

Digital Out Pass System

G. Sriram Ganesh¹, CH. Navya Anusha^{2*}, G. Venkata Sowmya^{3*},
K. Devi Mahendra^{4*}, K. Rishik Reddy^{5*}, G. Durga Harshitha^{6*}

¹Sr. Asst Professor, CSE Dept, Sri Vasavi Engineering College, Tadepalligudem.

^{2,3,4,5,6} Student, CSE Dept, Sri Vasavi Engineering College, Tadepalligudem, A.P. , India.

Corresponding Author: CH.Navya Anusha^{2*}, G.Venkata Sowmya^{3*}, K.Devi Mahendra^{4*}, K.Rishik Reddy^{5*}, G.Durga Harshitha^{6*}

Abstract:- The issue of security is foremost in any organization, especially for the students. And when it comes to outings and attendance permissions the students found it more time consuming especially in emergency situations as he/she had to run in search of their allocated wardens who may be a teaching faculty. In these scenarios it is difficult to reach our respective wardens. The above issue pushes us to develop the automated system known as The Digital Out Pass System. It is an efficient and modern solution planned to issue and manage out passes and permissions for students leaving college premises digitally. This system aims to replace traditional paper-based out pass procedures, offering a more secure and easy approach for the users. The key features include are user authentication, pass request generation, approval/disapproval of pass request and pass generation, all these are accessible through a user-friendly web application. It includes strong security measures by making sure that only authorized users can request and receive out passes. It lessens the risk of human inaccuracies with traditional out pass methods. By adopting this system, the educational institutions can better control access, improve response times to incidents, and overall elevate their security practices.

Keywords:- Digital Out Pass, Attendance Permission, Hostels, Electronic Approval, Record-Keeping, Web Application, Data Base Management System, Authentication, Authorization.

I. INTRODUCTION

In many educational institutions, the process of obtaining an out-pass has traditionally depends on a manual system. The student should carry the written request for an out-pass, which must then be signed by the respective warden. The problem is that students had to find their warden in person, but the wardens are often busy as teachers. The time-consuming nature of this procedure not only affects the students but also disturbs the professional work of the wardens. This is where the introduction of our web application can be truly effective .On the frontend, we use html,css,javascript.On the backend, we integrate MYSQL database and php with xampp server. And to ensure a robust and reliable system we dedicate web application that offers a practical solution for enhancing efficiency and comfort in the out-pass request and approval process.

Thus It eliminates the need for physical interactions with wardens, reducing the time and effort spent by students and in securing an out-pass. And for wardens by allowing them to review and approve out-pass requests electronically, reducing disruptions to their professional commitments. Thus our project aims to provide a user-friendly and efficient system for monitoring student activities, both within the campus and in the hostels. Our solution simplifies this process, ensuring accurate and efficient record-keeping.

II. LITERATURE SURVEY

This literature review will describe some preliminary research that was carried out by several authors on this appropriate work and we are going to take some important articles into consideration and further extend our work.

A. Peairs:-

The Surigao State College of Technology - Del Carmen Campus is the sole public higher education institution in Siargao Islands, Surigao del Norte, Philippines. It has published a pass slip policy to ensure the safety of students, maintain records, monitor the exit status of employees, and log visitor visits. However, the present manual recording system can have a risk of file and document lossage. Which can be problematic at times when the administration requires information. Therefore, this study is dedicated to creating and designing an SSCT Automated Gate Pass System, which centralizes the recording of student and employee departures as well as visitor entries. The traditional manual record management system demand the transportation of numerous documents to storage facilities, leading to the unnecessary expenditure of both time and money when the information is needed.

B. Chaitanya L:-

On the other hand, there is a push for innovations to make transactions faster and in simple manner. One of these greatest innovations is the E-Gate Pass System, which is sketched to make the current mechanism work better. It does this by using technology to do things more efficiently and effectively, which means less work needs to be done with human effort. In simpler terms, it's like upgrading a process to save time and effort.

C. S.Venkatesa Perumal:-

The primary aim here is to capture and maintain a detailed data record of student details and their various activities. This approach not only streamlines works but also appreciably lessens the usage for extensive paperwork. We are precisely conveying the concept of an online gate pass application form, tailored based on requirements of hostel students. This online system guarantee you to make the procedure smoother, more efficient, and notably less reliant on traditional paperwork, therefore benefiting both students and administrators.

D. Harish Raparitwar :-

This system promotes the practice of keep up brief records for students that also includes room assignments and regarding information. It also initiates the Visitor Gate Management System, designed to comprehensively document user activities and information. This discussion relies on the implementation of this system, aiming to encourage the responsible handling of student records while improving the quality of management of visitor data and activities. It simplifies the process and reduces administrative burdens, ensuring a more effective and efficient approach.

E. S. Swarnalatha:-

The application performs its duties as a solution to address daily challenges faced by students through a easy and effective mobile platform. More precisely, it centers on providing students with a mobile tool for generating "out pass" requests. This out pass can be used as a gate pass ticket, enabling entry of students into the university campus. In addition to, this technology streamlines and simplifies the process of obtaining permissions to leave and re-enter the campus, making it a user-friendly solution to daily student life obstacles.

F. K.Mehaboob Subhani:-

Staying in hostels often face countless issues like food, electricity, water, furniture, security, medical services, and internet problems. To address these issues, an application has been developed for students to provide feedback, file complaints, and submit suggestions to hostel management. This feedback can be submitted via email, whatsapp, or text messages. In the future, the application could potentially include additional features like online hostel booking, student lists, and the ability to request leave passes for going home.

G. U.Elakkiya:-

This paper presents a shift towards a site-based, paperless framework that allows remote monitoring and control. It reduces the need for manual labor and ensures the consistent accuracy of data. This system also helps reduce malpractice. All data, both existing and additional, can be securely stored and accessed at any time. Such a web-based information management system enables efficient and informed decision-making by the management.

H. Prof. Archana S. Banait:-

The VGMS enhances security in organizations, offering a secure and efficient visitor registration process. It provides computerized record-keeping for better data management and reporting. Installation is in straightforward manner and doesn't require any assistance. The system is user-friendly and low-maintenance, delivering reliable security. Unauthorized access is prevented, and biometric features can enhance security further. In summary, VGMS streamlines gate pass issuance, reduces paper usage, and offers secure, time-saving NFC card-based access.

III. PROPOSED METHODOLOGY*A. Requirements Analysis:*

Conduct stakeholder interviews to understand the specific needs of the digital outpass system. Identify user roles (applicants, approvers) and their respective responsibilities. Define the types of outpasses required and any unique features needed.

B. System Architecture:

Develop a system architecture that outlines the components and their interactions. Define the database schema for securely storing outpass-related data. Consider scalability and flexibility in the architecture.

C. Technology Selection:

Choose a technology stack based on project requirements and constraints. select.

Appropriate frameworks for the frontend and backend development. Decide on a secure database management system for data storage.

D. User Interface Design:

Design an intuitive and user-friendly interface for outpass submission and management. Prioritize usability and accessibility to accommodate a diverse user base. Incorporate responsive design principles for multi-device compatibility.

E. Backend Development:

Develop the backend logic for handling outpass requests, approvals, and rejections. Implement safe authentication and authorization system. Ensure data integrity and security in the backend processes.

F. Frontend Development:

Build the frontend application to facilitate users in submitting and managing outpasses. Implement real-time updates and notifications for users and approvers. Conduct thorough testing of the user interface for a seamless experience.

G. Security Implementation:

Integrate encryption protocols for secure data transmission and storage. Regularly update dependencies and patches to address security vulnerabilities. Implement access controls to manage user permissions effectively.

H. Testing:

Conduct comprehensive testing, including unit testing, integration testing, and user acceptance testing. Test different scenarios such as outpass creation, approval, rejection, and error handling. Perform load testing to ensure the system's stability under various loads.

I. Deployment:

Deploy the system in a controlled environment for final testing and validation. Gradually roll out the system to users, providing adequate support during the transition. Observe the system closely during the first step of deployment procedure.

J. Training and Documentation:

Develop training materials for administrators, approvers, and users. Conduct training sessions and provide ongoing support. Create comprehensive documentation for system usage and troubleshooting.

K. Monitoring and Maintenance:

Implement monitoring tools to track system performance and detect anomalies. Establish a regular maintenance schedule for updates and improvements. Have a responsive support system for addressing user issues and concerns.

L. Feedback and Continuous Improvement:

Gather feedback from users and stake holders for the continuous improvement.

Iterate on the system based on feedback and evolving requirements. Stay informed about technological advancements and update the system accordingly. By following these steps, you can develop and implement a digital outpass system tailored to the specific needs of your organization without relying on copied content, ensuring it effectively meets the requirements of all involved parties.

➤ Flowchart:

The activity diagram or flowchart shows the actions of what a user login would do when requesting for an outpass and attendance permissions. Using the digital Out Pass System, there are different web pages for each logins.

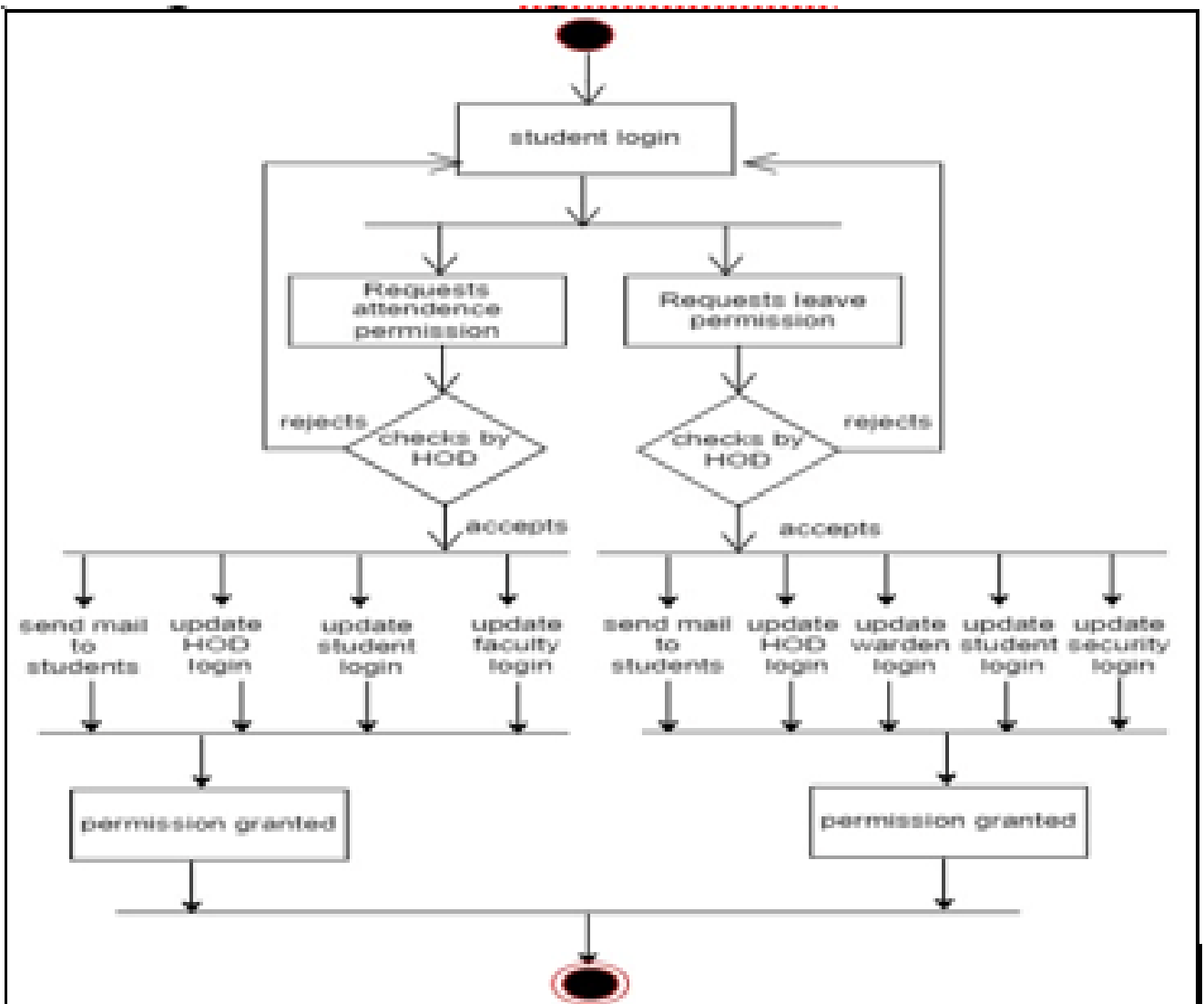


Fig 1 Flowchart of Digital Outpass System

➤ *Use Case Diagram:*

In UML, use-case diagrams serve as a valuable tool for modelling a system’s behaviour and effectively capturing its requirements. These diagrams provide a high-level overview of a system’s functions and delineate its scope. Moreover, they play a crucial role in identifying and illustrating the interactions between the system and its various actors.

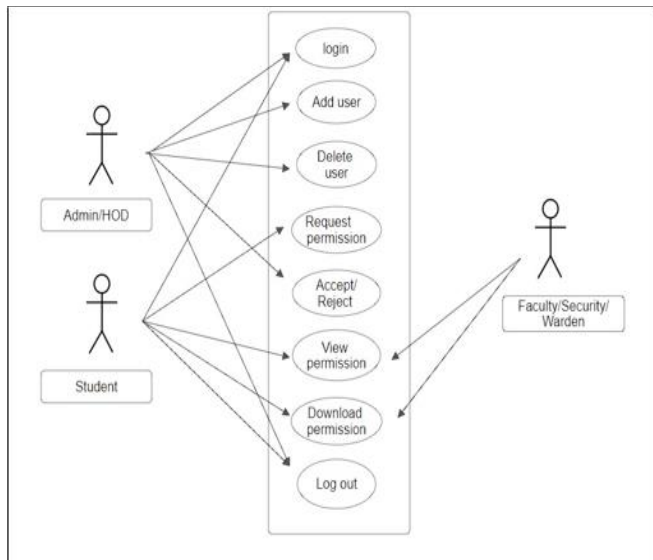


Fig 2 Use Case Diagram

➤ *Implementation*

• *Step 1: Setup Your Development Environment*

- ✓ Install a local web server (e.g., XAMPP, WAMP, or MAMP) to run PHP and MySQL.
- ✓ Set up a code editor or an Integrated Development Environment (IDE) for PHP development.

• *Step 2: Create a Database*

- ✓ Create a MySQL database to store outpass-related data (e.g., student information, outpass requests, approvals, and rejections).

• *Step 3: Design the Database Schema*

- ✓ Define the structure of the database tables

• *Step 4: Build the User Interface (UI)*

- ✓ Create web pages for user registration and login.
- ✓ Develop web forms for students to submit outpass requests.
- ✓ Create a dashboard for students to track the status of their requests.
- ✓ Develop admin pages to review and approve/reject outpass requests.

• *Step 5: Implement User Authentication*

- ✓ Create web pages for user registration and login.
- ✓ Develop web forms for students to submit outpass requests.
- ✓ Create a dashboard for students to track the status of their requests.
- ✓ Develop admin pages to review and approve/reject outpass requests.

• *Step 6: Handle Outpass Requests*

- ✓ Create PHP scripts to handle the submission of outpass requests.
- ✓ Store request data in the database.
- ✓ Notify administrators when new requests are submitted.

• *Step 7: Admin Approval Process*

- ✓ Develop an admin interface to view pending outpass requests.
- ✓ Allow administrators to approve or reject requests.
- ✓ Update the status of the requests in the database

• *Step 8: Student Dashboard*

- ✓ Build a student dashboard that displays the status of their outpass requests.
- ✓ Implement the ability for students to view the approval or rejection status.

• *Step 9: Notifications*

- ✓ Implement email or SMS notifications for students when their requests are approved or rejected.

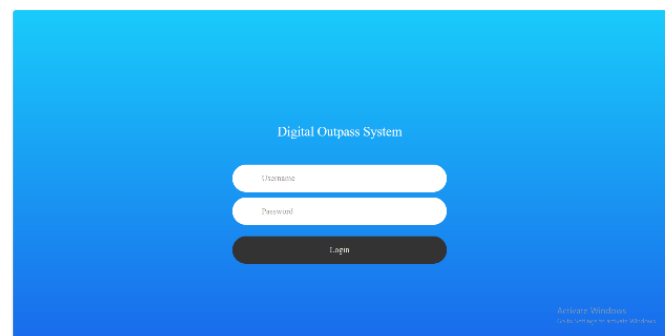


Fig 3 Login Page

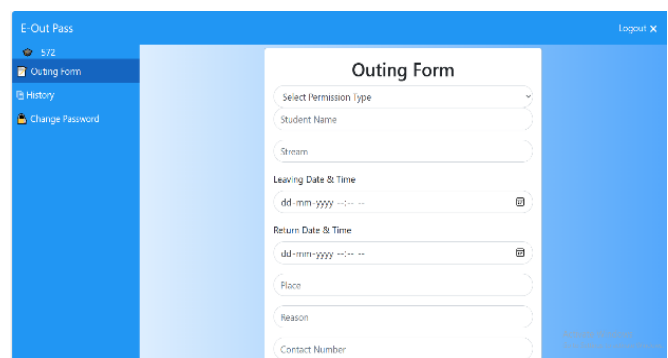


Fig 4 Student permission Request Form

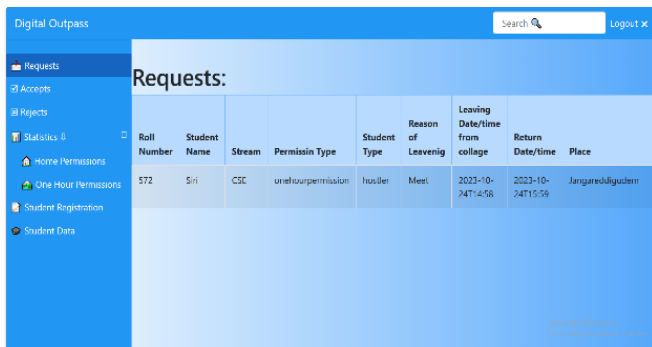


Fig 5 Student Requests Data

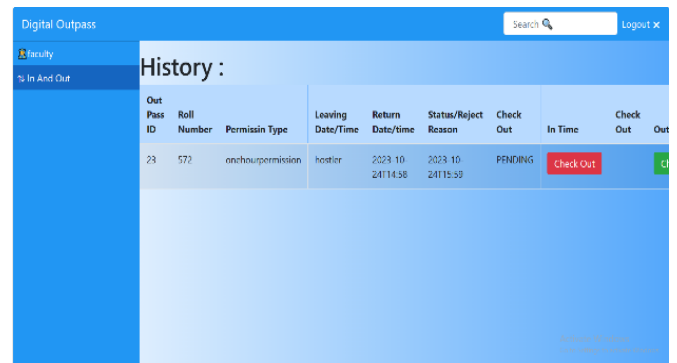


Fig 10 Faculty Login

IV. RESULT AND ANALYSIS

The result analysis of the digital outpass system involves a comprehensive assessment of its usage, processing efficiency, data accuracy, and user satisfaction. Usage statistics provide insights into the frequency and patterns of outpass generation, assisting in understanding user behaviors. Evaluating the processing time is crucial, as a swift and efficient approval or rejection process enhances user satisfaction. The accuracy of information stored in outpasses is paramount, and any errors must be identified to maintain the integrity of the data. User feedback serves as a valuable source for understanding user experiences, challenges, and suggestions for system improvement.

Concurrently, the performance analysis focuses on the system's reliability, security, integration capabilities, and overall efficiency. Monitoring system uptime is essential to ensure its availability, and measures should be in place to minimize downtime. A rigorous security analysis is conducted to identify and address potential vulnerabilities, safeguarding the system against unauthorized access and data violations. Integration with other systems, such as student databases, is evaluated to ensure effortless data exchange. The level of automation within the system is measured to streamline processes and reduce manual interventions, contributing to operational efficiency. Scalability is assessed to ensure the system can handle increased user loads and growing outpass requests effectively. Compliance with regulations, including privacy and data protection laws, is verified and regularly updated to align with evolving standards. A comprehensive cost-benefit analysis considers both initial investments and ongoing operational costs, evaluating the economic efficiency of the system. Error handling and recovery mechanisms are examined to detect and address issues promptly, minimizing disruptions and maintaining operational continuity. Regular revisitation of these analysis is crucial for adapting the digital outpass system to changing needs and ensuring its sustained effectiveness.

V. CONCLUSION

In conclusion, the examination of the digital outpass system through a comprehensive result and performance analysis has yielded valuable insights into its effectiveness and operational efficiency. The usage statistics shed light on user behaviors, providing a foundation for understanding patterns and trends in outpass generation. Swift processing times

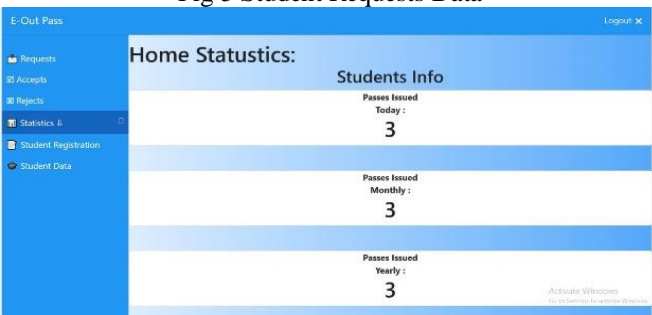


Fig 6 HOD Login

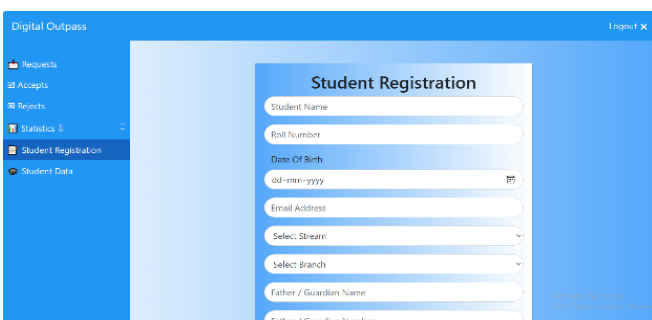


Fig 7 Student Registration Form

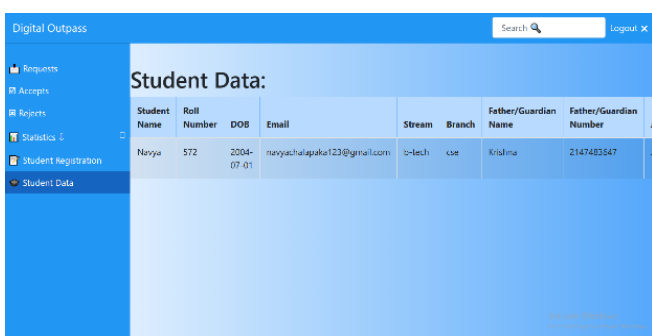


Fig 8 HOD Login

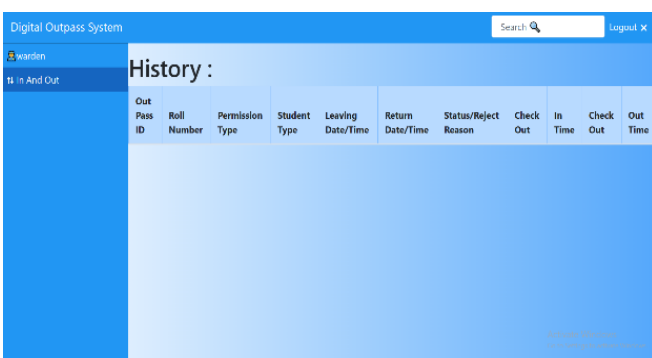


Fig 9 Warden Login

contribute to user satisfaction, and efforts to enhance data accuracy are crucial for maintaining the integrity of the stored information. User feedback serves as a guiding compass for system improvement, allowing for user-centric enhancements.

Simultaneously, the performance analysis has focused on ensuring the reliability and security of the system. Measures to minimize downtime and a thorough security analysis have been undertaken to fortify the system against unauthorized access and data breaches. Integration with other systems has been scrutinized to ensure seamless data exchange, and efforts to automate processes aim at reducing manual interventions for increased operational efficiency. Scalability considerations ensure the system's ability to handle growing user loads and outpass requests.

Compliance with regulations, including regular updates to align with evolving standards, underscores the system's commitment to legal and ethical considerations. The cost-benefit analysis has provided a comprehensive understanding of the economic efficiency of the system, weighing initial investments against ongoing operational costs. Finally, a meticulous examination of error handling and recovery mechanisms ensures the system's resilience in the face of challenges, contributing to sustained operational continuity.

In summary, the digital outpass system, informed by these analyses, stands poised for continued adaptation and improvement, aligning with evolving user needs, technological standards, and regulatory requirements

FUTURE SCOPE

Looking ahead, future enhancements for the digital outpass system can elevate its capabilities and user experience. Future iterations of the digital outpass system could benefit from the integration of advanced features, such as biometric authentication for heightened security and streamlined user verification. The location-based tracking features to the digital outpass system would strengthen compliance by making sure that outpasses are only valid within specific, predefined areas. This ensures that users adhere to the designated zones outlined for their outpass permissions. Smart notifications and alerts could be introduced to provide real-time updates, encouraging improved communication between users and administrators. Machine learning algorithms could be leveraged to predict the likelihood of outpass approvals, aiding users in better planning their requests. Offline functionality for the mobile app would be a valuable addition, enabling users to submit requests even in areas with limited connectivity. Customizability for multi-institution compatibility and blockchain integration for enhanced security are pivotal aspects to explore. Additionally, voice command functionality, dynamic QR codes, and integration with campus security systems could further enhance user convenience and overall system effectiveness. These enhancements, coupled with robust reporting mechanisms and continuous user feedback, would contribute to the system's evolution, ensuring its adaptability and alignment with the dynamic needs of educational institutions.

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