatically which can be viewed by the students, administrator and staff. Internal marks can be updated and can be viewed by the admin and the student. Staffs can send certificates (Workshops attended, FDP attended, Journals and conference) to the administrator.

(4) Student login: The student has to enter their register number as Username and the password set by the mentor. Once logged in, student can view the circular and various other events posted by the department and notices/assignments posted by the staff. Students can view their attendance report and internal marks. Also, they can attach documents which can be sent to administrator and mentor.

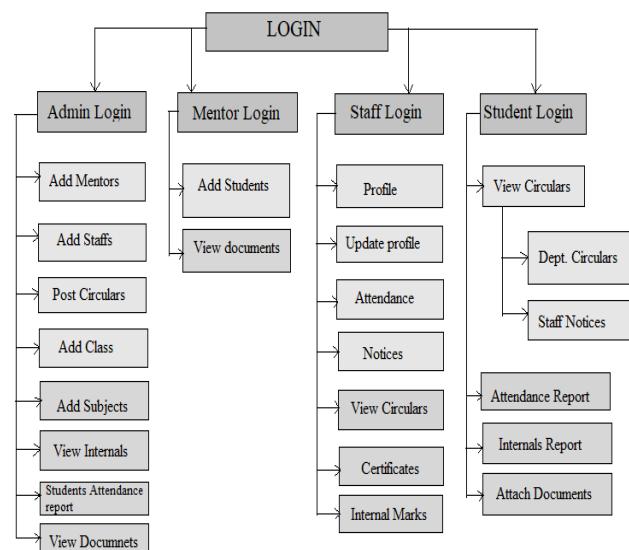


Fig1: Block diagram of Department information system.

### I. OBJECTIVE

The department information system aims to develop a website which provides an easy interface that reduces the manual work of maintaining paper records. User must be able to use the application without much effort. A centralized database is maintained to hold all categories of work involved within the department.

### II. LITERATURE SURVEY

The paper 'Mobile Web Based Android Application for College Management System' says that with the advance in time and technology there is a need for faster dissemination of information. The increasing advantages of automated system now are at the top most position because of which many manual processes are automated. Since the automated system is in demand now-a-days instead of tedious manual effort, educational institutes like colleges need their manual system to function on mobile computing systems. Changes in Information Technology field allow organization to make use of databases and applications such as Student Information System thus, making the accessing of organizations record centralized and user friendly. One of the new changes that came about as an automated system is web based applications. These applications are an improvisation to the old traditional transaction processing systems.

Android College Management System is an android application which is useful for students as well as the organization. In the existing system all the activities of maintaining the records are done manually. It makes the process costly and time consuming. In our proposed system, students can view results and profiles using Android phones. The data will be stored in the department server. The faculty can login into their college account through the proposed android app itself and create or update the academic result of the students. In this system, students have an easy access for viewing the marks, profile, attendance and notices provided, their authentications are correct. But, they are not allowed to change/update the details. Admin module maintains the student marks, attendance detail and staff

profile of the college. The advanced features and advantages available in this app is in case of natural calamities, notification to students can be sent directly from admin office through this application. Any new circulars for a particular semester will be posted by professor or admin through the application notifying to respective semester students. Application also includes logic to support the facilities of the college to its students, however if the person downloading the application is not a student or an outsider but an aspirant who has completed HSC and wants to know about the college then it only displays the advertisement of the college. Senior college toppers can also share their tips and tricks for the benefits of students via chat interface. Student's overall performance is also monitored by the application by their specific mentors.

### III. METHODOLOGY

This system works under prototype model. The prototype model is a System Development Method (SDM) where a prototype which is an approximation of a final system or product is built, evaluated and tested for any errors and then re-programmed as required until an acceptable prototype is finally achieved, from which the complete final system or product can be developed. The basic idea in this adopted model is that instead of freezing the requirements before a design, or initialising the coding, a throw-away prototype is built to understand the necessary requirements. This prototype is developed based on the currently known and available requirements as shown in figure 2.

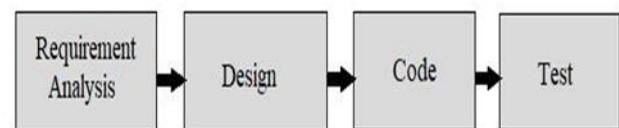


Figure 2: Block diagram explaining the steps required in the development of the system.

Prototype model is used when the desired system needs to have an effective interaction with the end users. Typically, online system web interface have a very high amount of interaction with end users because of which they are best suited for prototype model. By using this prototype, the client can get an actual feel of the system as the interactions with prototype can enable the client to have better understanding of the requirements of the desired system. Prototyping is an attractive and innovative idea for analyzing complicated and large systems for which there is no manual process or existing system to help in determining the requirements. The sequential phases in Prototype model is as shown in figure 3.

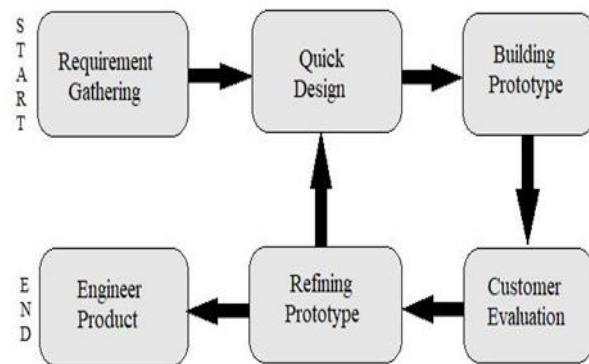


Figure 3: Block diagram showing the sequential phases in prototype model

#### A. Requirements gathering and Analysis

A prototype model begins with requirements' analysis and the requirements of the system are defined in detail. The user is interviewed in order to know the requirement of the system. Here the users are college administrator, mentor, staff and students. The Head of department and staffs are interviewed in order to gather the department requirements. Following are the requirements given by the administrator: Circulars, Attendance Sheet, Internal Marks, Time Table, Attachment of leave application and medical certificate. Also, the requirements mentioned by the staffs are Staff designation, faculty details, Certificates such as workshops attended, Faculty development programs (FDP) attended, posting journals and conference paper to the administrator with an option to upload necessary documents.

#### B. Quick design

When requirements are known, a preliminary design or a quick design for the system is created for testing. It is not a detailed design and includes only the important aspects of the system, which gives an idea of the system to the user. A quick design helps in developing the prototype as shown in figure 4.

#### C. Build prototype

Information collected from the preliminary or quick design is modified to form the first sample prototype, which represents the working model of the required system. Detailed design is formed from the quick design in which each step is carefully understood and implemented as per the requirements of the user (administrator). The administrator login is created in this design as the first step and later the modules are added along with username and password. In the next step, the sidebar is created which includes the fields specified by the user. Implementation of former step leads to the design of page which has the details of the fields.

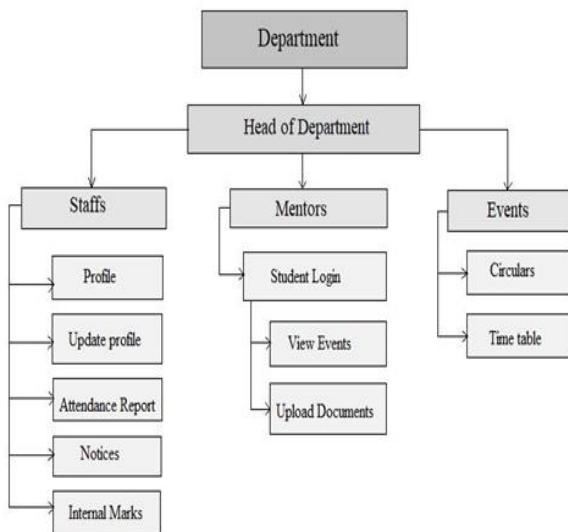


Figure 4: Flowchart explaining the quick design of the prototype

#### D. User evaluation

Next, the proposed system is presented to the end user for thorough evaluation of the prototype to analyze and recognize its strengths and weaknesses such as what is to be added or removed to make the system more effective. Comments and suggestions are collected from the end users and provided to the developer for further modification of the system.

#### E. Refining prototype

Once the user evaluates the prototype and if he/she is not satisfied, the current prototype is refined according to the requirements. That is, a new prototype is developed with additional information and modification provided by the user. The new prototype is evaluated just like a previous prototype. This process continues until the entire requirement specified by the user is met. Once the user is satisfied with the developed prototype and if he finds no error, a system is developed on the basis of the final prototype.

#### F. Engineer product

Once the requirements given by the end user are completely satisfied, the user then accepts the final prototype. The final system is evaluated thoroughly by the developer followed by the routine maintenance on regular basis for preventing large-scale failures and minimizing downtime.

The advantages of prototype model are:

- 1) Users are actively involved in the development.
- 2) Reduced time and cost.
- 3) The prototyping model helps to clarify requirements which are not understandable, hence reducing ambiguity and improving communication between the developer and the user.
- 4) The user can get a proper feel of the functionality of the software and he can suggest the changes and modification.
- 5) Since, in this methodology a working model of the system is provided, the users get a better understanding of the system being developed.
- 6) Errors can be detected much earlier.
- 7) Missing functionality can be identified easily.
- 8) Confusing or difficult functions can be identified.

## IV. SOFTWARE DETAILS

Software is a set of instructions, data or programs used to operate computers and execute specific tasks [1]. It describes the physical aspects of a computer, software is a generic term used to refer to applications, scripts and programs that run on a device.

## V. RESULTS AND DISCUSSION

When a user opens department information system he/she gets to the login page. This page requires the user to enter the username which is their register number and the password provided by the admin. When both the username

and the password match with that given by the admin, he/she is logged in.

#### B. Admin Page

When the user is logged-in as an admin, the admin page is displayed where the admin can view the sidebar at the leftmost corner of the page as shown below. The sidebar includes the fields like subjects, circular, mentors, students, staffs and report. Under the circular, admin can post circular and view them whenever required. The student's field leads to the student page where the admin can view students and their details. Admin Home page is as shown in figure 5.

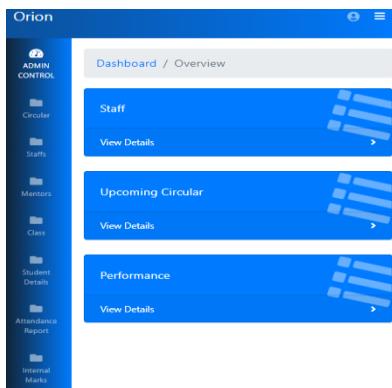


Figure 5 Admin Home page

#### C. Circular display

The circular posted by the admin can be viewed by the students when the student is logged-in. The view of the circular for the student is exactly like that of the admin but does not contain the posted time and expire time.

#### D. Mentor login

A mentor can login with username and password specified by the administrator. Furthermore, students are added along with their details.

#### E. Add and View Student details

When the Mentor wants to view students, he/she can view students and their details in the 'student' field. When the Mentor wants to add students, he/she can add students and their details in the 'student' field.

#### F. Staff login

A staff can login with username and password specified by the administrator. Furthermore, staffs can create and update their profile when required. Notices can be sent to the students (assignments or any other notice). Attendance of the students can be taken and percentage of attendance will be calculated for each student automatically which can be viewed by the students, administrator and staff. Internal marks can be updated and can be viewed by the admin and the student. Staffs can send certificates (Workshops attended, FDP attended, Journals and conference) to the administrator. Staff Home page is shown in figure 6.

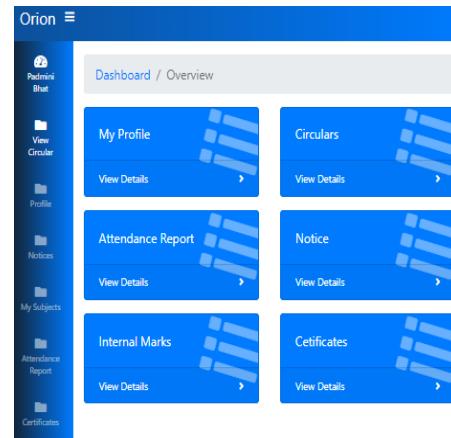


Figure 6 Staff Home page

#### G. Subject Details

To add a subject details for a particular class, admin has to click on view class . A page will be displayed with year of studying and the section with a option to select subject. On selecting the subject for the respective year and section , the admin can fill the subject information which includes subject code, subject name and the staff assigned to that particular subject.

#### H. Attendance

Attendance can be posted by the staff for their respective subject by opening their profile, selecting "My Subjects" option and clicking on "Take Attendance" button. The student's attendance for that particular subject and class will be displayed and attendance can be marked.

#### I. Notice display

The notice posted by the staff can be viewed by the students when the student is logged-in. The notice view for the staff is as shown in the figure 12a. The view of the notice for the student is exactly like that of the staffs.

**J. Internal marks:** Internal marks for a particular subject must be chosen and marks should be entered. The average of the best two internals will be taken and added with assignment marks automatically. The internal marks can be viewed by the administrator and the student.

## VI. CONCLUSION

The department information system is reliable, saves time and easy to control. Results, attendance and curriculum details can be viewed by the students as well as the staff using this application. In addition to this, the system allows students to view details and notifications irrespective of place and time. The efficient management process with instant result preparation makes the system simple to use and access. The system is highly secure. The manual work and resources required in traditional process is reduced. The proposed system incorporates easy user-interface. Thus, based on the analysis of literature survey as well as the existing system, we have come to a conclusion that the

propose system will not only aid the automation to the college, but also helps to deploy resources efficiently.

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