

Gate Pass Management System for Students

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Abstract--- The Gate pass Management System is developed by using Android as front end and SQLite as backend function to provide utility to save the time and paperwork for the emergency need. The gate pass Management System is based on Student and the Faculty. The student will update the leave permission details and this request will be sent to the faculty and Head. The Red Pass application, which is part of the Gate Pass System, is designed to record the user's details and activities. It makes the process easier and less documentation is required. You might think of it as the digital equivalent of a paper gate pass. The user should receive training that is tailored to their individual requirements. All users and systems are being monitored by the administrator. The faculty is the only ones who can approve the user gate application in this system. The guard system database has a gate pass system that pops up when they want to let pupils in. Due to the novelty and recent rollout of the E-Gate pass system to their area of responsibility, training was given promptly and they were able to complete it. It is very hard to put a precise schedule on the training when it is still in its early phases, but people will be updated as preparations are made. Everyone from administrators to faculty to students should have no trouble navigating and using the system's many features because of how intuitive it is. The authorised personnel database will be imported into the Gate Pass Management System from the Administrative Data Processing department to serve as the main lookup table. Using a Gate Pass Management System, both the organisation and the visitors may easily keep track of the Gate Passes. In many cases Data input is conveniently located at the top level, allowing visitors to easily enter and exit.

Keyword--- Gate Pass Management System, E-Gate Pass System, Student, Faculty.

I. INTRODUCTION

When all people actually want is practical items, they're stuck with technology. A rapid acceptance and understanding of technology's potential is required in light of the present paradigm shift in the technical domain [1]. A Gate pass management system that streamlines processes for teachers and students is urgently needed. The primary goal of the Gate Pass System is to improve the system by making it more efficient and effective while decreasing the amount of physical labour required [2]. This programme streamlines operations by substituting a computer-based system for the manual one [3]. Using this gate pass management system, they were able to transition from a manual to a computerised system, which solved all of their problems.

The main objective of the study is to make requests easy for the student gate pass by providing leave application and approval process of the student by Faculty and head. This module will support for student leave/permission. This application runs on the platform as Android operating system. This android application includes Student name, Student ID, phone number, address, email id, and password

[4]. Using Username and password the person can login to this application for further process which provides the adequate information to the concern for its smooth run [5]. It is a user -friendly application provided with options, which can be utilized by the desired operations. This is the application for gate pass management

II. LITERATURE REVIEW

Chaudhri et al [6] An android software called "eHostel" automates a certain hostel's manual hostel management system that is connected to a college. Important issues including room assignment, fee and receipt management, student management, complaint handling, visitor record keeping, student leave management, and notice board management are all resolved by it. Some further features offered by this program include safe user authentication, a digital hostel pass, real-time notifications, significant form updates, and user profile management.

Nugent et al [7] The essay concludes that although data sharing in Customs has advanced, each country's continued institutional cultures are reflected in the design and operation of OSBPs. Furthermore, practical solutions that undermine

the idea of a paperless border are a part of working practices. Second, the paper notes that because OSBPs are built to handle both people and goods, they differ from other border crossings and have certain characteristics in common with seaports and airports. However, they differ in that they are co-produced spaces of interaction where the organizational patterns have been shaped by transporters and members of the surrounding community, and they are not highly securitized. The results combine local conceptions of ownership, routine bureaucratic procedures, and government ideologies of service.

Sunico et al [8] The purpose of this project was to create and assess an automated gate pass system that would monitor who enters the school and leaves, including visitors, staff, and students. The Rapid Application Development (RAD) Model was utilized in the System Development Life Cycle (SDLC) to plan, develop, create, deploy, and test the system. Additionally, XAMPP, MySQL, and PHP were used as software in the creation and execution of the system. On the other side, the system's usability (4.13) and functionality (4.30%) were assessed using the ISO 9126 standard. The technology assists administrators in keeping an eye on things and providing records to anyone visiting the institution. As a result, the system helps to secure and keep an eye on students, staff, and visitors, providing appropriate and timely input to the administrator.

Rodrigues et al [9] A gate pass management system is associated with security measures. This technology can be used to expedite the visitor registration process, informing the organization of visitors' presence. This might take the place of the customary visitor registration procedure. This lessens the hassle of scheduling appointments and collects visitor data via web and Android applications, which are then stored in the database that handles the data. The Gate Pass Management System (GMS) streamlines visitor records, cuts down on administration time, and raises security standards.

Zhao et al [10] examine the features and capabilities of cloud-edge collaboration and talk about edge intelligence technologies in the context of cloud-edge collaboration. Then, by merging the intelligent visitor system's architecture, we utilize edge and cloud AI to jointly address the visitor system's major problems, including real-time and data authenticity. A Rockchip RK3399 motherboard, an ID card reader, a microphone array, a camera, and additional hardware are used by the intelligent visitor system to create an edge computing environment. When paired with the Baidu AI cloud, the system can perform voice self-registration, facial recognition, automated body temperature monitoring, and other operations. It also boasts an intelligent guest system with voice interaction and face recognition capabilities.

III. PROPOSED METHODOLOGY

The idea behind this technique is to keep the document digitally and cut down on paperwork. Keep regular and accurate data on gate usage. It is necessary to eliminate the

possibility of a duplicate pass in order to grant access to the confirmed student. Using this methodology will eliminate the numerous instances of student error that plagued the manual method.

- Advantages
- User friendly interface
- Fast to access
- Less error

3.1. Module Description

1) Login

In this section, existing users can log in, and new users can sign up to use the system. Users can access the application with the aid of this module. User registration is another function of this module.

2) Admin

The person with administrative privileges within the system can access and use the Admin Module. The ability to monitor the system and determine its functionality may be granted to the administrator. Even more so, the admin can choose to let the unauthorised person in or not.

3) Head

In this module head may accept or deny the student request. If head accepts the student request the student can get the gate pass.

4) Staff

Staff may accept or deny the request. If staff accept the student request the list will be sent to the HEAD.

5) Student

If the student wants gate pass first, they want to send a request to the Staff and the staff response will be sent to the head and SMS will be sent to the security and the student can view the response of head whether the request is accepted or denied.

6) Security

The security can view the response of head and list of student's names is displayed whose request was accepted by head

7) SMS Manager

In this module head accept the request of student the SMS will be send to the security

3.2. Data Flow Diagram

Data Flow diagram is a representation in which overall description of a system can be shown in the form of a diagram. One technique to depict the movement of data within a system or process is via a data flow diagram. In addition to detailing the process's inputs and outputs, the DFD details the inputs and outputs of each entity. The absence of control flow, decision rules, and loops characterises a data-flow diagram. Beginning with the content's origin and ending with its destination, the system description will go on. The diagram can be divided into many different stages and must give information about the system.

Level 0

Figure 1- Level 0

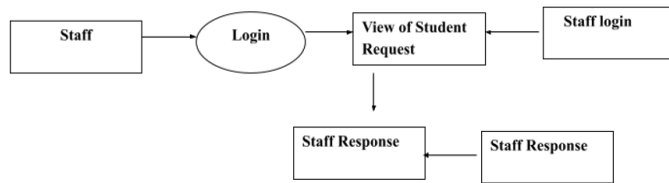
Level 1

Figure 2 - Level 1

Level 2

Figure 3 - Level 2

IV. SYSTEM SPECIFICATION

Table 1: Hardware Requirements

PROCESSOR	Intel(R)Core (TM)i5-6500TCPU@ 2.50GHz
Installed memory (RAM)	8 GB
Hard Disk	160 GB
	15' inch monitor

Table 2: Software Requirements

Front End	XML
Back End	Java
Tool	Android Studio
Database	SQLITE
Operating System	Windows 10

4.1. Software Requirements**Android**

While the Linux kernel serves as the foundation for Android, Google has made additional architectural changes to the kernel outside of the normal Linux kernel development cycle. It is challenging to transfer current Linux apps or libraries to Android since Android lacks a native X Window System and does not support the whole collection of standard GNU libraries.

Handset Layouts

The platform is adaptable to larger, VGA, 2D graphics library, 3D graphics library based on OpenGL ES 2.0 specifications, and traditional smartphone layouts

Storage

SQLite, a lightweight relational database, is used for data storage purposes.

Connectivity

Android supports connectivity technologies including GSM/EDGE, IDEN, CDMA, EV- DO, UMTS and Bluetooth.

Messaging

SMS and MMS are available forms of messaging, including threaded text messaging and now Android Cloud to Device Messaging (C2DM) is also a part of Android Push Messaging service.

Multi Touch

First introduced on devices like the HTC Hero, Android's native support for multi-touch is now standard fare. This capability was initially deactivated at the kernel level, likely to prevent infringement of Apple's touch-screen patents. Subsequently, Google upgraded the Nexus One and the Motorola Droid with software that supports multi-touch capabilities.

Bluetooth

Features A2DP and AVRCP support, as well as file sending (OPP), phone book access (PBAP), voice dialling, and contact sharing across phones. Android 3.1 and later versions come with built-in support for HID devices like keyboards, mice, and joysticks, whereas earlier versions can be customised by manufacturers or added to by third-party apps.

External Storage

Most Android devices include a micro-SD slot and can read micro-SD cards formatted with FAT32, Ext3fs or Ext4fs file system. To allow use of high-capacity storage media such as USB flash drives and USB HDDs, many Android tablets also include USB 'A' receptacle. Storage formatted with FAT32 is handled by Linux Kernel VFAT driver, while 3rd party solutions are required to handle other popular file systems such as NTFS, HFS Plus and ex FAT.

4.2. System Requirement**Security**

The application is secured and it doesn't provide any way to enter the users other than the authorized user.

Availability

Availability is the probability that a program is operating according to requirements at a given point of time. The availability is an indirect measure of the maintenance of the software. The functionality of the program is immediately available once it has been logged in.

Response Time

Response time is the time **within** which an application identifies the instruction of the customer and response to it. The response time of the application is made efficient and quick so that the requests are accepted according to their validity and the result can be delivered to the customer with an immediate effect.

4.3. Software Description Vizitor

Vizitor management software is an application that helps with managing visitors digitally for businesses, offices, schools, co-working, and just about any building which

receives guests on-premises. A Vizitor Management Software makes sure that all data entered into it is stored safely and securely and can be accessed anywhere at any-time.

From strangers to expected guests Vizitor is a one stop solution for all your workplace's reception management needs. The first thought of building the idea, it was kept in our head as the main motive that vizitor would solve, apart from automating the registration process in every organization. Our product strategists have put their best efforts to include all the safety features possible like live notifications, capturing visitor photos and printing unique badges for every individual that trespasses your front door.

The original intent of Vizitor was to make any kind of workplace more efficient, provide a better experience for visitors, and eliminate paper altogether, therefore protecting the environment. By compiling the various pieces of data, Vizitor will assist you in welcoming your guests and providing evidence of their whereabouts. To ensure the safety and security of your premises, Vizitor gives you complete control over who can enter. It is an expansive and ever-evolving system that aims to meet all of today's reception needs, allowing you to acknowledge and track everything that enters through your front door.

Offices can use Vizitor to automate check-in by sending out invitations, registering visitors, and collecting their contact information. Users may manage staff information, analyse visitor details, collect comments, and add custom fields to the check-in form all from the dashboard. Both iOS and Android devices can use the solution. Key features enable users to automate the process illustrated in Figure 5.



Figure 4 - User Automate Process

4.4. Functional Description

- **Processing Narrative**

Processing narrative deals with the function, which is used to solve the problems. Description of each function is required to solve is presented to the functional description.

Processing narrative is provided for each function, design constraints are stated and justified. Performance characteristics will be stated also one more diagram is included to represent the overall system structure of software.

- **Restrictions and Limitations**

Restrictions and limitations are nothing but a level of work where a user cannot continue further. The login screen is made with the authorization username and password

- The overall application is only handled by the students and they can login after registration.
- Unauthorized users' login is restricted
- Registered users are only eligible to login the system.

Behavioral Description

- **System Actions**

A state is any observable mode of behavior member state, element state is two important states that represent a mode of behavior of the system. Member states have two states, active and deactivate,

Normally all members are in the-active state, their corresponding action is member activation. As well as to change active to deactivate state, the same event of member detail modification should be fired; the respective action is member de-activation.

The system uses various kinds of events and states. System state represents the action that starts when an event occurs. The system contains the events such as Load, Click, and Selected Index Changed etc.

Load Event

Load event is the first event which is focused at the time of execution. Mainly the connection and initialization activities are done under this event.

Click Event

The controls like buttons and hyperlinks have a click event as a default event. It helps to accelerator the process

Selected Index Changed

This event is mainly used in the drop-down list boxes, list boxes, radio buttons and checkboxes. In these types of events the process is carried out according to the choice selection.

V. RESULT AND DISCUSSION

5.1. Input Screen

Input Design

Input is the raw data that is processed to produce output. Input design is the process of converting an external user oriented description of input system into a machine oriented format. The source document is prepared for the input of data in order to make the entry accurate and impact the source document was prepared. The data elements were sent out in a system in which the data entry operator would easily follow.

Objectives of Input Design

In accurate input data is the most common cause of errors in data processing. Errors found at the data entry can be controlled by the proper input design. The input was designed with the following objectives

- To produce a cost-effective method.
- To get the highest level of accuracy.

- To ensure that the input is acceptable and understandable by the people who are using it.
- Input forms must be complete
- There should not be any inconsistency of data in input forms.
- Input forms should be attractive to the user.
- Assuring input meets the intended purpose.
- Input forms must be easy to fill out.

With the above objectives the major activities that are in the input design is,

- The data is collected from its source.
- Data is converted to the mobile acceptable form.
- The converted data was verified.

Database Design

Data is pivotal to any organization activities. The objectives of the database design are to store the captured data efficiently and to facilitate timely retrieval. Proper attention has to be taken in designing the database.

Database is the heart of any information system, any information must be collected, accumulated, edited and should be retrieved. Therefore, the files should be properly designed and planned, Files are an important and crucial component for the successful performance of the system. File design includes master files and transaction files

5.2. Table Design

Table 3: Registration_Table
Primary Key: Roll Number

Field Name		Data Type	Size	Description	
Student-Name		Varchar	20	Student Name	
Roll number		Varchar	9	Roll Number	
Email		Varchar	13	email	
Address		Varchar	3	address	
Student number	Contact	Varchar	10	Student number	contact

Table 4: Student_Login
Primary Key: Roll Number

Field Name	Data Type	Size	Description
Student Name	Varchar	20	Student name
Roll number	Varchar	9	Student Roll number

Table 5: Student_Request

Field Name	Data Type	Size	Description
Date	Varchar	8	Student date request
Comment	Varchar	100	Student comment

Table 6: Staff_Login
Primary Key: Staff ID

Field Name	Data Type	Size	Description
Staff Name	Varchar	20	Staff name
Staff ID	Varchar	9	Staff ID

Table 7: Staff Response

Field Name	Data Type	Size	Description
Response	Varchar	15	Approved or not
Comment	Varchar	50	Comment about request

Table 8: HEAD_Login
Primary Key: Head Id

Field Name	Data Type	Size	Description
Head Name	Varchar	20	Head Name
Head Id	Varchar	9	Head Id

Table 9: HEAD_Response

Field Name	Data Type	Size	Description
Response	Varchar	15	Approved or not
Comment	Varchar	50	Comment about request

Table 10: Security_Login
Primary Key: Security Name

Field Name	Varchar	Size	Description
Security Name	Varchar	20	Security Name
Password	Varchar	9	Security Password

Table 11: Admin_Login
Primary Key: Admin Name

Field Name	Data Type	Size	Description
Admin Name	Varchar	20	Admin name
Password	Varchar	9	Admin password

Student Request Screen

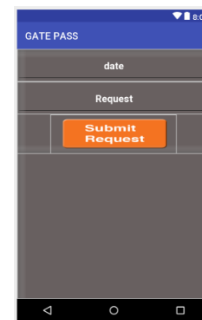


Figure 5 - Student Request Screen

Staff Login Screen

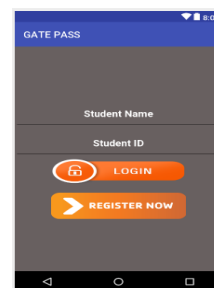


Figure 6 - Staff Login Screen

Head Login Screen

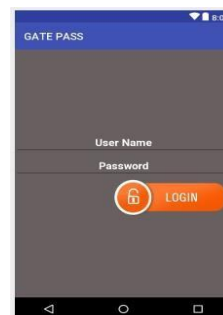


Figure 7 - Head Login Screen

Student Login Page



Figure 8 - Student Login Page

Screen design begins with recognition that the screen is composed of different areas. Layout tools assist the analyst in specifying the content of the signal and multiple design formats. All screens have been provided with menus, push buttons facilities, icons and controls buttons. Tables are widely used in communication, research and data analysis.

The main screen consists of two buttons which can move to another screen. In designing output screen, the area's needed are

- Heading and titles.
- The content of display.
- Message and instructions.
- Sometimes explanations for information in the report.
- A database is a collection of data about a specific topic.
- Tables is used to quickly sort and filter the data, add new records and see the charts and pivot Tables automatically

VI. CONCLUSION

This report has described in detail the application developed for the easy or direct selling of commodities using this android portal. This system has tried to solve all the major problems in the manual method. The application enables the organization to carry out all the reports effectively after the implementation. When all the suggestions forwarded in the software proposal have been successfully completed.

This system has been developed keeping in mind all the given possible conditions to overcome the disadvantages of the existing system. This application is implemented successfully. After some time, the user may require some changes to be made with the system. Whenever changes are made it will not affect the performance or efficiency of the existing system. Several navigations can be provided for easy access of data

Aside from its well-defined syntax, Python's structure is straightforward and there aren't many keywords. The syntax and semantics of Python programming are easier to see and understand. The source code of Python is not too difficult to keep up to date. The majority of Python's library is

interoperable with UNIX, Windows, and Mac OS X, making it very portable. You may test and debug small pieces of code interactively in Python thanks to its interactive mode. Because it uses the same interface across all supported hardware platforms, portable Python is compatible with a broad range of devices.

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