CopSco

Empowering Citizens for Safer Roads

SCS 3214 / IS 3113

Group project II

Group 55

INTERIM REPORT

SCS 3214 / IS 3113
Group Project II

Proposed Project Title: CopSco

Group Number: 55

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Signature of the supervisor:

Date: 30.07.2021

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Signature of the co-supervisor:

Date:30.07.2021

The client of the Project (If applicable, otherwise supervisor will be considered as the client)

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Table of Content

1. Project Title

CopSco - Comprehensive solution for reporting violations, settling fines, and enhancing community safety. Seamlessly upload evidence, securely pay fines, and collaborate with law enforcement for safer neighborhoods. Revolutionizing the way we address infractions, CopsCo empowers convenience and responsible citizenship.

2. Goals and Objectives

2.1 Project Goal

The primary expectation of this project is to enhance the safety of roads. The system contributes to improving road safety by encouraging responsible driving behavior and discouraging traffic violations. Drivers will be able to act as traffic officers and help identify traffic violations and press charges against them by using their dash cameras (dash cam) and uploading footage of traffic violations. Since any driver will be able to act as a police officer and utilize the video footage as a valuable tool it will hold drivers accountable for their actions.

The system will also be used to pay fines online. The existing offline payment methods for traffic fines often require individuals to visit physical locations, such as the Postal Department or banks, to make payments. This process is inconvenient, time-consuming, and can lead to long queues and delays in fine settlement. Introducing an online fine payment system would streamline the fine payment process, enhance convenience, promote compliance, and improve overall efficiency in managing traffic violations.

2.2 Project Objectives

- Design and develop a user-friendly interface for the dash cam reporting system that accommodates drivers with varying technical backgrounds.
- Implement robust data management practices to protect the security and confidentiality of uploaded footage and personal information.
- Build a scalable and robust infrastructure to handle increasing user volumes and accommodate future growth.
- Ensure compliance with relevant legal and regulatory requirements concerning privacy, data protection, and the use of video footage or images as evidence.

- Enable individuals to pay fines online from the comfort of their homes or any location with internet access.
- Implement robust security measures, encryption protocols, and secure payment gateways to safeguard individuals' sensitive financial information during online transactions.
- Eliminate the need for individuals to physically visit various places to pay fines, saving them time and transportation costs.

3. Problem Definition and Introduction

3.1 Problem Definition

The police force consists of 43 Territorial Divisions, 67 Functional Divisions, and 432 Police Stations with more than 84,000 people. When it comes to total road length it estimates as 114,093km but the problem arises when we consider police officers per km of road length is approximately less than 1. which means there is a visible shortage of police officers that we can allocate for rush hours. [1]

The rapid increase in the number of vehicles on the roads has resulted in a significant rise in neglected traffic violations. With more vehicles competing for limited road space, drivers often disregard traffic rules, leading to an increase in accidents and a decline in road safety.

As the number of vehicles and traffic violations continues to rise, there is a significant shortage of traffic police officers to handle the growing demand for enforcement and monitoring. The limited manpower of the traffic police force makes it challenging to effectively patrol and regulate traffic violations, leading to an increased number of offenders going unnoticed and escaping penalties.

Currently, normal drivers have no effective means to report traffic violations they witness on the roads. They lack a platform or mechanism to report these incidents and provide crucial evidence to hold violators accountable. Additionally, there is no provision for rewarding drivers who actively participate in reporting traffic violations, which could potentially incentivize more individuals to engage in improving road safety.

The absence of an online payment system for fines poses a significant inconvenience for both law enforcement agencies and offenders. Presently, individuals who receive traffic violation fines must undergo a cumbersome process of physically visiting designated locations or offices to make the payment. This manual procedure not only consumes valuable time and effort but also adds administrative burdens to the concerned authorities.

The absence of a centralized system to record and manage fine details and driver information creates several challenges in maintaining accurate and accessible records. Currently, different regions and authorities adopt disparate methods for recording and managing traffic violation data, leading to inconsistencies, inefficiencies, and potential data loss. A unified and centralized system is necessary to consolidate all fine-related information and driver details, enabling seamless access, tracking, and management of fines.

3.2 Introduction

The increasing number of vehicles on the roads has brought about a surge in neglected traffic violations, posing significant threats to public safety and necessitating immediate action. Furthermore, the shortage of traffic police officers to handle the mounting demand for enforcement exacerbates the challenges faced in maintaining road discipline. To address these pressing issues, we present a comprehensive solution that harnesses the power of technology and public (crowd) participation. Our proposal aims to develop an innovative system that enables normal drivers to actively report traffic violations, while also providing a means for them to be rewarded for their contributions, called CopSco. Additionally, the proposal emphasizes the importance of creating a centralized platform that seamlessly integrates reporting, fine management, and an online payment system for offenders. By implementing these solutions, we can enhance road safety, optimize resources, and establish a robust framework for monitoring and regulating traffic violations.

By leveraging the ubiquity of dash cameras in vehicles, drivers can capture incidents of traffic violations and upload them to the system effortlessly. In addition to providing a means for reporting violations, our proposed solution focuses on integrating a single platform that combines reporting mechanisms with a reward system for drivers. This innovative approach incentivizes drivers to actively participate in identifying and reporting traffic violations. Drivers who contribute to the system by reporting violations will be eligible for rewards based on the quality and relevance of their submissions. To streamline the entire process, our proposal encompasses the development of a comprehensive centralized system that manages all fine details and driver information.

By implementing these solutions, we aim to revolutionize the way traffic violations are reported, managed, and penalized. Through the integration of technology, public participation, and streamlined processes, our proposal strives to create a safer and more responsible road environment for all stakeholders involved.

4. Scope

The project mainly focuses on developing a system that allows users to upload videos of traffic violations for verification and monitoring by traffic police. The system includes features such as user registration and authentication, video upload and verification, violation monitoring, and management, facilitation for license suspension and reinstatement, violation history recording, penalty management, reporting and analytics, communication and notifications, user support, and system administration. The proposed system offers a comprehensive solution to address the challenges of managing traffic violations effectively and promotes a safer driving environment.

4.1 Actors

1. General user
    - General Users are the primary users of the system who witness traffic violations via their dash cams and use the system to report them.
    - They upload videos of the violations, providing crucial evidence for enforcement.
    - General users contribute to improving road safety by actively participating in reporting and monitoring violations.

2. Evidence verifier
    - Evidence verifiers are responsible for verifying the authenticity and validity of the videos and details uploaded by users.
    - They review the videos according to the system's guidelines and verify their accuracy.

3. Traffic police
    - They can view past reported violations, and issue fines or penalties when caught during a violation.
    - Traffic Police play a crucial role in enforcing traffic laws and ensuring road safety.

4. Admin
    - The admin is responsible for managing the overall system and its configuration.
    - They have access to administrative tools and settings, allowing them to customize penalty structures, manage user accounts, and ensure data privacy and security.

4.2 In-Scope

1. User Registration and Authentication
    - In order to use the system, general users must first register. The user must submit documents through the system, such as photos of their NIC, in order to be authenticated.

2. Upload violation videos
    - General users are able to upload videos of traffic violations.

3. Video verification
    - Evidence verifiers review and verify the uploaded videos for validity and adherence to system guidelines.

4. Violation reporting and issuing fines
    - Traffic police are able to report traffic violations and issue fines to drivers when caught on the spot.

5. Tiered Reward System
    - As users progress through the tiers, the rewards and benefits they receive increase for uploading videos.

6. Violation History Recording:
    - The system maintains a comprehensive database of past violations, including details such as date, time, location, and type of violation.
    - Users, such as traffic police and administrators, are able to access and review the violation history of individual drivers.

7. License Suspension and Reinstatement:
    - The system automatically tracks and calculates the number of violations for each driver using a demerit point system.
    - When the violation threshold is reached, the system triggers the suspension of the driver's license for a specified duration via Police and Court orders.
    - After serving the suspension period, drivers are able to request the reinstatement of their license through the system.

8. Penalty Management:
    - The system enforces penalties for violations based on predefined rules based on the Act and penalty structures.

- Graduated penalties will be implemented to increase in severity with repeated violations.

9. Communication and Notifications:
    - The system facilitates communication between traffic police, evidence verifiers, and users.
    - Drivers receive notifications regarding license suspension, violation outcomes, and reinstatement instructions.

10. Profile management
    - Users are able to update personal details, reset passwords and edit their close contacts, etc.

11. Complaint Handling
    - Users can make complaints regarding the services that they are getting through the application.

4.3 Out-Scope

- Mobile application – Allow users to easily upload videos of traffic violations directly from their mobile devices.
- Traffic Incident Reporting - Providing a comprehensive system for reporting general traffic incidents, such as accidents, road hazards, or congestion, is beyond the scope of the system, which primarily focuses on traffic violation reporting.

4.4 Assumptions

- There are a sufficient number of users having dashcams or similar devices.
- The government allows payment of fines using online payment gateways.
- All system users are well-equipped with the requisite expertise to proficiently handle the migration of their video files to targeted devices.

5. Feasibility Study

5.1 Operational Feasibility

The system will provide real-time incident capture, commission calculating, and recorded footage uploading functionalities via its web application that provides an overview of the complete platform. With its user-friendly and simple interface, the website will ensure a positive experience for its users. Users will be able to upload recorded videos from their dash camera or other footage and the web application provides a trim tool to ease the user experience.

Registered users will be able to set up their profiles. Users of the application would not require any special training as the application will be designed so that any type of user can familiarize themselves with it in no time. All activities of the users could be monitored via the administration portal and if needed, necessary action could be taken against users who exploit the application or its functionalities to harm others.

We had discussions with the police's IT department and the traffic police, and we received suggestions from them. They also agreed that this system is a requirement in the Sri Lankan context and granted permission to proceed with it.

5.2 Schedule Feasibility

The project entails developing a web application within a four-month timeframe, with a team of six members allocating 10 hours per week. This amounts to a total of approximately 960 man-hours dedicated to completing the project. The time available will be carefully distributed across various stages, including requirement analysis, documentation, interface design, system design, implementation, and continuous testing. Following an iterative approach, each stage will be revisited and refined as necessary during the development lifecycle. To ensure timely delivery, technologies will be selected that allow for the inclusion of all specified functionalities in the web application.

Additionally, an administrator portal, crucial to the project, will be developed concurrently with the web application, with completion expected within the first three months. The scheduling feasibility of the project appears to be well organized and accounted for.

5.3 Technical Feasibility

Based on the feasibility assessment, the development of the proposed web application appears to be technically viable. The system architecture includes a scalable and secure client-side and server-side component that can handle the anticipated user base and video queue.

The team is confident to handle the project's complexity within the defined timeframe. Scalability considerations have been considered, with provisions for load balancing, caching, and database optimization. Security measures, such as secure user authentication and encryption, align with industry standards and regulatory compliance. The application's integration with other police systems and third-party services is feasible through well-documented APIs and interoperability mechanisms. Ongoing maintenance, support, and monitoring processes have been defined, and the necessary infrastructure resources are available or can be procured reliably.

5.4 Economic Feasibility

Based on the feasibility assessment, the following were selected as the crucial points.

1. Development cost -
   Given that this project will be developed utilizing free and open-source software, there will be no associated expenses concerning the software. Furthermore, the labour cost will be zero as this is a voluntary project undertaken for academic purposes.

2. Operational cost -
   - The system will be built using free and open-source software. therefore, no accompanying cost will be incurred.

   - The system will be initially hosted using the AWS free tier available for backend hosting but following the initial deployment, there will be an annual fee involved for the hosting of the application. The free tier provides 750h per month free for the first year. Following the first year, the instance will be subjected to a charge of $0.0124 per hour. Additionally, a cost of 0.0025$ per GB will be incurred for storing video files in the AWS S3 bucket. [2]

The above costs are affordable and can be covered through the income generated from the application making the project economically feasible.

5.5 Legal and Ethical Feasibility

Free and open-source software will be used in the development phase to ensure that there will be no risks or issues related to a software license. In addition, the system will be developed from scratch, therefore there will be no copyright issues associated with the project.

Tentative policies will be as follows:

- The video evidence is verified by an authorized police officer, and fines are imposed according to their decisions. Therefore, CopSco does not take responsibility for any legal issues that may arise.

- Points are deducted according to the circulations provided by the demerit point system of the government under the Act.

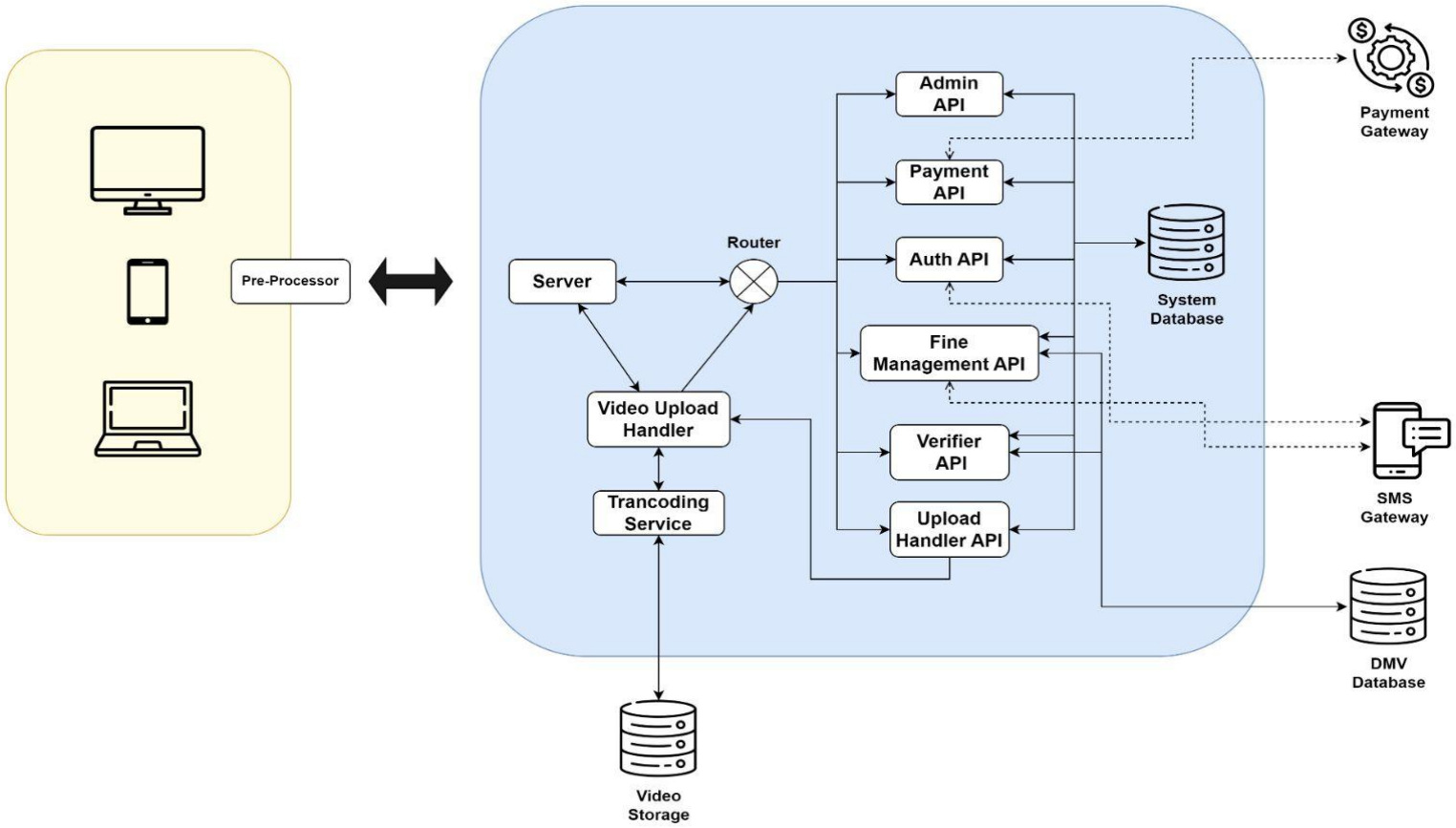
- Users understand and acknowledge that CopSco is not responsible for the transactions taking place between banks and users.

- Any users who are getting registered to the system will have to verify their citizenship and residential status by uploading proof documents and verified by the local Police Station.

- Users acknowledge that CopSco collects personal data provided by users such as during account creation and application usage. This may include their name, email, phone number, login name and password, address, profile picture, driver's license, and other government identification documents.

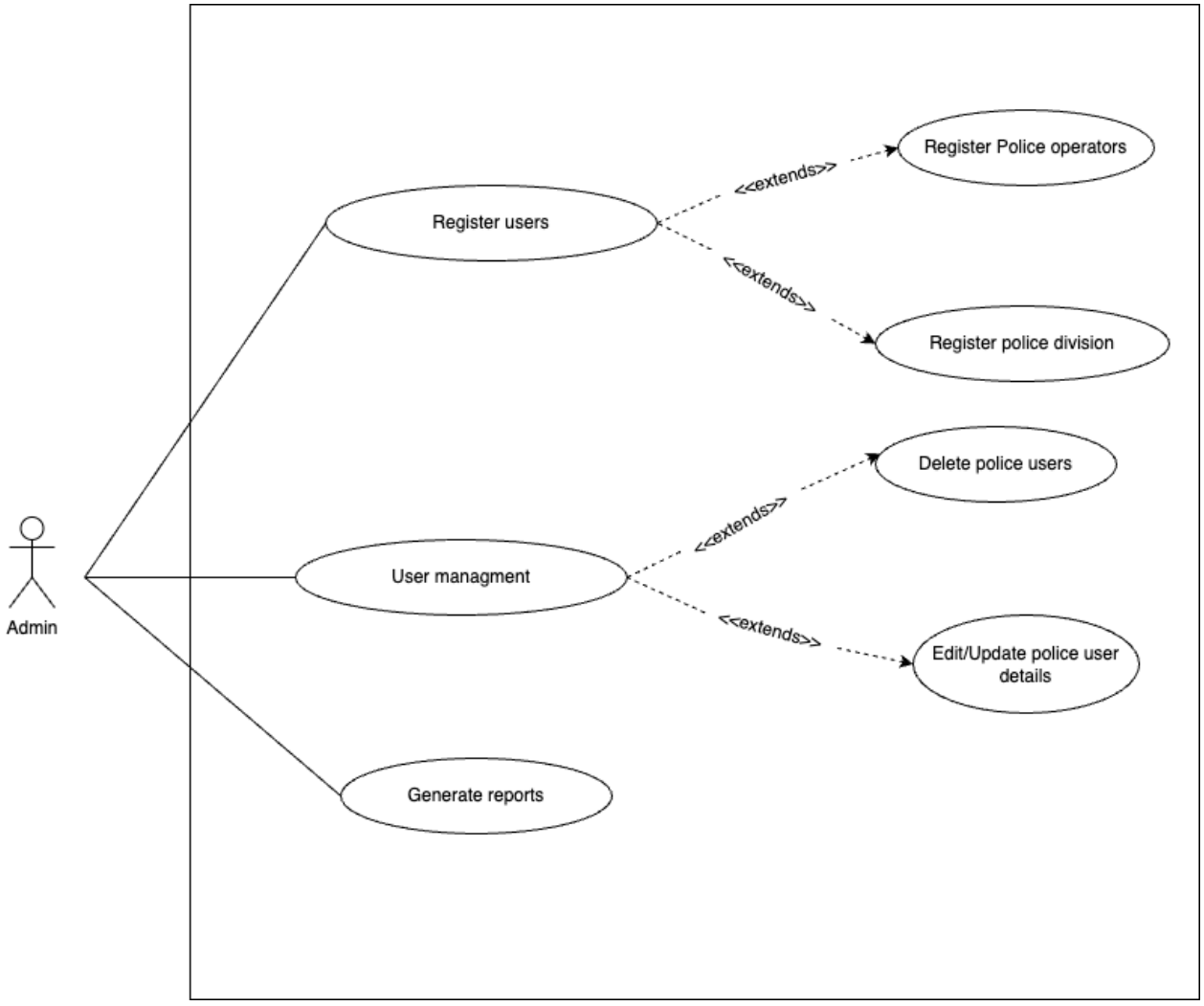
- Users acknowledge that CopSco may share personal data with other relevant authorities if required. Authorities will require users' data such as bank account details for conducting payments through the platform.

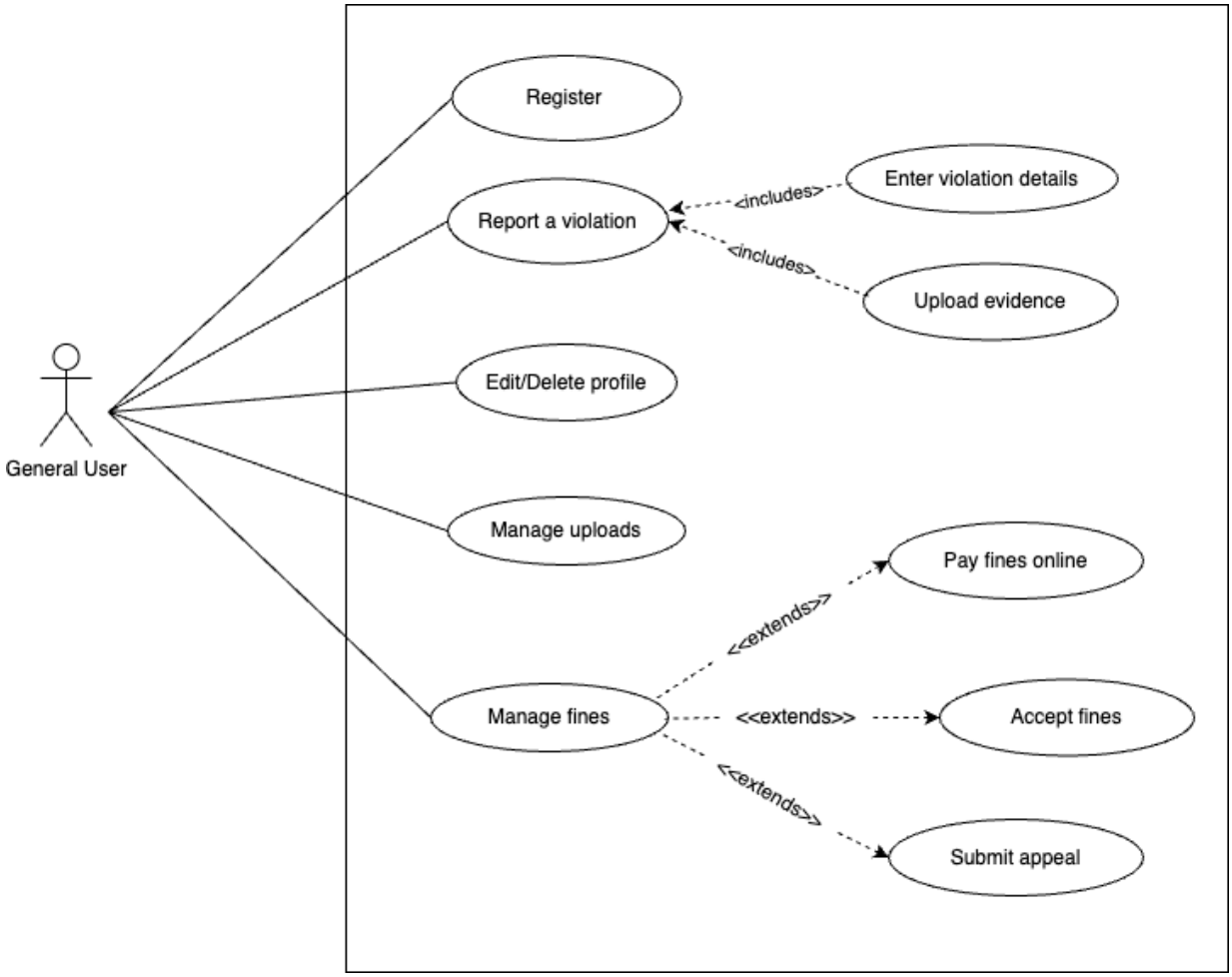
6. Systems Architecture

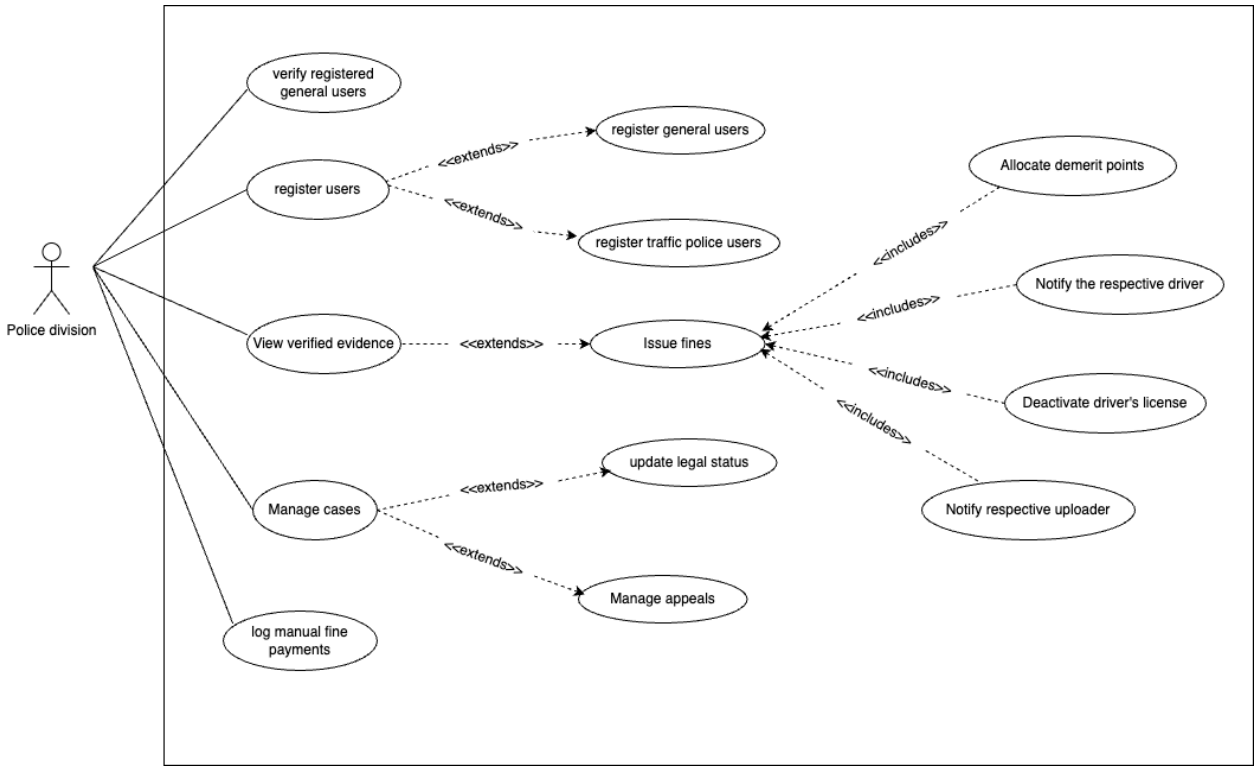


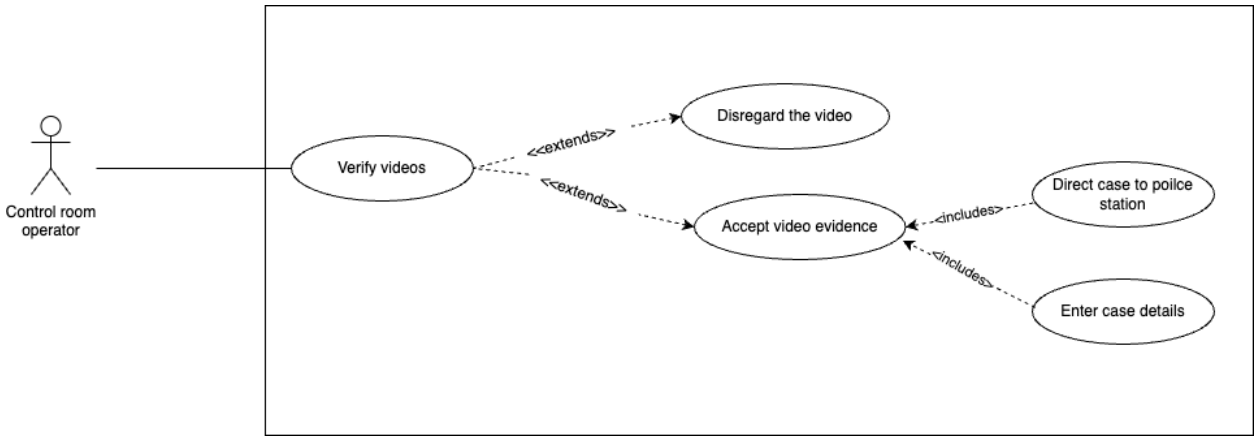
7. Requirements Specification

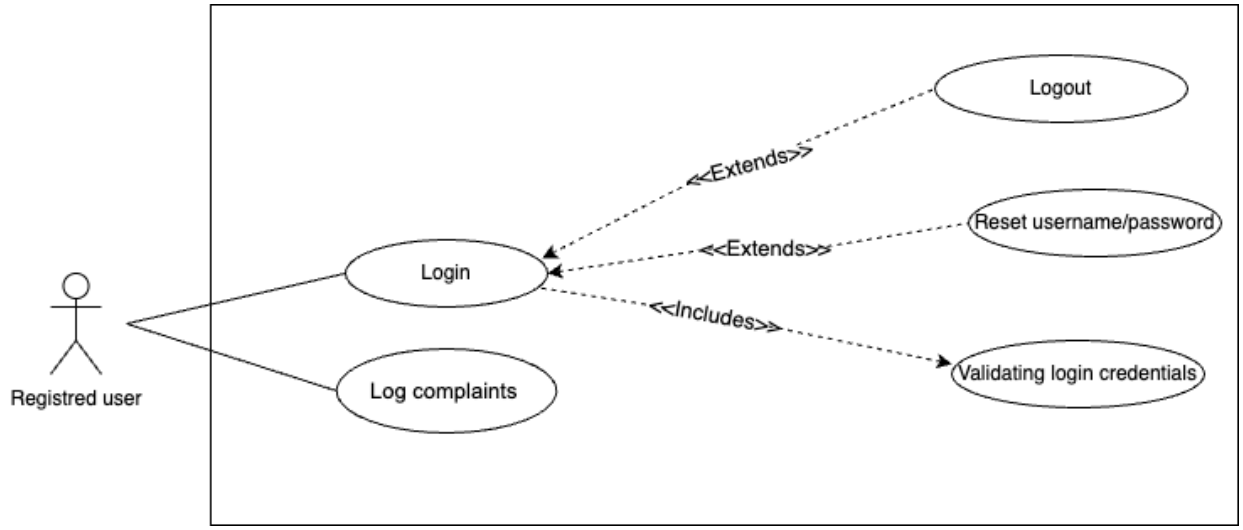
7.1 Use Case Diagram

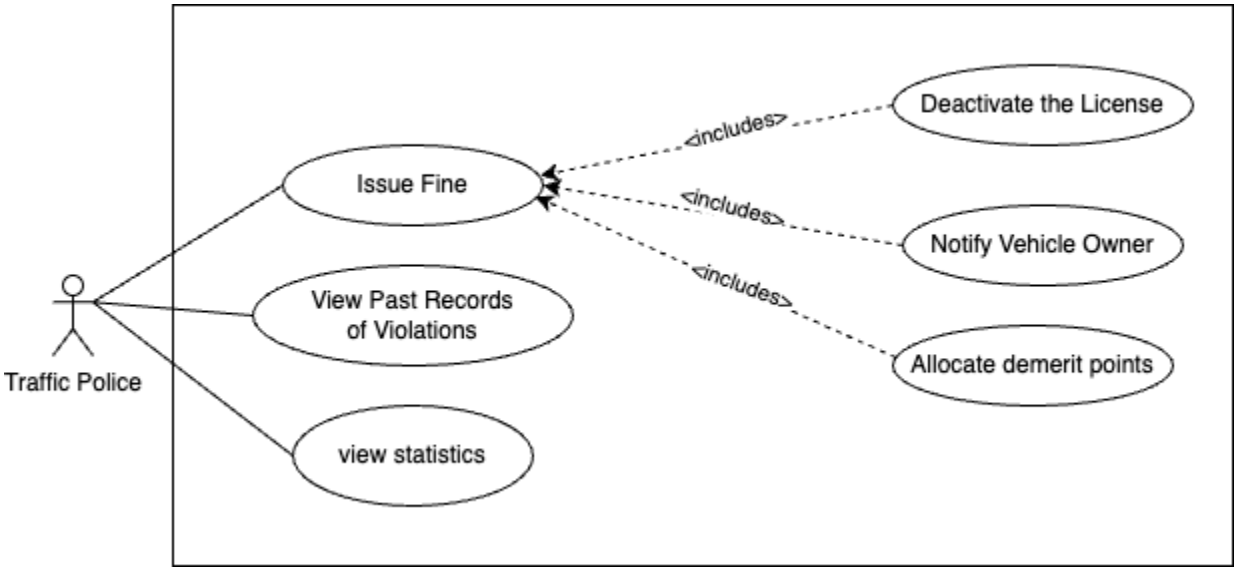



Register
Report a violation
Enter violation details
<includes>
<includes>
Upload evidence
Edit/Delete profile
Manage uploads
Pay fines online
<<extends>>
Manage fines
<<extends>>
Accept fines
<<extends>>
Submit appeal
General User


Police division
verify registered general users
register users
View verified evidence
Manage cases
log manual fine payments
<<extends>>
register general users
<<extends>>
register traffic police users
<<extends>>
Issue fines
<<extends>>
update legal status
<<extends>>
Manage appeals
<<includes>>
Allocate demerit points
<<includes>>
Notify the respective driver
<<includes>>
Deactivate driver's license
<<includes>>
Notify respective uploader


Control room operator
Verify videos
<<extends>>
Disregard the video
<<extends>>
Accept video evidence
<<includes>>
Direct case to poilce station
<<includes>>
Enter case details


Logout
<<Extends>>
Reset username/password
<<Extends>>
Login
<<Includes>>
Validating login credentials
Registred user
Log complaints


Deactivate the License
<includes>
Issue Fine
<includes>
Notify Vehicle Owner
<includes>
View Past Records
of Violations
Allocate demerit points
Traffic Police
view statistics

7.2 Component Diagram

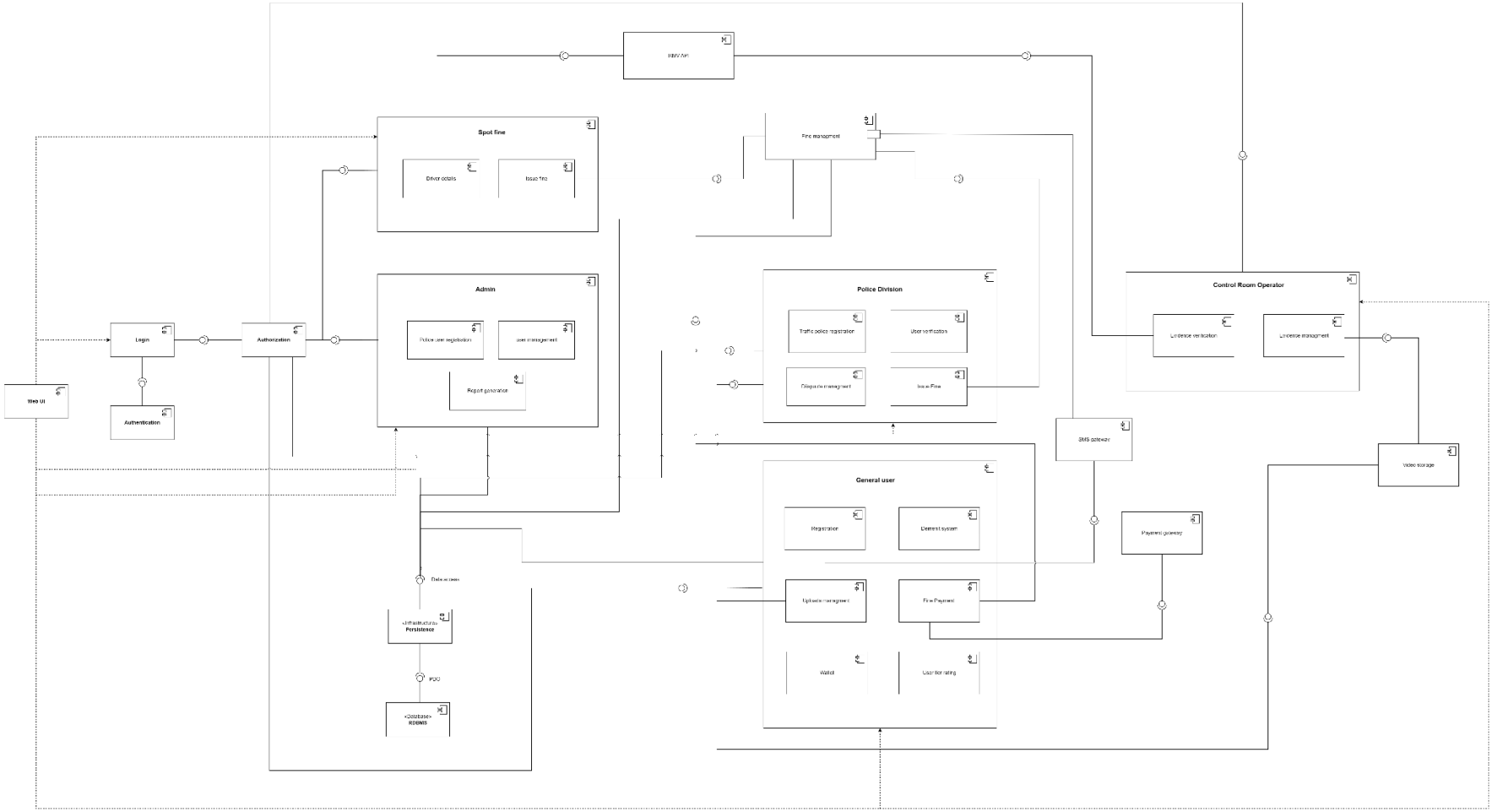


Diagram link : [component diagram link]

7.2.1 Sub Component Diagrams

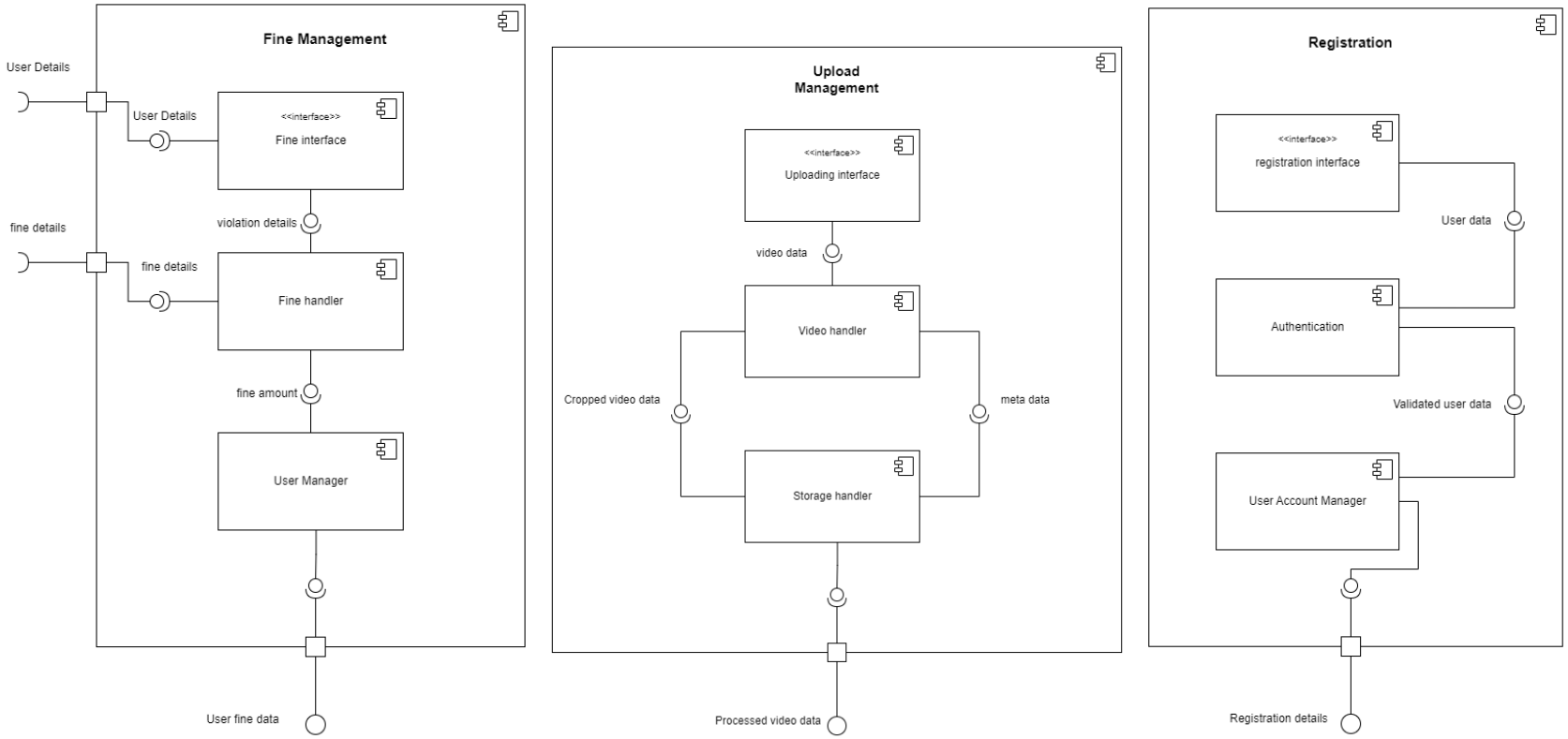
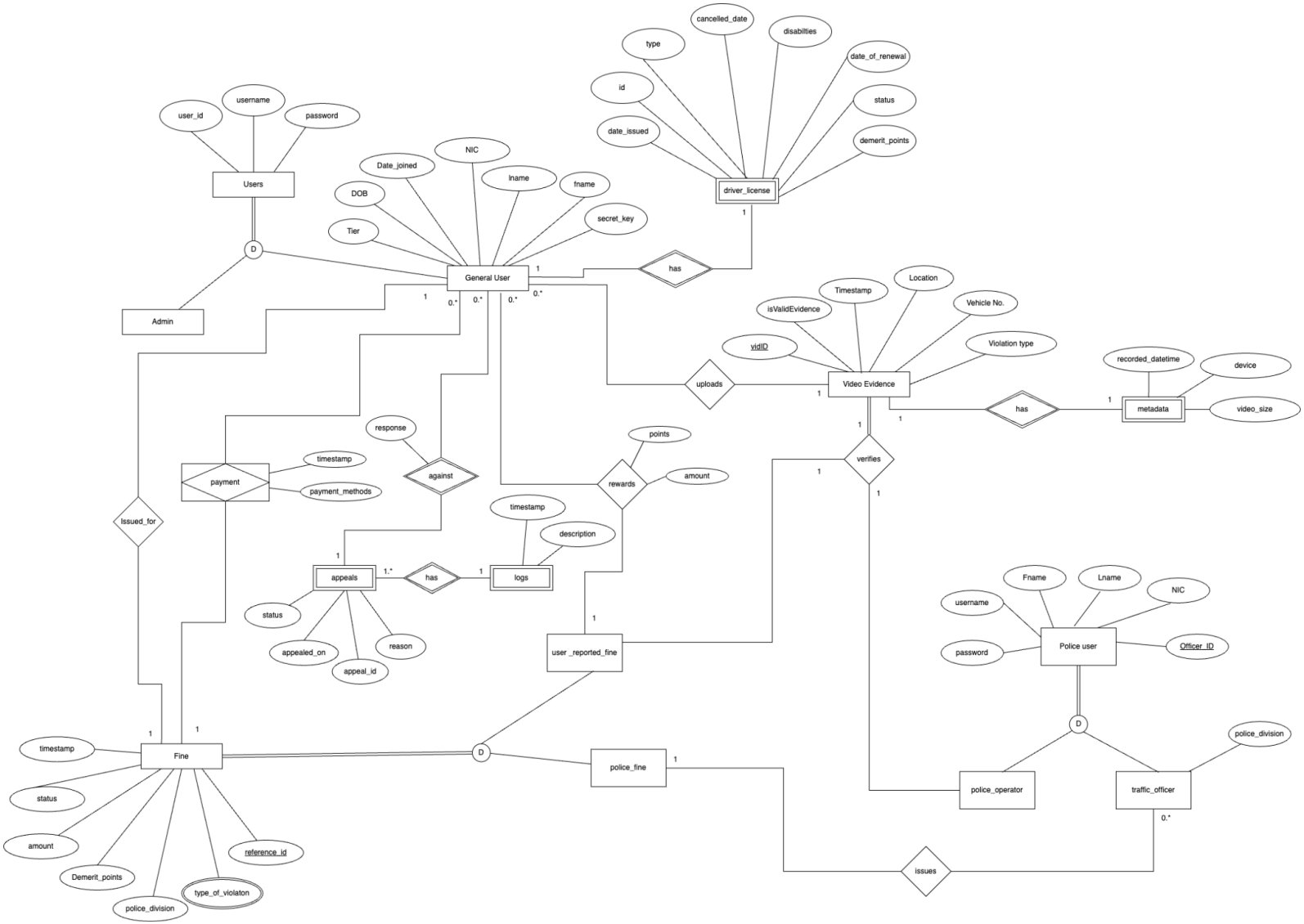


Diagram link :[component diagram link]

7.3 ER Diagram



7.4 Use Case Narratives

7.4.1. Admin

Use Case	Add Police operators
Use Case Type	System Requirement
Use Case Priority	High
Actors	Admin
Summary	Add police officers into the system
Description	● Firstly, direct to the panel where all the police operators displayed. ● Then using '+ CR operator' add details to the system. ● Add the operator to the system.
Preconditions	Must login to the system
Trigger	Trigger when a police officer will be added
Exceptions	None
Post conditions	● Admin will be directed to the home page. ● Police officer will be notified.

Use Case	Change status of user
Use Case Type	System Requirement
Use Case Priority	High
Actors	Admin
Summary	If the admin notices any sort of an inconvenient act in the system by a general user, admin has the power to change the status of the user where user loses his access to his account.

Description	● Firstly, direct to the panel where all the police operators are displayed. ● Then click on the change status button. ● Confirm the change.
Preconditions	Admin must log into the system
Trigger	Trigger when a user status will be changed.
Exceptions	None
Post conditions	● Admin will be directed to the home page. ● General user will be notified.

7.4.2. Police operator

Use Case Name	Login
Use Case Type	System Requirement
Use Case Priority	High
Actors	Police operator , Police officer
Summary	Added police operators /officer can log into their account.
Description	● Police operator/officer submits relevant credentials. ❖ Username ❖ Password ● The system will verify their details with the database.
Pre Conditions	The police operator/officer should have been added to the system.
Trigger	Triggered when the Police operator/officer wants to log into the system
Exception	If the credential verification fails an Error Message will be shown and will be reverted to the login page.

Post Conditions	Police operator/officer will be directed to the home page.

Use Case Name	Verify videos
Use Case Type	Business Requirement
Use Case Priority	High
Actors	Police operator, Police Division
Summary	The videos that are uploaded will be verified to identify whether there's a traffic violation or not. If there's a breach, the video will be accepted, and if not, the video will be discarded and added to the delete queue.
Description	● The video will be displayed to the operator. ● Operators can use filters to retrieve the most relevant videos. ● The operator will then proceed to check the videos for any violations. ● They can cross-check details with the ones submitted by the uploader. ● <<extends>> If any violations are found, the operator will change the status of the video to “Verified as a violation”. ● The verified video will be forwarded to the relevant police division. ● <<extends>> If no breach is found, the particular video will be added to the delete queue.
Pre Conditions	The police operator should have been added to the system. There should be videos to verify.
Trigger	Triggered when the Police operator wants to verify videos.
Exception	If the video is not clear enough to verify, it will be discarded.
Post Conditions	● Police operator will be directed to the home page. ● The site will be updated accordingly.

7.4.3. Police Division

Use Case Name	Enter case details
Use Case Type	Business Requirement
Use Case Priority	High
Actors	Police Division
Summary	Police officers can add details of the violation such as vehicle number, and driver's details will have appeared.
Description	● After getting the verified videos, police officers will have access to a user interface (UI). ● In the UI, they can add details of the driver. ● The past records of that driver will be displayed. ● The police officer can add more violations if they notice any. ● The total fine amount will be displayed. ● The system can mention if there are any more legal actions to be taken. ● The system will automatically notify the driver.
Pre Conditions	The videos should be verified by the control panel and submitted to the police division.
Trigger	Triggered when the Police operator wants to take legal action.
Exception	If the verification done by the control room is not valid, the video will be discarded.
Post Conditions	● Police operators will be directed to the home page. ● The driver will be notified. ● Demerit points will be added accordingly. ● Driver's license will be suspended temporarily.

Use Case Name	Authenticate Registered Users
Use Case Type	Business Requirement
Use Case Priority	High
Actors	Police Division
Summary	Police officers verify the people who got registered for the application.
Description	● Users can register either through the website or by physically meeting the police officers. When registering through the website, they will be asked to submit several documents. After the successful submission of these documents, relevant police division officers will review and verify them. Only after this verification process will users' access be granted. ● If the user visits the police station physically, they should carry all the necessary documents needed for registration. The police officer will then go through those documents and verify them.
Pre Conditions	The user must have a National ID card or a vehicle license.
Trigger	When a user wants to get registered in the system.
Exception	When a person provides incorrect details, documents or something misleading.
Post Conditions	The user will be notified.

7.4.4. Traffic Police

Use Case	View general users
Use Case Type	Business Requirement
Use Case Priority	High
Actors	Admin, Traffic Police
Summary	All the general users can be viewed by the traffic police and the admin
Description	● All the registered users' data will be displayed in one UI. ● Traffic police/Admin can view the UI. ● After that Traffic police/Admin can select one general user and view his/her information.
Preconditions	Traffic police/Admin must log into the system
Trigger	Trigger when general users will be viewed
Exceptions	None
Post conditions	Traffic police/Admin will be directed to the home page

Use Case	Issue Fine
Use Case Type	Business Requirement
Use Case Priority	High
Actors	Traffic police
Summary	Traffic police can issue a fine after confirming a violation done by a general user

Description	● First traffic police investigate the video violations and on-spot violations in the system. ● Then verified the violation. ● Confirm the fine amount that needs to issue for the violation. ● Issue the fine
Preconditions	Traffic police must log into the system
Trigger	Trigger when the traffic police issue a fine
Exceptions	License no, NIC, or vehicle number might be wrong
Post conditions	Traffic police will be directed to the home page. Notify the General user.

7.4.5. General User

Use Case	Sign Up
Use Case Type	System Requirement
Use Case Priority	High
Actors	General User
Summary	General users can register to the system
Description	Users need to specify personal details like username, email, password, NIC No or License No appropriately, for use as credentials later when logging in
Preconditions	User must access the sign-up page
Trigger	Trigger when a user register to the system
Exceptions	If a username or email already exists an error message will appear
Post conditions	A user account will be created

Use Case	Log in
Use Case Type	System Requirement
Use Case Priority	High
Actors	General User
Summary	Registered general users can log into their accounts
Description	● The user adds relevant credentials. ❖ Email or Username ❖ Password ● The system will verify their details with the system.
Preconditions	The user must register to the system and verify their account
Trigger	Trigger when the user wants to log into the system
Exceptions	If the credential verification fails an Error Message will be shown and will be reverted to the login page.
Post conditions	User will redirect to the home page

Use Case	Reporting a crime
Use Case Type	Business Requirement
Use Case Priority	High
Actors	General User
Summary	When there is a violation recorded, registered, and verified users can upload the video footage which include the crime to the system

Description	● The user must log in to the system. ● Then use the option ‘upload’ to upload the video footage. ● Pop up called ‘video evidence’ will appear. ● The user has the privilege to trim the video using the ‘video editor’. ● Then the user must insert edit details before submitting the violation. ● <<Extend>> If the user feels to edit or delete the video before submitting it, the video editor phase has the option to edit or delete the video.
Preconditions	The user must log into the system.
Trigger	Trigger when the user uploads a video to the system
Exceptions	If there is something wrong with the uploaded video, Video editor shows an error
Post conditions	● The user will be directed to the home page. ● Video will be added to the verifying video queue. ● The police division will be notified

Use Case	Appeal a violation
Use Case Type	Business Requirement
Use Case Priority	High
Actors	General User
Summary	When a user is notified of a certain violation done by him/her, can appeal for the violation by stating a valid fact through the system.
Description	● The user must log into the system. ● User was notified of a violation through the system. ● If the user doesn’t hold any responsibility for the violation, he/she can appeal through the system by filling out the appeal form.
Preconditions	The user must have valid proof to appeal for the violation

Trigger	Trigger when the user appeal for the violation
Exceptions	None
Post conditions	● The user will be directed to the home page. ● Proofs will be updated accordingly.

Use Case	View Past Violations
Use Case Type	Business Requirement
Use Case Priority	High
Actors	General User
Summary	User can view the past violation he/she uploads to the system
Description	● After the user uploads violations to the system, there is a field to store all the video footage uploaded by a certain user. ● Then, the user can view all the past violations added to the system. ● Out of all the videos, user can view selected video explicitly.
Preconditions	The user must log into the system.
Trigger	Trigger when the user view past violations
Exceptions	None
Post conditions	Past violation list will be displayed to the user

Use Case	Pay Fine
Use Case Type	Business Requirement
Use Case Priority	High
Actors	General User
Summary	When a user fine for a violation he/she can pay the fine through the payment gateway in the system.
Description	● General users can see a fine after they were notified by the system. ● The user can enter the payment UI and see the fine. ● <<Extend>> A user can pay or appeal the fine at the UI. ● Users can pay the fine after reviewing whether the details are accurate.
Preconditions	User must log into the system.
Trigger	Trigger when the user uses the payment gateway
Exceptions	When the user enters the wrong banking details error message will be displayed
Post conditions	● The user will be directed to the home page. ● Notification will be received that the payment is successful. ● Responsible party will be notified

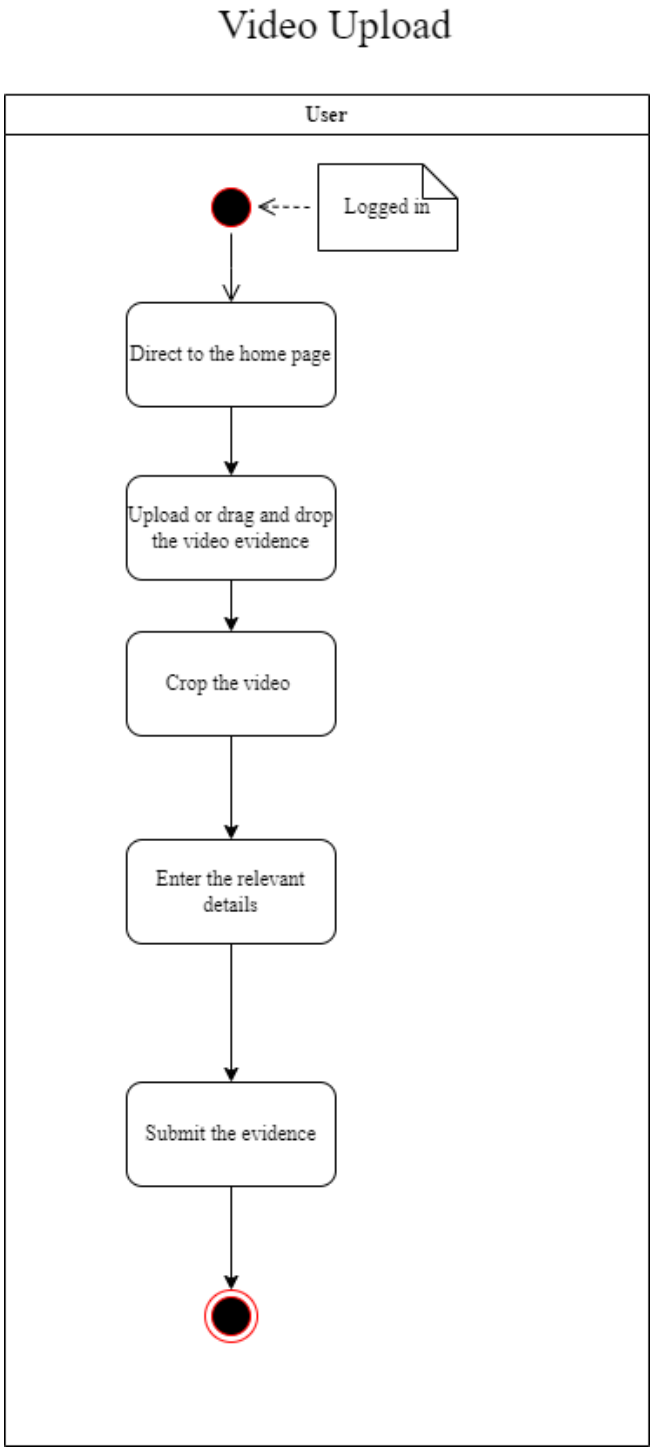
Use Case	Edit Self Profile
Use Case Type	Business Requirement
Use Case Priority	Low
Actors	General User
Summary	All the resisted users can edit their profile
Description	● After logging into the system, the user views the profile.

	● In the profile, the general user can edit certain fields of the profile
Preconditions	User must log into the system.
Trigger	When a user edits a profile
Exceptions	None
Post conditions	● User will be directed to the system. ● Necessary changes will be updated accordingly.

7.5. Activity Diagrams

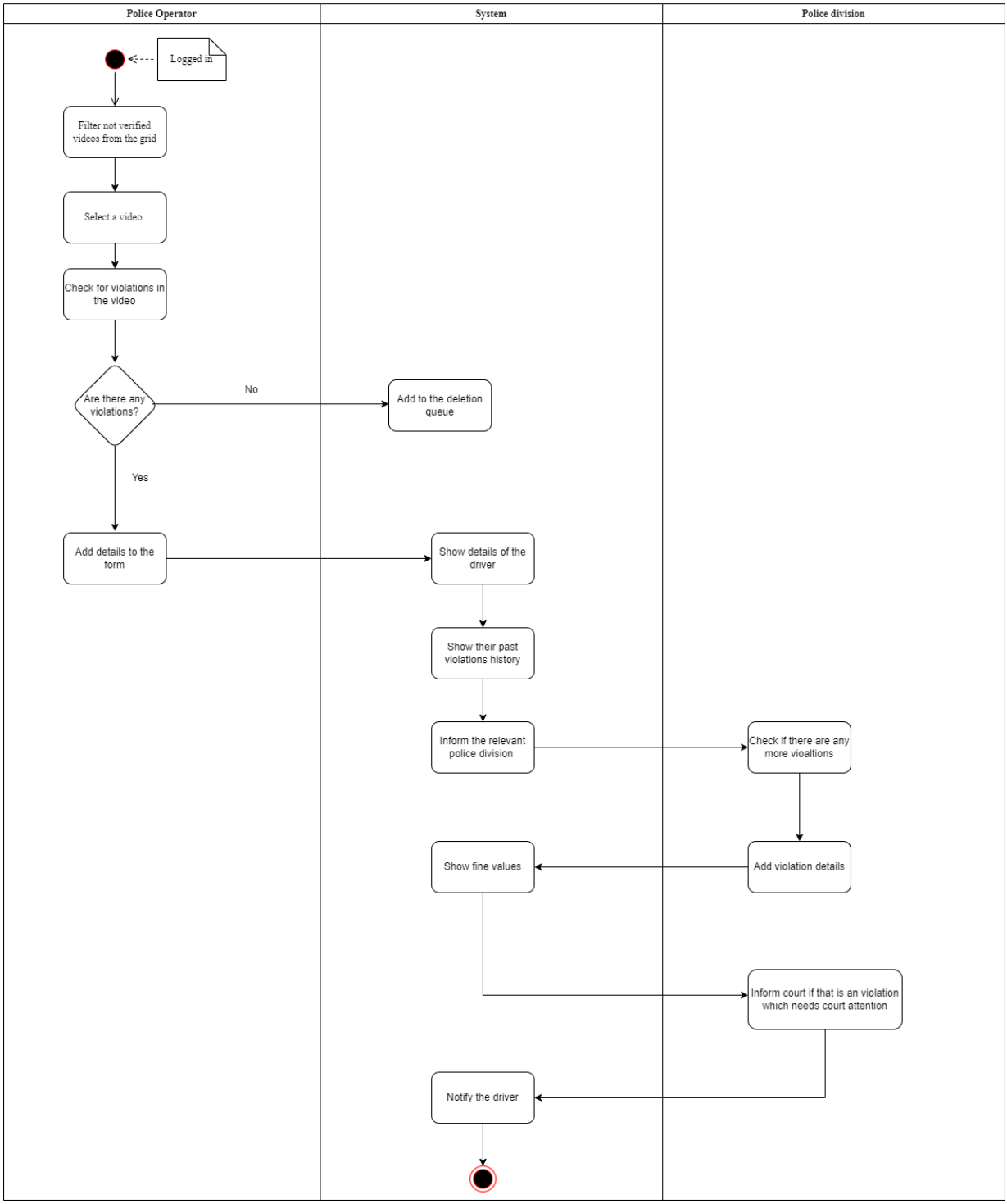
The below given are the activity diagrams for the main functionalities and flows of the system.

7.5.1 Video Uploading

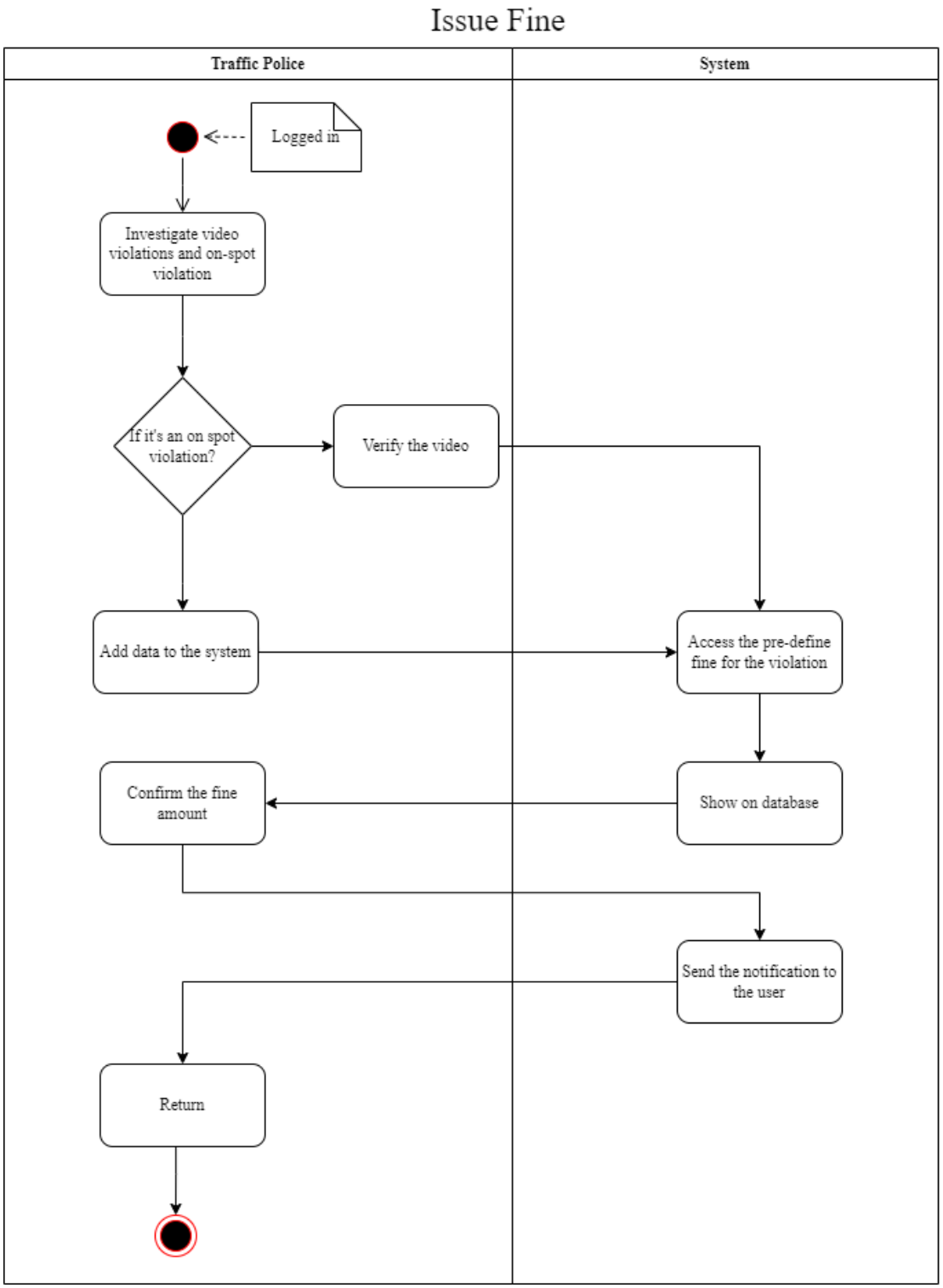


7.5.2 Video Verification

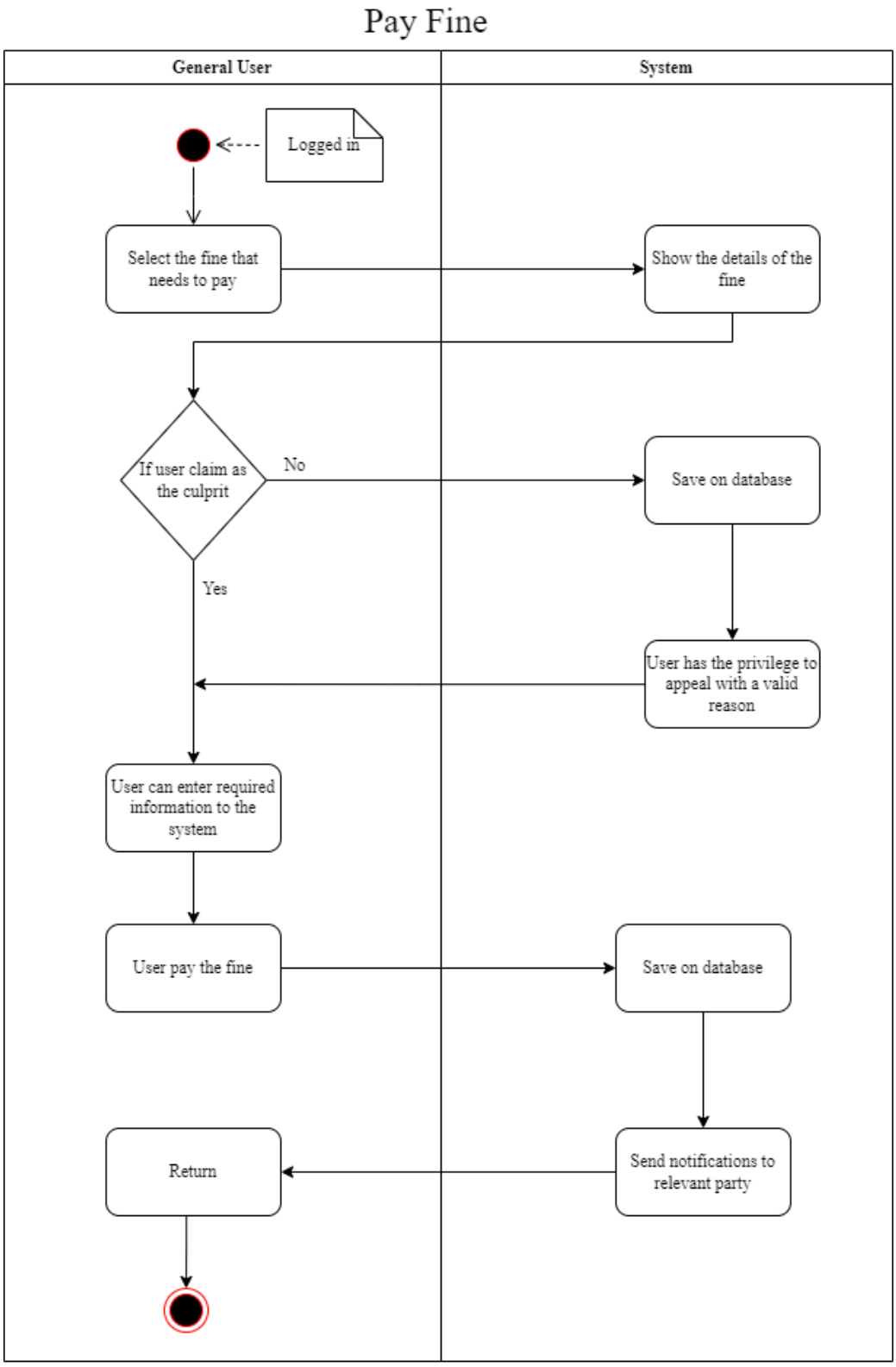
Video Verification



7.5.3 Issue Fines



7.5.4 Pay Fines



8. User Interfaces

A color scheme consisting of white, black, dark blue and light blue was chosen for the project. The color white was chosen as a primary color so as to symbolize the simplicity and professionalism at the same time.

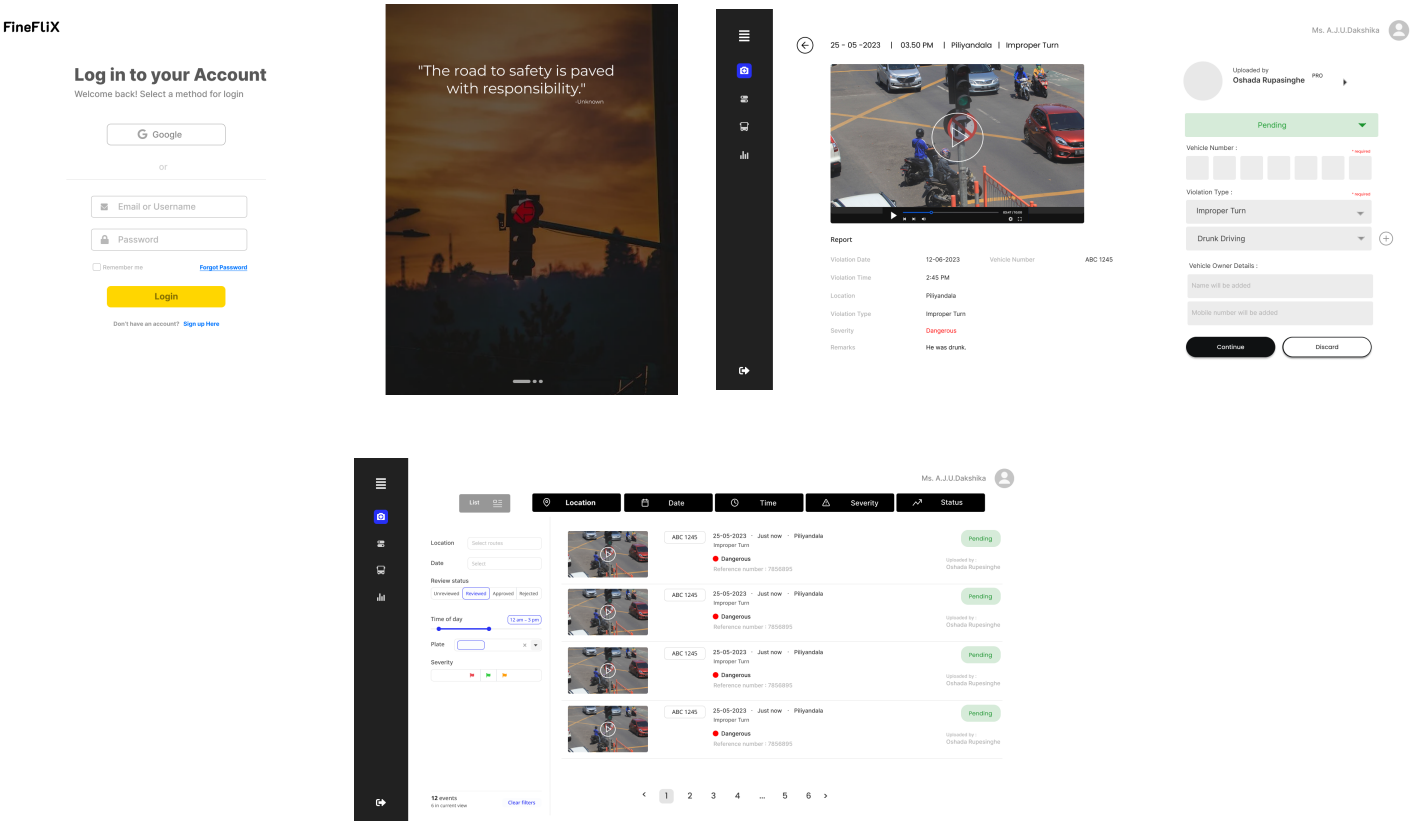
#F3F4F6	#000000	#020617	#0BA2E3

The adoption of the 'Inter' Font Family in our project has proven to be a wise choice, elevating the overall design and user experience to new heights. With its versatile range of weights, including Regular, Bold, and Black variations, 'Inter' allows us to achieve a harmonious visual balance and effectively emphasize important elements within our interface. Its X-height of 66% is a standout feature, significantly enhancing legibility, especially on smaller screens—a crucial consideration for our mobile application's success.

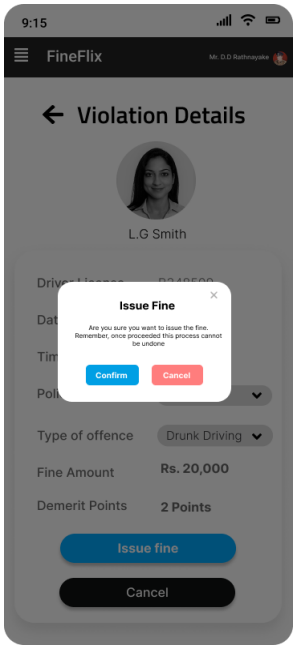
Another remarkable aspect of 'Inter' is its free and open-source nature, aligning perfectly with our commitment to using accessible and inclusive design resources. The consistent and seamless font pairing capabilities of 'Inter' have contributed to a cohesive and polished appearance throughout the application, maintaining a minimalistic and professional feel. Overall, the implementation of 'Inter' in our project has played a key role in delivering a user-friendly, aesthetically pleasing, and highly functional interface.

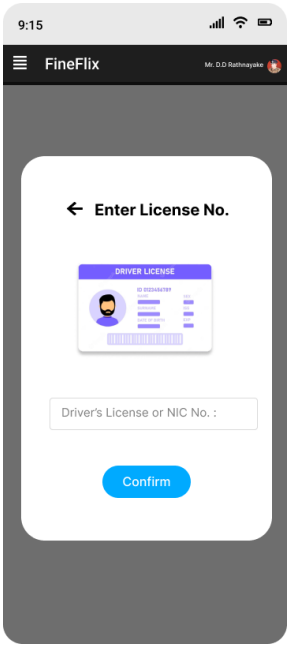
Adhering to established UI Design best practices, we meticulously crafted high-fidelity mockups that embody the exact type hierarchy, layout, and content intended for the final application. Each interface was thoughtfully developed, ensuring a seamless user experience through rapid prototyping and inter-interface navigation testing. These mockups not only enable us to observe the fine distinctions that emerge from user interaction but also allow us to analyze how the interfaces respond to changing variables. By employing this comprehensive approach, we are confident in delivering an application that excels in both functionality and user satisfaction.

8.1 Desktop View



8.2 Mobile View





9. Main deliverables of the system

1. A mobile responsive web Application

A mobile responsive web application is a user-friendly platform designed to adapt seamlessly to various screen sizes, ensuring an optimal viewing experience on smartphones, tablets, and desktops. By employing responsive design techniques, the application automatically adjusts its layout and content, enhancing accessibility and usability across different devices, while eliminating the need for separate versions for each platform. This approach enhances user engagement and satisfaction by providing a consistent and visually appealing interface regardless of the device being used.

2. Software Requirement Specification

A Software Requirement Specification (SRS) is a comprehensive document that outlines the functional and non-functional requirements of a software project. It serves as a blueprint for developers, stakeholders, and testers, providing a clear understanding of the system's purpose, features, constraints, and user expectations. The SRS helps ensure effective communication, project alignment, and successful development by defining the scope and specifications to guide the software development process.

3. The web application will be under a creative canvas.

A web application under a creative canvas implies that the platform will provide users with an innovative and visually engaging environment. It suggests that the application's design and interface will allow for artistic expression, customization, and interactive elements, encouraging users to explore their creativity. By offering a flexible and imaginative canvas, the web application aims to enhance user experience and foster a sense of individuality and freedom in how users interact with the platform's content and features.

10. Project Plan

10.1 Ghantt Chart

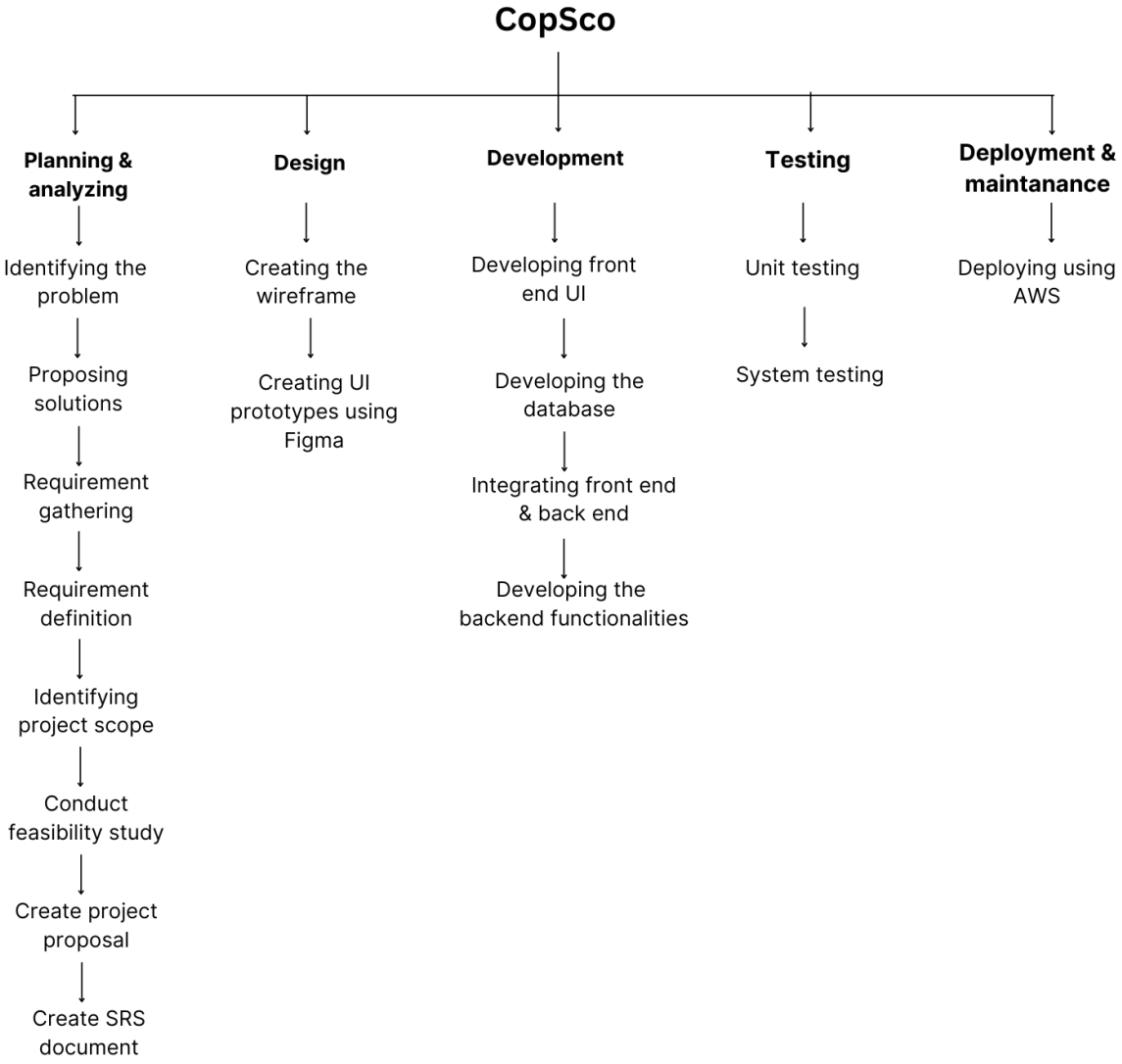
GROUP PROJECT - TIMELINE

GROUP PROJECT II - TIMELINE

PROJECT	CopSco
GROUP NUMBER	55

			JUNE				JULY				AUGUST				SEPTEMBER				OCTOBER			
	PROJECT WEEK:		1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
1	REQUIERMENT ENGINEERING	- Requirement Gathering																				
		- Requirement Analysis																				
		- Scope Identification																				
		- Feasibility Study																				
2	SYSTEM ANALYSIS	- Use case modeling																				
		- Activity modeling																				
		- Component modeling																				
		- SRS																				
3	SYSTEM DESIGN	- UI Design																				
		- Database Design																				
4	SYSTEM DEPLOYMENT	- Development of essentials																				
		- Platform Integration																				
5	SYSTEM TESTING	- Unit testing																				
		- Integrated testing																				
		- System testing																				
6	SYSTEM MAINTAINANCE	- Final product																				

10.2 WBS - Work Breakdown Structure



10.3 WBS Dictionary

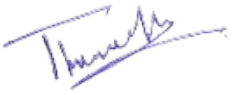
Code	Task	Description	Assignee	Percentage Completed	Acceptance Criteria	Start date	Estimated End Date
1	**Planning and Analysing**						
1.1	Idenifying the problem	Understanding the problem which we are going to give a solution to	Osura, Oshada, Tharindu, Vishal, Uthpalani, Kaveesha	100%		06.06.2023	08.06.2023
1.2	Proposing Solutions	Listing down the possible solutions which can be implemented	Osura, Oshada, Tharindu, Vishal, Uthpalani, Kaveesha	100%		07.06.2023	08.06.2023
1.3	Requirement Gathering	Process of determining what the project need to achieve and what need to be created to make that happen	Osura, Oshada, Tharindu, Vishal, Uthpalani, Kaveesha	100%		08.06.2023	14.06.2023
1.4	Requirement Definition	Establishing a foundation for project vision	Osura, Oshada, Tharindu, Vishal, Uthpalani, Kaveesha	100%	Project Proposal	14.06.2023	16.06.2023
1.5	Identifying project scope	Documenting goals, outcomes, tasks, and timeline dates specific to the project objectives.	Osura, Oshada, Tharindu, Vishal, Uthpalani, Kaveesha	100%		16.06.2023	18.06.2023
1.6	Conduct feasibility study	Identifying the challenges of a proposed project	Uthpalani, Kaveesha	100%		18.06.2023	22.06.2023
1.7	Create project proposal	Defininig your project, including things such as start and end dates, objectives and goals.	Osura, Oshada, Tharindu, Vishal, Uthpalani, Kaveesha	100%		19.06.2023	25.06.2023
1.8	Create SRS document	Drawing UML diagrams Defininig the Purpose With an Outline	Osura, Oshada, Tharindu, Vishal, Uthpalani, Kaveesha	95%	SRS and WBS	25.06.2023	28.07.2023
2	**Design**						
2.1	Creating wireframes	Creating a 2D illustration of interfaces	Osura, Oshada, Tharindu, Vishal, Uthpalani	100%	UI Prototype	20.06.2023	02.07.2023
2.2	Creating UI prototypes using Figma	Creating the visual representation of system's UIs	Osura, Oshada	100%		02.07.2023	04.07.2023
3	**Development**						
3.1	Developing the front end UI	Development using html, css, JS	Oshada, Vishal, Uthpalani	70%	Front end of the project	04.07.2023	10.08.2023
3.2	Developing the database	Designing database according to the ER diagram which shows the relationships between entities.	Osura	30%	Data Layer of the project	15.07.2023	20.07.2023
3.3	Integrating front end and back end	Integrating developed parts which were developed by team members seperately.	Osura, Oshada, Tharindu, Vishal, Uthpalani, Kaveesha	10%	Working project	05.08.2023	20.09.2023
3.4	Developing backend functionalities	Developing system functionalities by connecting to the database	Osura, Tharindu, Kaveesha	25%	Backend functionalities of the projec	04.07.2023	20.09.2023
4	**Testing**						
4.1	Unit Testing	Testing a unit - the smallest piece of code that can be logically isolated in system.	Oshada, Vishal, Uthpalani	0%	Test summary Report	05.08.2023	02.10.2023
4.2	System Testing	Evaluating how the various components of an application interact together in the full, integrated system or application.	Osura, Tharindu, Kaveesha	0%	Tested project	20.09.2023	02.10.2023
5	**Deployment and maintanance**						
5.1	Deploying using AWS		Osura, Oshada, Tharindu, Vishal	0%	Finished Project	-	02.10.2023

11. References

[1] W. Contributors, "Sri Lanka Police," Wikipedia, [Online]. Available: https://en.wikipedia.org/wiki/Sri_Lanka_Police.

12. Declaration

We as members of the project titled CopSco, certify that we will carry out this project according to guidelines provided by the coordinators and supervisors of the course as well as we will not incorporate, without acknowledgement, any material previously submitted for a degree or diploma in any university. To the best of our knowledge and belief, the project work will not contain any material previously published or written by another person or ourselves except where due reference is made in the text of appropriate places.

Name	*Signature*
O.V. Rupesinghe	
O.V. De Silva	
T.D. Attygalle	
M.A.V. Lochana	
A.J.U. Dakshika	
U.K.D.K. Nethmini