A project proposal for partial fulfilment of the course unit IT3162- Group Project for the degree of Information Technology

Online Vehicle and Gate pass Management System

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Declaration

We hereby declare that the project proposal submitted for evaluation of the course module IT3162 leading to the award of a Bachelor of Science in Information Technology is entirely our own work, and the contents taken from the work of others have been cited and acknowledged within the text. This proposal has not been submitted for any degree at this University or any other institution.

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I recommend that the project be carried out by the students under my supervision,

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Dr.S.Kirushanth
Supervisor,
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Date

Introduction

Currently, the University of Vavuniya uses a manual process to manage vehicle entries, exits, and gate pass approvals. This manual system is time-consuming, prone to errors, and lacks efficient record-keeping. The proposed system aims to digitalize the process by introducing an online platform for vehicle and gate pass management, ensuring security, transparency, and accessibility.

Aim

To develop a secure, user-friendly, and efficient online Vehicle and Gate pass Management System for the University of Vavuniya.

Objectives

- To digitalize the process of issuing and approving gate passes.
- To record and monitor vehicles entering and leaving the university premises.
- To maintain detailed records of drivers and vehicles.
- To allow administrators to generate monthly and custom reports.
- To provide role-based access control (Admin and Security users).
- To improve security, accountability, and reduce paperwork.

Benefits of this system

- Reduced manual paperwork and human error.
- Faster gate pass approval process.
- Improved monitoring of vehicles and goods movement.
- Easy retrieval of past records.
- Better transparency and accountability.
- Secure login system with username and password.

Background

At present, all vehicle movements and gate passes are recorded manually. When goods are taken out of the university, a dean or an authorized person approves the gate pass on paper. Vehicle entries and driver details are written in separate logs by security officers. This leads to duplication of work, difficulty in generating reports, and inefficiency in tracking.

Review of the existing systems.

Manual Log Books – Error-prone, time-consuming, and hard to retrieve past records.

Other Universities/Institutions – Some institutions use partially digitalized systems (Excel sheets or simple databases), but they lack role-based access and online approval workflows.

Our Proposed Solution – Provides a centralized online system with role-based access, digital approvals, and reporting features.

Materials and Methods

Proposed System Design

The system will consist of two main user roles:

- Security Officers
    - Record vehicle entry and exit times.
    - Record driver details.
    - View approved gate passes.
- Administrators
    - Add and manage security officer accounts.
    - Approve/reject gate passes.
    - View all records.
    - Generate monthly/custom reports.

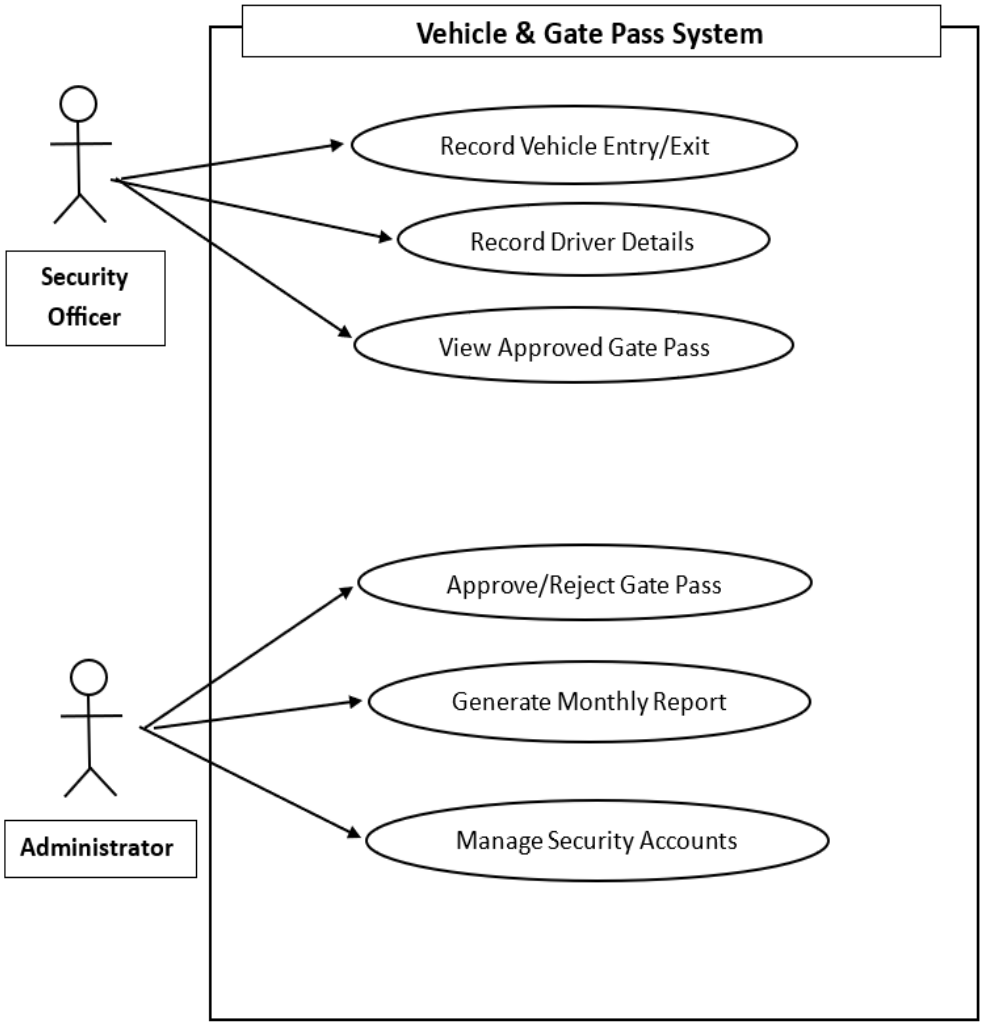
Functional Requirements

- Login system with username and password.
- Add/view vehicle and driver records.
- Approve and generate gate passes.
- Record entry/exit times.
- Generate reports.

Non-functional Requirements

- Security – Role-based access, password protection, and data integrity.
- Usability – Simple and user-friendly interface.
- Reliability – System should operate without failure during working hours.
- Scalability – Should allow future upgrades and integration.

Use case diagram



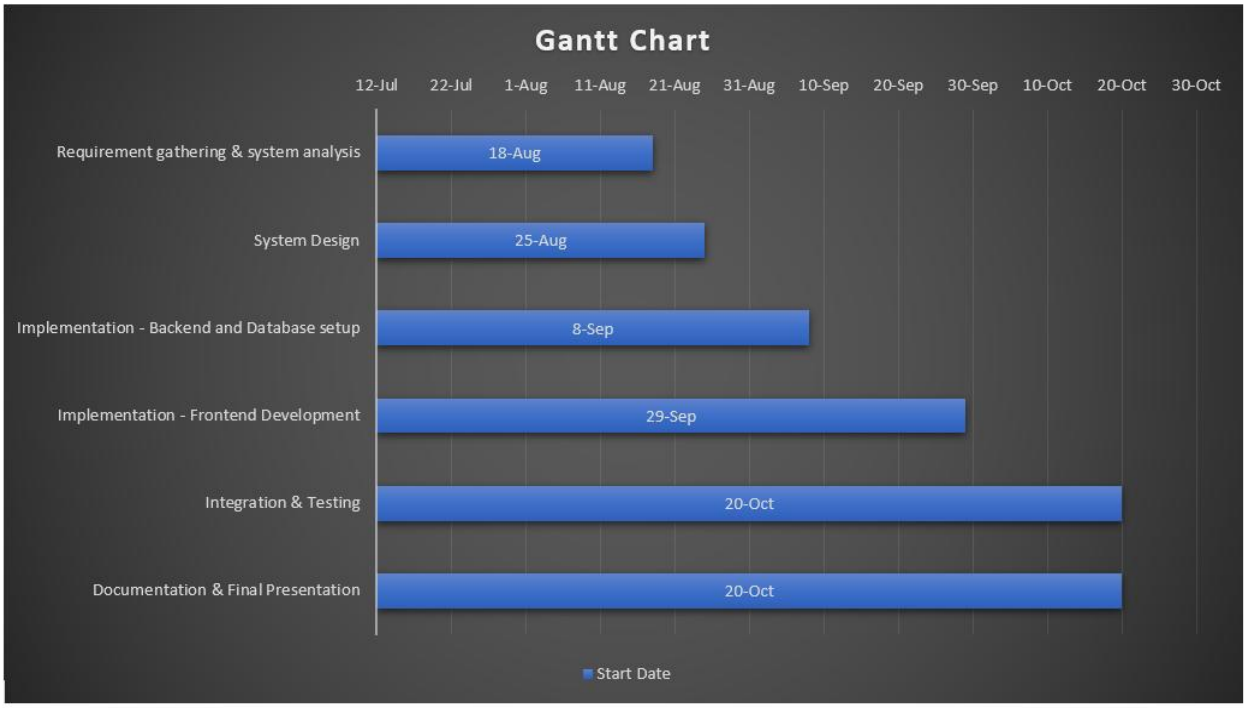
Tools and Technologies

- Frontend: React
- Backend: Node.js / Express.js
- Database: MySQL
- Other Tools: Postman

Expected Results

- A fully functional online Vehicle and Gate pass Management System.
- User authentication with role-based access.
- Digitalized approval process.
- Centralized database with vehicle and driver details.
- Automated monthly reports.

Timeline of the Project



References

https://github.com/rohan-takmoge/Gate-Pass-management-System

https://www.google.com/url?sa=t&source=web&rct=j&opi=89978449&url=https://dl.ucsc.cmb.ac.lk/jspui/bitstream/123456789/4302/1/2015MIT018.pdf&ved=2ahUKEwjaz6Pb_NmPAxU7cGwGHWQtCkcQFnoECGcQAQ&usg=AOvVaw3ecB6HmyRwBj2Xw3D0wV9e