Development of Online Student Registration System

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Abstract: In this computerized system, students desirous of getting admission will be issued with a token on first come first serve basis and the tokens will be displayed on different counters. The original documents of the students will be verified to ascertain whether the admissibility norms are fulfilled or not and a challan will be issued, by entering minimum relevant data, to the student for remitting the requisite fees to the Bank account. When the student returns with the paid challan an application form will be enabled in a computer screen for online data entry by the student which contains among others, the students' personal, academic and fee related data. In this proposed project, database is maintained to focus on storing and processing by using RDBMS of Oracle DBMS. After submitting the online application, the student will get a SMS or e-mail as an acknowledgement.

Keywords: Student basic information; Student Registration; Challan.

I. BACKGROUND

Nowadays, all the work relating to students' registration/ admission is done in manual environment using application forms, registers, ID cards by the students/ management, which are a tiresome activity consuming lot of time and repetition of data entry at different levels. To be in tuning with the aspirations of Digital India it is required to Design a Computerized Automated Student Admission System to speed up the process and for the systematic use/analysis of the students' data for various purposes.

II. RELATED TECHNOLOGY

The online student registration system involves the active participation of the students who are desirous of getting admission into an institution / University. The data entered by the students in the application form would be free from mistakes and clerical errors since the students themselves would enter the data pertaining to their educational qualifications, personal data and other related matters. The vital part of the system is the application form which may contain the number of columns required by the institute. Though there is a provision to increase the number of columns as per the requirements of any institution / University the present design is restricted to 50 to 60 fields / columns in the application form.

The design is so developed that the data so collected in the application form can be stored, processed, transmitted, analysed and maintained. That apart, the data can be shared with other institutions. The data can be retrieved in the form required by the institute which will help the management to analyse the data and to predict the trends in admission process. The data can also be monitored and organized to study the information and to take remedial measures wherever required, if necessary. By using the information, the objectives of an institution may be planned and checked. The system is designed to share the information between the departments of an institution which saves manpower and resources for the institution
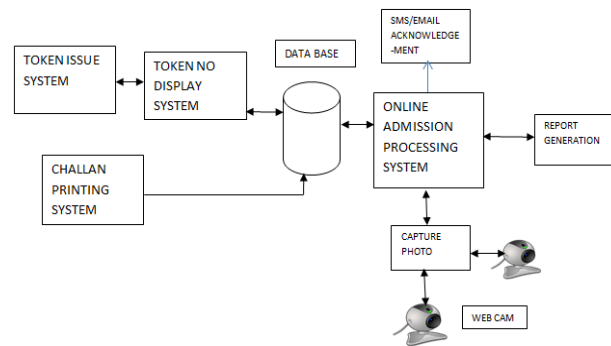

Figure1. System Use Case Diagram

thereby improving the efficiency of student registration.

A conceptual block diagram of the system is shown in figure 1.

Token issue and display system

The inconveniences encountered by the students in particular and the parents at large at the time of registration can be eliminated by introducing the token display system as observed in Banks. The first step of this design starts with issuing of tokens to the students and the display system. The low power requirements of the display system are of great advantage especially in rural areas where power supply is sporadic and dependence on battery power is inevitable.

The hardware design of the system consists of mainly three sections - Control section, Button press acquisition section and Display and buzzer section. The various sections of the system are explained in the preceding paragraphs.

Control Section: This section consists of the ARM7 lpc 2148 microcontroller responsible for the controlling of the entire system. ARM7 lpc 2148 is an 32 bit microcontroller from the ARM family of microcontrollers produced by Philips. The IC is available in 64 pin package; USB 2.0 Full Speed compliant Device Controller with 2 kB of endpoint RAM. In addition, the LPC2148 provides 8 kB of

on-chip RAM accessible to USB by DMA.

Two 32-bit timers/external event counters (with four capture and four compare channels each), PWM unit (six outputs) and watchdog is used for token issue system. The microcontroller has built in features like ADC, Timer/Counters, Serial communication ports, Interrupts etc. The IC is very versatile and the In System Programming capability allows the user to program the IC real-time during the development. The IC is equipped with 8 to 40 kB of on-chip static RAM and 32 to 512 kB of on-chip flash program memory.128 bit wide interface/accelerator enables high speed 60 MHz operation. On-chip integrated oscillator operates with an external crystal in range from 1 MHz to30 MHz and with an external oscillator up to 50 MHz.

Button press acquisition section:The button press acquisition system consists of three push buttons, signal diodes and pull-down resistors. The external interrupt feature of the microcontroller is utilized here. One lead of each push button is tied to a high and the other lead is given to the input pins of the microcontroller. The second lead of each push button is connected to the external interrupt pin of the microcontroller through a signal diode. The signal diodes serve the purpose of isolating the high signal of a button from the other buttons. This results in correct identification of the switch being pressed. The pull-down resistors serve the purpose of tying the input pins to ground. When the button is pressed, the high signal drops across these resistors and thus providing a high voltage at the input pins. When the button is not pressed, the pull-down resistors keep the pins at a low level.

Display and buzzer section: This section includes three pairs of seven segment displays, a liquid crystal display and a buzzer. The seven segment displays used here are common anode seven segment displays. In-order to display the required number a low signal has to be given to the pins of required LEDs. The six led display are used at a time in multiplexed manner that enables the displays only one at a time for extremely small duration. Due to persistence of vision of the human eye, all the displays appear to be turned on at the same time. The LCD or liquid crystal display is capable of displaying alpha numeric characters and is a versatile device.

III. FUNCTION DESIGN

Function modules of the design and development of online student registration can be divided into four parts, the Token issue and display system, the Challan issue system, online application and Report generation. Student Admission process contains the document verification, generating the respective fees challan filling the necessary details to the application with photograph and then registration confirmation. And then maintenance of student personal, academic and fee related data. In the proposed project database maintained is usually contains the student's personal, academic and its fees related information. It focuses on storing and processing by using DBMS. This system is deployed on Oracle RDBMS. This system starts by issuing the token to the students to maintain the que system. Then the process continues through generating the fees challans by entering the

minimum data to the system. All necessary information will be filled online with the student picture and submitted to the server. After this process student will get mail or SMS as an acknowledgement.

The use case diagram is shown in Figure1. System Use Case Diagram

(1) Token issue and display system: The token issue system will print the unique token numbers to everyone. In the display system the token numbers will be displayed on seven segment display and also the respective counter numbers in order serve in the first in first out system. This system is mainly used to control and maintain the que system.

(2) Challan issue system: The challan issue system will print the fees amount for the individual accordingly, using the minimum data stored in data base.

(3) Online application system: The application form is developed in the software to display on the computer screen in order to enter the all necessary information of the student. This may include the academic details, educational details etc.

(4) Report generation and acknowledgement: after filling the online application for all details will be present in the data base using those information we will create the instant ID card to the student and also the acknowledgement will be given through sms or through email.

IV. SYSTEM IMPLEMENTATION

A. System Development Environment
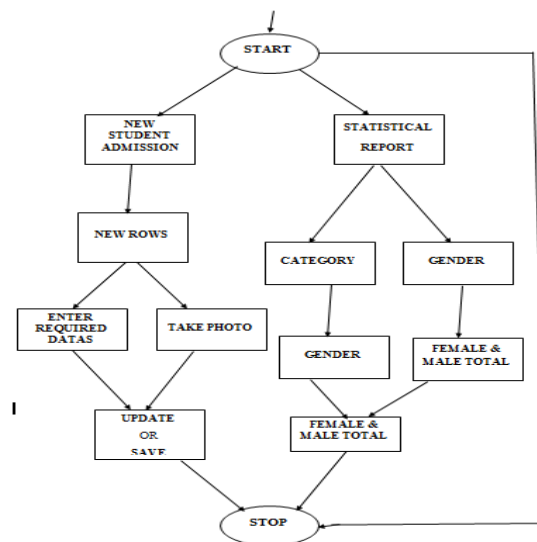
Operating System: Windows 2000 Server (SP4).

Web Server: Microsoft IIS (Microsoft Internet Information Server) 6.0 supports ASP and can be used as both the management system Server and the testing platform.

Database Server: Microsoft SQL Server 2000 provides efficient storage process and a flexible user-defined function to support data integrity control in the core layer.

Client Development Tools: Visual C++ 6.0, creates a user friendly interface, interacts with card reader and transfers the data with the web server.

System Development Language

(1) **C++:** C++ is an object-oriented programming language, with good scalability and compatibility.

(2) **RDBMS (BACKEND):** A Relational database management system (DBMS) that is based on the relational model as invented by E.F Codd, of IBM's San Jose research Laboratory. RDBMS is the basis of the SQL and for all the modern database system like MS SQL Server.

(3) **Sybase power builder (front end):** It is an integrated development environment owned by Sybase, a division of SAP. It has been used since 1991, peaking around 1998 with around 100000 users. While power builder's market share has diminished, many applications created with it are still in use.

V. SUMMARY AND PROSPECT

The system includes several modules, the token issue and display module, the challan issue module, the online application, and the report generation and acknowledgement module. The requirements of data consistency, data integrity, data security are ensured based on the requirement analysis of this system. The database structure is designed and the related function modules of the system are also designed and implemented. The information, automation, standardization of student registration system can be satisfied by the project and is of immense use in online admission system. The system works very well, and solves the manual operation problem of students' registration system effectively.

VI. CONCLUSION

The designed and developed system efficiently solves the problems involved in the registration process especially during the start of an academic year, of a university or college. The data captured in the system will be authentic and can be used for other purposes like data retrieve and management, since the students themselves will feed all the required data. This solves the problems of avoidable delays involved in inter departmental transfer of data.

ACKNOWLEDGMENT

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