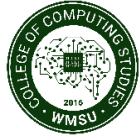




Republic of the Philippines
Western Mindanao State University
COLLEGE OF COMPUTING STUDIES
DEPARTMENT OF INFORMATION TECHNOLOGY



Crime Awareness Hub: A Web-Based Platform Empowering Users to Report Index or Non-Index Crimes in Zamboanga City.

Presented to the Faculty of the

College of Computing Studies

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University

In Partial Fulfillment

of the Requirements for the Degree

Bachelor of Science in Information Technology

By

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CAPSTONE PROJECT FORM

APPROVAL FOR BINDING

This is to certify that the Capstone Project entitled “Crime Awareness Hub: A Web-Based Platform Empowering Users to Report Index or Non-Index Crimes in Zamboanga City.” composed by the following students:

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ABSTRACT

Zamboanga City, a dynamic urban hub in the Philippines known for its rich cultural diversity, confronts the intricate issue of crime. Understanding the diverse range of crimes prevalent in the community is crucial for both residents and authorities, considering the city's unique cultural tapestry and economic activities. This project endeavors to create a web-based platform focusing on Barangay Sta. Catalina, Barangay Talon-talon, and Barangay Mampang in Zamboanga City. The objective is to empower users to actively report various crimes, both index and non-index, through an integrated system.

The platform encompasses features such as account registration, login, email verification, mapping locator, crime reporting, route directions, nearby stations, custom markers, incident management, report status, report receipt, manage markers, manage report, manage accounts, and manage inquiries. It presents comprehensive data, including the total number of registered users, admin users, reports, report progress, validated progress, and statistics on incident reports and report status.

Traditional crime reporting methods often encounter inefficiencies due to manual procedures, limited information dissemination channels, and fragmented data sources within law enforcement agencies. To address these challenges and harness technological advancements, this project introduces the Crime Awareness Hub, a centralized online platform. The hub serves as a focal point for crime-related information, resources, and community engagement initiatives. Designed with a user-friendly interface for inclusivity, the Crime Awareness Hub aims to improve the efficiency of crime reporting, resource utilization, and community involvement, ultimately contributing to a safer and more secure urban environment.

DEDICATION

This endeavor is the result of numerous and challenging sacrifices. The researchers express gratitude to those who provided unwavering love and support, ranging from parents to close friends, and who have served as constant sources of inspiration and guidance.

We express our heartfelt gratitude to our Capstone adviser, Ms. Ceed Lorenzo Jennelle, for his invaluable guidance and unwavering support throughout the development of our capstone project. Ms. Jennelle's expertise and dedication have been crucial in shaping our research journey, and his feedback has greatly enhanced the quality of our work.

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LIST OF ABBREVIATIONS

Abbreviation	Full Text Description
HIVICRA	Hybrid Smart Crime Reporting App
API	Application Programming Interface
GIS	Geographic Information System
PNP	Philippine National Police
IRF	Incident Record Form
FIR	First Information Record
IDE	Integrated Development Environment
GUI	Graphic User Interface
PHP	Hypertext Preprocessor
HTML	Hypertext Markup Language
CSS	Cascading Style Sheet
RAM	Random Access Memory
GPS	Global Position System

CHAPTER

INTRODUCTION

1.1 Project Context

Crime awareness and public safety are crucial elements for creating a secure and harmonious community. In Zamboanga City, like many urban areas, the prevalence of both index and non-index crimes poses significant challenges to residents and law enforcements (Zamboanga City Police Office, 2020). These crimes include offenses such as theft, robbery, physical assault, property damage, and drug-related incidents. The impact of these crimes extends beyond the immediate victims, affecting overall quality of life and the perception of safety within the community.

To address these challenges and empower the community, the need for an effective platform that promotes awareness, reporting, and engagement in crime prevention has become evident. Such a platform can provide valuable resources, information, and tools to residents, law enforcement agencies, and community organizations to collaboratively address the issue of crime in Zamboanga City.

Traditional methods of crime reporting, and public awareness often suffer from inefficiencies due to manual processes, limited information dissemination channels, and fragmented data sources. These limitations result in reporting delays, ineffective resource allocation, and a lack of community involvement. Furthermore, barriers such as fear, lack of awareness regarding reporting procedures, and concerns about information confidentiality hinder crime reporting efforts (Zamboanga City Local Government Unit, 2021).

To overcome these challenges and harness the power of technology, a web-based platform named the Crime Awareness Hub is proposed. This platform will serve as a centralized hub for crime-related information, resources, and community engagement initiatives. It will provide a user-friendly interface accessible to residents of all ages and backgrounds, ensuring inclusivity and accessibility.

By implementing this platform, the aim is to improve crime awareness, streamline crime reporting processes, and mapping for locating. The Crime Awareness Hub will empower residents to be proactive in reporting crimes, sharing information, collaborating with law enforcement and community organizations to create a safer and more secure Zamboanga City.

1.2 Purpose and Description

In response to the dynamic urban landscape, prioritizing resident safety is crucial. The Crime Awareness Hub project is committed to developing an enhanced web-based platform tailored for Zamboanga City residents, ensuring swift access to emergency services, and facilitating efficient crime reporting.

The primary goal is to create a user-friendly web application, helping individuals locate nearby specific barangays, fire stations, and police stations based on their current location. Beyond basic location services, we aim to provide an intuitive map interface for searching places, ensuring data security, providing directions, and delivering essential information about each selected Barangay. Collaborative support from authorities such as fire and police stations foster community safety.

Moreover, the researcher's platform simplifies incident reporting directly from chosen barangays, offering seamless access to emergency hotlines during crises. This streamlined approach enhances communication efficiency, significantly reducing response times. The system features an intuitive reporting function, designed to simplify the reporting process, and encourage resident participation in crime prevention efforts, aiming to make a meaningful contribution to overall safety and security.

By utilizing the Crime Awareness Hub, residents gain convenient access to vital resources during emergencies. Additionally, the platform features an interactive map that facilitates communication, enables the sharing of experiences and concerns, and keeps users informed. This serves as a tech support assistance for reporting mechanisms and supports law enforcement efforts while promoting community engagement and awareness.

In conclusion, the project aims to enhance public safety and incident management in chosen barangays of Zamboanga City by providing a reliable tool for locating essential services and reporting incidents. Empowering residents to promptly contact pertinent authorities, the Crime Awareness Hub aspires to play a pivotal role in fostering a safer and more secure community environment.

1.3 Objectives

1.3.1 General Objective

The main objective of the Crime Awareness Hub project is to enhance public safety and crime response in Zamboanga City by developing a reliable and user-friendly web-based platform enabling Users to utilize a map that quickly locate current location and provides algorithm that predicts and calculates the nearest to farthest specific barangay stations to address incidents and request emergency assistance from fire and police stations. Enhancing efficient communication and engagement between residents and the relevant authorities for emergencies and awareness for enhanced safety practices.

1.3.2 Specific Objectives

- Integrate Interactive Map with Specialized Location Features: Create an intuitive map, incorporating specialized location services. The platform's primary focus is to swiftly determine users' real-time current locations, employing a sophisticated algorithm to predict and calculate distance matrices and duration to the nearest and farthest barangay stations. The map solution will empower users with:
 - Swift access to their real-time location through the interactive map.
 - Directions from two places, offering efficient and tailored route guidance.
 - A search functionality suggesting relevant places.
 - Adjustable map styles, including street map options.
- Develop a Safe and Web-Based Reporting System: Build a user-friendly reporting system prioritizing safety, utilizing real-time location data for smooth communication with barangays. Fortify and allow multimedia uploads for comprehensive reporting.
- Facilitate Users in Obtaining Precise Directions: Implement a feature for users to obtain precise directions, emphasizing seamless navigation. Provide alternative routes, route travel information, and accessibility features for inclusivity.
- Encourage Collaborative Efforts: Advocate for communal participation in crime prevention within Barangays. Utilize a streamlined platform, with Barangays taking the lead, supported by local police and fire stations.

- Provide convenient access to emergency resources: Provide Convenient Access to Emergency Resources: Enable swift access to emergency resources, especially hotlines.
- Implement Status Updates: provide users with updates on their reports through Gmail notifications and personalized user pages. Enhance user engagement by keeping them informed about the progress and resolution of their submitted incidents. Integrate an intuitive system that ensures transparency and empowers users with timely information regarding their reported concerns.
- Integrate Heatmaps: Provide technical support assistance to utilize heatmaps to display reported crimes that have been solved using the system. Allow users to share their experiences through a geolocation form, sending location and details to admins. Enable admins to confirm and automatically display shared experiences on the map, enhancing community awareness.

1.4 Scope and Limitations

The Crime Awareness Hub project targets specific selected barangays in Zamboanga City, namely Barangays Talon-Talon, Mampang, and Sta. Catalina. The project will have different types of users such as super admins, barangay admins, purok leader admins, and registered users. At the end of the deployment phase, the researchers will select registered users from the selected barangays, totaling 50 registered individuals. The project aims to conduct testing and survey questionnaires to assess user experience and satisfaction both user and admin side. With an emphasis on empowering residents to contribute to community safety, the system administrators will be the selected barangays who will handle reports filtered by barangay. These administrators will have role-based access control, allowing them to add, edit, and manage information within the platform. Furthermore, Users can access the site on various devices through the internet, as the project is a web-based application. Administrators can manage the platform using different devices, including mobile devices and desktops or laptops, while guests and registered users can access the platform using mobile devices and laptops. The proposed project focuses on assisting authorities and providing technical support in handling and maintaining crime-related issues in Zamboanga City.

Below are the functions and limitations of the study:

- Testing and survey questionnaires will be conducted exclusively within the premises of Zamboanga City, with a specific focus on Barangays Talon-Talon, Mampang, and Sta. Catalina.
- The availability and functionality of local authorities, emergency response teams, and barangay resources within Zamboanga City will influence the project's outcomes.
- Internet connectivity issues encountered by users accessing the system online will be considered a limitation during evaluation.
- The project is limited to the selected barangays in Zamboanga City.
- The project's focus is restricted to registered users from Barangay Talon-Talon, Mampang, and Sta. Catalina, who will participate in testing and surveys.
- The project's functionality relies on web-based access, requiring users to have an internet connection to utilize the platform effectively.
- Resource limitations, including funding and access to technology, may affect the implementation and sustainability of the project.
- The project may face challenges related to data privacy and security, particularly regarding the handling of sensitive information within the platform.
- User adoption and engagement may vary, impacting the effectiveness of the platform in achieving its objectives.

1.5 Significance of the Project

The development of the Community Crime Awareness Hub holds great significance for the residents of Zamboanga City, barangay, police station, fire station, and the local community. It offers several benefits, including:

Users

The Crime Awareness Hub platform provides users with convenient access to the nearest locations of barangays, police and fire stations, along with the contact resources offered.

Barangays

The project allows selected barangays to be informed about the reported crimes in their vicinity, enabling them to take necessary actions promptly. The selected

barangays can establish a collaborative partnership with the police station for crime-related matters and with the fire station for incidents involving fires. Barangays can also personally report incidents and request assistance through the platform as collaborative support from police station and fire station, fostering a sense of community involvement in maintaining safety and security.

Police Stations

The Crime Awareness Hub keeps police stations informed about reported crimes, enabling them to take appropriate actions in response. By being aware of incidents in their jurisdiction, police stations can allocate resources effectively and respond promptly to address the reported crimes. This improves the coordination and efficiency of law enforcement efforts in maintaining public safety.

Fire Stations

The inclusion of fire stations in the Crime Awareness Hub allows users to access information about the nearest fire stations and their contact details. In case of fire-related emergencies, users can quickly locate the nearest fire station and contact them for immediate assistance.

1.6 Definition of Terms

Index Crimes

Major crimes, including murder, rape, robbery, aggravated assault, burglary, larceny-theft, motor vehicle theft, and arson, as classified by law enforcement agencies for statistical purposes.

Non-Index Crimes

Lesser offenses or crimes that are not classified as index crimes, such as public disorder offenses, drug offenses, and minor property crimes.

Web-based Platform

A software application accessible through web browsers that allows users to access and interact with its features and functionalities over the internet.

Mapping Feature

An interactive tool within the Crime Awareness Hub platform that enables users to visualize and locate nearby emergency services, including police stations, fire stations, and barangays, enhancing spatial understanding for efficient navigation.

Verification Methods

Procedures implemented within the platform to authenticate user-generated reports, ensuring the accuracy and reliability of the information provided using email verification.

Incident Management

The systematic approach employed by the platform to handle reported incidents, ensuring prompt communication, and coordinated actions among relevant stakeholders, such as residents, barangays, police stations, and fire stations.

Collaborative Partnership

The cooperative relationship established between selected barangays, police stations, and fire stations through the Crime Awareness Hub, aimed at collectively addressing crime-related matters and incidents involving fires for the overall improvement of community safety.

CHAPTER II

REVIEW OF RELATED LITERATURE

1.1 Introduction

In today's rapidly evolving technological environment, the need for new solutions to society's problems is becoming more important in modern times. Innovative solutions to social challenges are gaining increasingly important significance as well. The survivability rate of individuals involved in accidents is greatly influenced by the response time of the first responders' personnel. While many individuals may have never experienced an accident, it is imperative to prioritize safety and avoid complacency.

On the other hand, crime is a pervasive issue that affects people in all regions of the world, demanding effective measures for preventative and interventional prevention. With the influence of technology, mobile phones are essentially useful when it comes to communication. In this chapter, the researchers developed the Crime Awareness Hub: A Comprehensive Web-Based Learning Platform Empowering Users to Report Index or Non- Index Crimes in Zamboanga City. This will enhance the awareness and response time of the first responders from the web application that provides reports and the location of the incident.

2.2 Development of Mobile Based Application for Incident Reporting

Public safety is a major concern when it comes to crimes, and it is crucial for people to report incidents and provide accurate information about the location of the occurrence. Law enforcement officers handle these reports and gather evidence to support the cases. However, many crimes go unreported due to various factors such as fear, feelings of helplessness, distrust in authorities, and the potential for further victimization.

The study addresses these issues by developing an incident-reporting application that promotes community-based tools and raises public awareness about safety. The application allows citizens to submit reports with evidence, ensuring a more comprehensive and reliable account of criminal activities. In today's millennial society, technological advancements have become increasingly popular, and the development of a smartphone application for security audits serves as an innovative solution. This

app enables individuals to report criminal or suspicious activities quickly, safely, and conveniently. Users can submit messages and multimedia data to the authorities, facilitating effective communication and prompt action. The advancement of technology has opened doors for various applications catering to the needs of internet users. This provides an opportunity for the current generation to leverage technology and actively contribute to solving societal issues. Crime reporting is not solely the responsibility of the police; it requires the participation of victims, witnesses, and the community as a whole. While the police have the duty to enforce the law, investigate crimes, identify suspects, and collect evidence, they also face challenges, and even a slight increase in their workload can impact case clearance rates. Therefore, it is vital for victims, witnesses, and society to play an active role in reporting crime-related activities, fostering collaboration and cooperation to create a safer community.

The current generation recognizes the potential of technology in addressing community crimes and has seized the opportunity to develop innovative solutions. Through technology, society can actively contribute to finding solutions to the crimes that affect the community. *Ignaco (2019)*.

2.3 Crime Spot Alert System

The study highlights the increasing vulnerability of passengers to crimes in various locations. With the rapid development of crime in certain areas, individuals who are traveling may be less cautious about their personal safety. This has become a concern in many major cities where crimes are frequently reported, leading to public safety concerns. To address this issue, the researchers developed a criminal spot detection system that utilizes advanced information technology and data processing skills, along with detailed transit records and FIRs filed at police stations. This system is divided into two modules: The Admin module, which regularly updates transit records to reflect the changing number of offenses over time, and the User module, which allows users to search for routes and identify crime-ridden areas.

The primary focus of this study is to ensure the safety of travelers, particularly those who may be unfamiliar with specific locations. By making individuals aware of high-crime areas, the study aims to provide safer navigation options. Users will also receive email notifications about identified crime spots through the project. The study emphasizes the importance of leveraging technology and data analysis to address the

growing concern of crimes targeting passengers. By mapping crime-affected locations and raising awareness among users, the study aims to enhance public safety and protect individuals while they are traveling. *Mohan et al. (2020)*

2.4 Suggesting a Hybrid Approach: Web/Mobile Apps with Big Data Analysis to Report and Prevent Crimes

The HIVICRA app helps minimize crime by allowing users to report criminal activity discreetly and accurately. It utilizes various features to enhance efficiency in crime prevention and response. One of the key features of the app is its in-app navigation system. This allows users to easily provide the exact location of the crime scene, enabling law enforcement officers to quickly access and respond to the reported offenses. By providing real-time location data, the app helps expedite police response times, increasing the chances of apprehending criminals and preventing further crimes.

Additionally, the app includes an offline database feature, ensuring that even users without internet access can report crimes effectively. This feature addresses the issue of limited connectivity in certain areas or situations, ensuring that no crime goes unreported due to technical limitations. The HIVICRA app also emphasizes citizen participation in crime reduction. By allowing users to discreetly report crimes from their handheld devices, the app encourages individuals to take an active role in keeping their communities safe. This involvement not only increases the number of reported offenses but also helps create a sense of collective responsibility towards crime prevention.

Furthermore, the app leverages highly clustered event sequences of crime-specific patterns of criminal behavior. By analyzing past crime data and identifying patterns, law enforcement agencies can use this information to anticipate certain types of crimes and allocate resources accordingly. This predictive approach enables proactive measures to be taken, enhancing overall crime reduction efforts. The app combines technological advancements with citizen participation to create a comprehensive crime reporting and prevention tool. By empowering individuals to report crimes discreetly and accurately, providing real-time location data, and utilizing predictive analytics, the app aims to create safer communities by reducing crime rates. *Fidow et al., (2019)*

2.5 Safe Route Recommendation Method to Prevent Crime Exposure

The safety route recommendation method considers the user's movement time and day of the week when recommending a route to determine the facility crime risk rate we analyze about the facility where the crime occurred. The criminal risk level in a facility is defined on a scale of 1 to 10, with 1 being the safest and 10 being the most dangerous.

According to a crime data analysis, the likelihood of crime on the route increases when facilities with high crime risk or facilities with similar crime rates are nearby. Even inside the same facility, crime is 20% more likely at night than during the day. Crimes are more common on Fridays, Saturdays, and Sundays than on other days. As a result, the crime risk rate for the route is computed by combining the risk of crime occurrence at the facilities included on the route. In addition, it includes the risk of crime occurrence at surrounding facilities and the time of day.

When a user selects a starting and ending place, our system computes the crime risk rate based on the time and day of use. It recommends the safest route among several options. This approach can assist people in avoiding risky areas and selecting safe routes.

Oh et al., (2017)

2.6 Crime Mapping Approach for Crime Pattern Identification: A Prototype for the Province of Cavite

The study focused on implementing a Crime Mapping Approach for Crime Pattern Identification by creating a website that utilizes geographical data to map criminal incidents. The objective of the website is to provide the public with crime maps, allowing individuals to avoid areas with high crime rates and enhance public safety. Additionally, law enforcement organizations can benefit from the website by visualizing crime data using the Google Map API, which collects, displays, and manipulates location-based data.

Various mapping technologies, including crime statistics, geospatial analysis, Geographic Information Systems (GIS), and temporal analysis, were employed in this study. These technologies served as the foundation for developing the website and its functionalities. The primary aim of the research was to aid law enforcement agencies in analyzing crime trends through diverse visual representations facilitated by the Google Map API. This involved the utilization of feature features and picture feature techniques. By providing crime trends and data to the police, the study enables them to strategically

deploy officers based on specific locations and times. Moreover, it raises public awareness about various criminal activities taking place in the region. This is achieved by documenting criminal incidents, identifying hotspots, and recognizing patterns. Consequently, the study not only offers valuable insights into crime patterns but also assists law enforcement agencies in formulating and implementing strategies to combat criminal activity. *Galera. et al., (2022)*.

2.7 Development of a crime reporting system to identify patterns of crime in Laguna

The crime reporting system implemented in Laguna is designed to identify crime patterns within the region. Its primary objectives include providing real-time crime statistics, mapping crime hotspots, and maintaining dynamic databases. The system aims to support law enforcement authorities by increasing crime reporting and facilitating information dissemination across the province. Furthermore, it strives to enhance crime prevention efforts through the utilization of crime pattern analysis tools.

To develop a prediction model based on data patterns, machine learning techniques were employed, specifically the Decision Tree algorithm. This model enables the system to offer various functions and features tailored to different users. These include raising awareness about high-risk areas and predicting future crime occurrences. It is recommended for the PNP- Laguna (Philippine National Police), municipal police stations, and the LSPU (Laguna State Polytechnic University) to collaborate further in expanding the crime analysis website. Additionally, exploring additional experimentation with both index and non-index crime datasets is suggested. By utilizing advanced data analysis techniques and predictive modeling, the crime reporting system in Laguna aims to provide valuable insights and support to law enforcement agencies. The system's functionalities not only aid in crime prevention operations but also empower users with information regarding crime trends and potential risks. Collaborative efforts and ongoing development are essential for the system to continue evolving and effectively serve the needs of the community and law enforcement in combating crime in the region. *Asor et al., (2022)*

2.8 Summary

The researchers delved into various studies and applications that have contributed to enhancing public safety, crime prevention, and emergency response. Notably, the review examines the impact of innovative applications such as the HIVICRA app, which enables discreet reporting of criminal activities and utilizes crime-specific patterns to aid police in anticipating and preventing crimes. Additionally, the criminal spot detection system, which identifies crime-affected locations using transit records and filed reports, serves to enhance traveler security, and enable mapping of high-crime areas.

Furthermore, the Crime Mapping Approach utilizes various mapping technologies and data analysis techniques to create a website that maps criminal incidents based on geographical locations. This application promotes public safety by providing crime maps to the public and assisting law enforcement agencies in visualizing and analyzing crime trends. Throughout the analysis of these studies and applications, the significance of citizen participation in crime reporting and prevention efforts becomes evident. Collaboration between law enforcement agencies, research institutions, and the community is also emphasized as a vital component in developing effective solutions.

In conclusion, this section presents a comprehensive overview of relevant literature and studies, with a primary focus on the well-being of the community, the documentation of criminal incidents, and the handling of urgent situations.

2.9 Synthesis

This section of research involves collecting data from prior studies related to the researchers proposed project. The data obtained is from web and mobile applications. The information presented compares and contrasts web and mobile applications' features and descriptions. The table below lists the applications and their characteristics.

Application	Description	Common Features	Similar Features from the System
-------------	-------------	-----------------	----------------------------------

<p>Development of Webwith law enforcement and community organizations to create a safer and more secure Zamboanga City.</p>	<p>An application that aimed to report and respond to crime incidents that may occur in the Philippines community. It includes two main applications such as Crime Reporting, Crime Responder, and the website.</p>	<ol style="list-style-type: none"> 1. App for reporting incidents: This application allows victims or witnesses to submit incident reports with photos. It allows users to coordinate with the nearest barangay or police station. 2. Responder Application: This application is used by barangay or police officials to receive notifications and provide immediate responses to submitted reports. 3. Incident Record Form (IRF): The application generates an IRF, which records details of each incident reported. 4. Incident Percentage and Map Plot Summary Report: The application can generate a summary report that includes the incident percentage and a map plot based on the accumulated reports from the Reporting application. 5. Web Admin: The application supports a web admin feature, which allows law enforcement to respond. The web admin can also generate statistical reports with charts and graphs of reports and responses to crime incidents. 	<p>Similar to the proposed system, it has a reporting incident feature that allows victims or witnesses to send reports to the nearest police station and barangay by describing the type of incident, location of the incident, and situation of the incident. The system has a Web Admin feature that allows the law enforcement to respond base from the reports and create responses from the crime incident.</p>
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<p>Crime Spot Alert System</p>	<p>The Crime Spot Alert System is a tracking system that uses large scale transit records to identify crime areas and inform users about high-risk areas. It collects crime rates from different police stations and provides users with route information including crime rates and crime spot locations. The system aims to help commuters identify crime-spotted areas and can be further expanded to integrate with the police database and provide live tracking and alerts to users.</p>	<ol style="list-style-type: none"> 1. Crime Spot Detection: The system identifies crime-affected areas based on transit records and FIR filed at different police stations. 2. Admin Module: The Admin module updates transit records frequently to account for changes in crime rates over time. 3. User Module: The User module allows users to search for routes and find out crime-affected areas. It provides safe route recommendations, time taken via each route, and complete path information from source to destination. 4. Pre-processing: The system pre-processes to avoid redundancy and remove noisy data. 5. Safe Route Recommendations: The system helps users make proper decisions by providing detailed information about routes and distances to be covered. 6. Real-Time Updates: The system ensures that network issues while traveling do not affect the user's experience, as users receive email and crime area plotting is done simultaneously. 	<p>The similar features from the proposed system were, Admin Module are responsible to update records of crimes rates over time, while User Module allows the users to locate routes that are crime-affected areas and also it lessen the crime incident when the user avoids the crime-affected areas that is shown in the map.</p>
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CHAPTER III

TECHNICAL BACKGROUND

3.1 Conceptual Framework

This chapter presents the technical development of the Crime Awareness Hub system and the technologies utilized during its implementation. It includes the Conceptual Framework, Software Requirements, and Hardware Requirements.

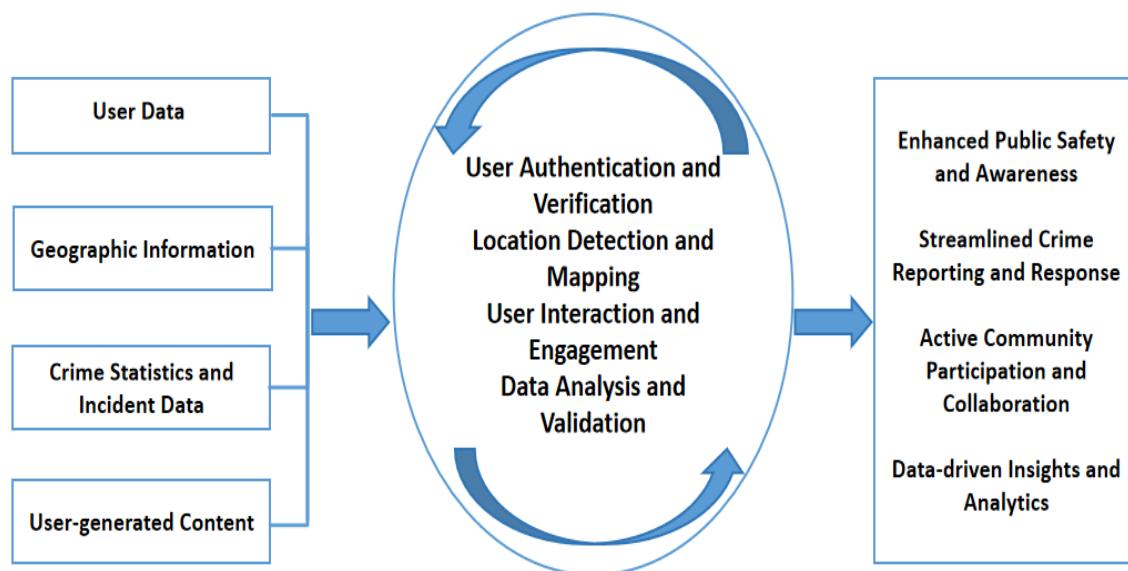


Figure 1 Conceptual Framework

The Crime Awareness Hub conceptual framework includes the various elements that make up its web-based platform. These elements consist of inputs, processes, and outputs.

This Project gathers several key inputs needed for its operation. First, it collects User Registration Data, including user profiles and login details, which are essential for user access and involvement. Second, it uses Geographic Information from platforms like Google Maps API to accurately locate users and incidents, helping with effective mapping and response plans. Third, it incorporates Crime Statistics and Incident Data from official sources, providing insights into current crime trends and patterns in the community. Finally, it integrates User-generated Content, such as incident reports and shared experiences, enriching the platform's database and offering valuable insights into

community concerns and activities.

Moreover, crime awareness hub project executes various processes to ensure seamless functionality and user engagement. It starts with user authentication and verification, ensuring secure access and data integrity during the registration and login processes. Subsequently, it employs location detection and mapping techniques, utilizing geographic information to identify user locations and map reported incidents, enhancing situational awareness and resource allocation. Additionally, it facilitates user interaction and engagement through diverse tools and features, empowering users to report incidents, communicate with authorities, and collaborate within the community. Finally, it conducts data analysis and validation processes to verify the accuracy and authenticity of reported incidents, enabling informed decision-making and responses.

Furthermore, the project outputs of the Crime Awareness Hub encompass several key outcomes. Firstly, it contributes to enhanced public safety and awareness by facilitating timely incident reporting, resource accessibility, and community engagement initiatives. Secondly, it streamlines crime reporting and response mechanisms, ensuring efficient processes and swift resolution of reported incidents. Thirdly, it fosters active community participation and collaboration by empowering residents to contribute to crime prevention efforts, thereby strengthening community resilience and cooperation. Lastly, through robust data-driven insights and analytics, the system generates valuable insights into crime trends, community dynamics, and the efficacy of intervention strategies, aiding stakeholders in informed decision-making.

3.2 Software Requirements

3.2.1 Programming Language

The following is the list of software requirements used for development and implementation of the system.

3.2.1. a Programming IDE

- Visual Studio - Visual Studio is an integrated development environment (IDE) from Microsoft. It is used for developing consoles, graphical user

interfaces (GUIs), Windows Forms, Web services and Web applications.

3.2.1. b Programming Language

- Java - Java is a high-level, class-based, object-oriented programming language that is used to develop desktop and mobile applications, big data processing, and as well as embedded systems.
- PHP - PHP is a widely used open-source general-purpose scripting language that is especially suited for web development and can be embedded into HTML.

3.2.2 Frameworks/ Technologies

- Bootstrap 5 – Bootstrap 5 is a feature-packed frontend toolkit which is the most popular HTML, CSS, and JavaScript framework for creating responsive, mobile-first websites.
- jQuery - jQuery is a JavaScript library designed to simplify HTML DOM tree traversal and manipulation, as well as event handling, CSS animation, and Ajax.
- JavaScript - JavaScript is a programming language commonly used in web development. JavaScript is a programming language that is one of the core technologies of the World Wide Web, alongside HTML and CSS.

3.3 Hardware Requirements

The following are the hardware requirements for users accessing the web-based Crime Awareness Hub platform:

- Computer/Processor: Any modern computer or laptop
- Memory/RAM: Minimum 2GB RAM
- Hard Disk: Sufficient storage space for web browser and temporary files
- Computer Speed: Any modern processor with a speed of 2.0GHz or above
- Operating System: Windows 8 or above, macOS, or Linux
- Web Browser: Latest version of Google Chrome, Mozilla Firefox, Safari, or Microsoft Edge

3.3.1 Hardware requirements for user (web-based/mobile):

- Mobile Device: Android or iOS smartphone or tablet
- Operating System: Android 6.0 (Marshmallow) or later, iOS 10 or later
- Processor: Minimum 1.5 GHz quad-core processor
- Memory/RAM: Minimum 2GB RAM
- Storage: Sufficient storage space for app installation
- Display: Minimum screen resolution of 720x1280 pixels
- Internet Connection (Wi-Fi/Mobile Data)

CHAPTER IV

DESIGN AND METHODOLOGY

4.1 Introduction

The Crime Awareness Hub is an innovative solution aimed at enhancing crime reporting and mapping in the community. The system serves as technical support, providing reporting mechanisms, aiding and reducing crimes, and maintaining public safety.

Choosing an appropriate software development model is crucial for this project's success. It must align with the Crime Awareness Hub System's objectives and requirements. Among available models, Scrum is ideal. It prioritizes iterative, incremental development. Frequent collaboration between developers and stakeholders is encouraged, ensuring changing requirements are adapted to. This dynamic approach perfectly suits the Crime Awareness Hub System's nature, allowing flexibility and continuous improvement during development.

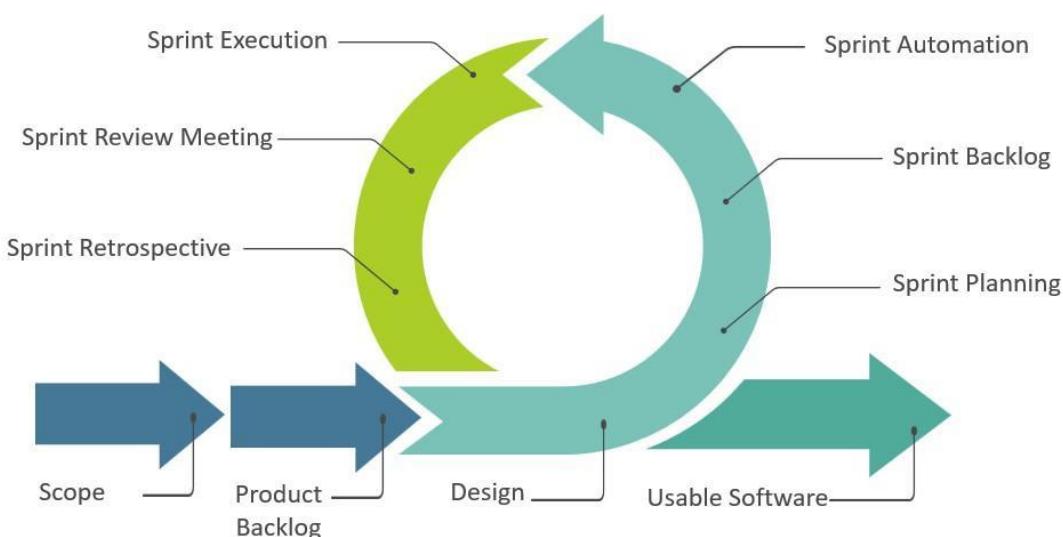


Figure 2 Scrum Methodology

4.2 Requirement Analysis

The requirement analysis phase plays a vital role in the development of the system. Its primary objective is to gather and analyze all essential requirements needed for successfully implementing this web application. The project team carries out thorough research, identifies user needs, and establishes the functionalities and features that will be included within the system. This comprehensive study involves examining existing crime mapping and reporting systems, comprehending user expectations, as well as acknowledging specific demands from our target audience. All acquired information serves as a basis for designing how the system functions alongside its use cases; ensuring it caters to users' necessities while facilitating efficient crime mapping procedures through strong support for reporting functionality.

4.2.1 Flow Chart

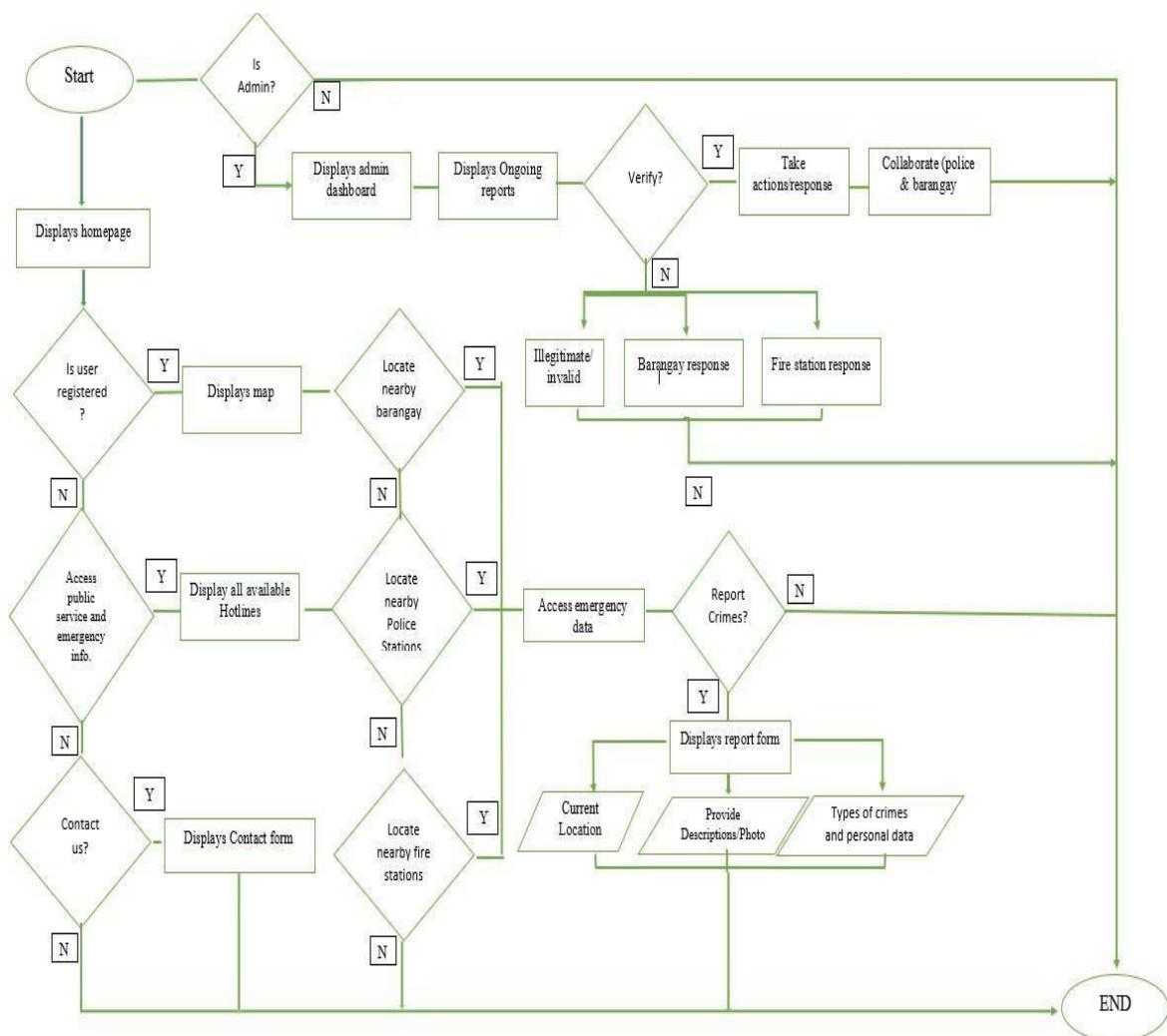


Figure 3 Flow Chart

4.2.2 Use Case Diagram

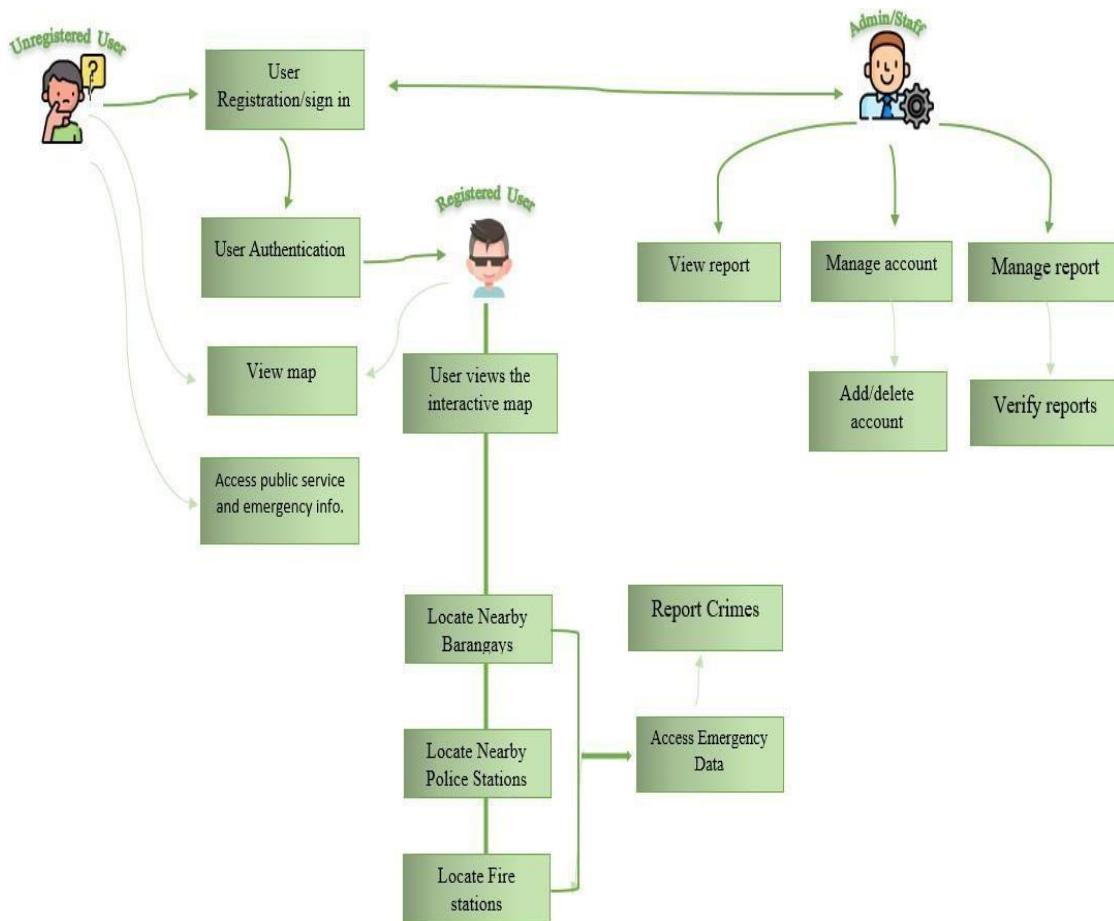


Figure 4 Use Case Diagram

4.3 Requirements Documentation

The requirements documentation outlines the purpose, goals, project scope, success criteria, user characteristics, and specific requirements for the Crime Awareness Hub system.

4.3.1 Purpose

The Crime Awareness Hub System is a comprehensive tool that combines easy crime reporting and real-time location services. Users can effortlessly provide directions, track their location, and use an interactive map showing nearby law enforcement agencies and routes. Beyond visuals, the system encourages users to create dynamic reports, explore points of interest, and fosters communication between the community and authorities. With a user-friendly interface, it enhances public safety and empowers users to navigate their local security effectively. In essence, it's a versatile tool promoting community safety and collaboration.

4.3.2 Goals

The goals of the Crime Awareness Hub System are as follows:

- Improve Crime Reporting - Enable users to report crime incidents easily and effectively, ensuring prompt and accurate reporting of crimes within the community.
- Enhance Mapping Capabilities - Provide an interactive map interface that visualizes reported crime incidents, enabling users and authorities to identify crime patterns, hot-spots, and trends.
- Foster Collaboration - Facilitate seamless communication and collaboration between users and authorities to ensure efficient crime response and investigation.

4.3.3 Project Scope

The scope of the Crime Awareness Hub system is defined as follows:

- The system will be accessible through a web-based platform and a mobile-based application, ensuring compatibility with various devices and operating systems.
- Users will have the ability to register accounts, log in, and report crime incidents through the provided reporting form.
- Users will be able to view the mapped crime emergency service details, and access detailed information about each reported incident.
- Authorities and law enforcement agencies will have access to an admin panel to manage and respond to reported incidents, track their status, and communicate with users if required.

4.3.4 Success Criteria

The success of the Crime Awareness Hub system will be evaluated based on the following criteria:

User Engagement - A significant increase in the number of reported incidents by users, indicating the system's effectiveness in encouraging public participation in crime reporting.

Crime Mapping Accuracy - Evidenced by users effortlessly locating, tracking, navigating routes, and conducting efficient searches on the map, showcasing the system's proficiency in providing an accurate and user-friendly mapping experience.

Timely Response - Authorities exhibit prompt responses and actions following reported incidents, ensuring timely implementation of measures to address and manage reported crimes effectively.

User Satisfaction - Positive user feedback and satisfaction, serving as indicators that the system is user-friendly, efficient, and aligns with user expectations, particularly in terms of reporting capabilities and map visualization. This metric reflects the overall success of the Crime Awareness Hub in meeting user needs and enhancing community safety.

4.3.4 User Characteristics

The Crime Awareness Hub caters to the following user categories:

General Public

Citizens of the community who can register accounts, report crime incidents, and access the mapped crime data.

Law Enforcement Agencies

Authorized personnel who have access to the admin panel, can review and manage reported incidents, communicate with users, and take necessary actions.

System Administrators

Individuals responsible for maintaining the system, managing user accounts, ensuring data privacy, and addressing technical issues.

4.3.5 Mandated Constraints

The following constraints are mandated for the Crime Awareness Hub system:

- Compliance with relevant data protection and privacy regulations to ensure the security and confidentiality of user data.
- Integration with reliable geolocation services and mapping APIs to accurately plot incident locations on the map.
- Accessibility compliance, ensuring that the system is usable and accessible for individuals with disabilities.
- Integration with emergency service provider where the system must be able to integrate with emergency service providers, such as police departments, fire stations, and medical response teams.

4.3.6 Functional Requirements

Table 1 Functional Requirements

Requirement #1

Description:	Users should be able to create an account to access the Crime Awareness Hub.
Rationale:	To ensure that only authorized users can report crimes and access the system's features.
Fit criterion:	The system shall provide a user registration functionality where users can create an account with a unique and secured username and password.
Originator:	Project Team

Requirement #2

Description:	Users should be able to report crimes through the system.
Rationale:	To enable users to submit information about crimes they witness or experience.
Fit	The system shall provide a crime reporting form where users can enter

criterio n: details such as the type of crime, location, description, and any supporting evidence.

Origin ator: Project Team

Requirement #3

Description:	Users should be able to view a map displaying nearby locations of police stations
Rationale:	To keep users informed about the nearby police stations allowing them to allocate and report it either in person or through online.
Fit criterion:	The system shall display an interactive map that shows the location markers f, allowing users to click on markers for more details.
Originator:	Project Team

Requirement #4

Description:	The system should allow authorities to receive and process crime reports.
Rationale:	To facilitate the handling and investigation of reported crimes by the appropriate authorities.
Fit criterion:	The system shall provide an interface for authorized personnel to view and manage incoming crime reports, assign them to relevant departments, and track their progress.
Originator:	Project Team

Requirement #5

Description:	This module allows admins to search other user accounts.
Rationale:	Allows admins search an account in the system.
Fit criterion:	Admins shall be able to search the list of all user's account.
Originator:	Project Team

Requirement #6

Description:	Admins and users shall be able to search across the admin dashboard using search bar.
Rationale:	To allow them to quickly find what they are looking for.

Fit criterion:	Admin users must be able to input in the search bar.
Originator:	Project Team

Requirement #7

Description:	The system should enable users to upload supporting evidence, such as photos or descriptions, when reporting a crime.
Rationale:	To provide additional information and evidence for accurate crime reporting and investigation.
Fit criterion:	The system shall allow users to attach and upload files or photos as part of their crime report submission.
Originator:	Project Team

Requirement #8

Description:	This module allows to delete reports, accounts on the admin side.
Rationale:	Allows for deletion of unwanted, solved reports, and unused accounts.
Fit criterion:	Admins shall be able to delete.
Originator:	Project Team

Requirement #9

Description:	Users and admins shall be able to change their username and password.
Rationale:	To protect their private data.
Fit criterion:	Users and admins users shall be able to input in edit username and password.
Originator:	Project Team

Requirement #10

Description:	The system should support geolocation features to accurately capture and display crime locations.
Rationale:	To provide precise mapping and visualization of crime incidents.

Fit criterion:	The system shall integrate with geolocation services or APIs to capture and display accurate crime locations on the map.
Originator:	Project Team

Requirement #11

Description:	The system should provide a feature to locate nearby barangays and fire stations.
Rationale:	To assist users in finding the nearest barangays and fire stations for immediate help during emergencies.
Fit criterion:	The system shall integrate with mapping services or databases to display the locations of nearby barangays and fire stations based on the user's current location or specified area.
Originator:	Project Team

Requirement #12

Description:	The system should include a verification method for reported crimes.
Rationale:	To ensure the accuracy and credibility of reported crimes.
Fit criterion:	The system shall implement a verification process where reported crimes are reviewed and validated by authorized personnel before being considered as official records.
Originator:	Project Team

Requirement #13

Description:	The system should include an account verification process for user accounts.
Rationale:	To ensure the authenticity and validity of user accounts and prevent unauthorized access.
Fit criterion:	The system shall require users to verify their email address during the registration process by sending a verification code or link.
Originator:	Project Team

Requirement #14

Description:	The system should allow users to share their current location when reporting a crime.
Rationale:	To provide accurate location information for crime incidents.
Fit criterion:	The system shall include a feature that allows users to share their current location, either automatically through GPS or manually entered.
Originator:	Project Team

4.3.7 Non-Functional Requirements

Look and Feel Requirements:

- Appearance Requirements:
 - The system should have a visually appealing and intuitive interface.
 - The layout and design should be user-friendly and easy to navigate.
 - Clear and concise labeling of buttons, forms, and elements should be implemented.

- Style Requirements:
 - The system's design should align with the preferences and needs of the target users.
 - Consistent color schemes should be used across all pages.
 - The system should be responsive and provide a seamless user experience across different devices.

Usability and Humanity Requirements:

- Ease of Use Requirements:
 - The system should be easy to navigate and use for users with varying technical expertise.

- Personalization and Internationalization Requirements:
 - The system should support customization options to meet the diverse needs and preferences of users.

- Learning Requirements:
 - The system should have a low learning curve, allowing new users to quickly understand and utilize its features.
- Understandability and Politeness Requirements:
 - The system should use plain language and avoid technical jargon to ensure clear communication with all users.
 - Interactions and messages should be polite, respectful, and culturally sensitive.
- Accessibility Requirements:
 - The system should be accessible to users with disabilities or impairments, complying with accessibility guidelines and standards.

Performance Requirements:

- Speed and Latency Requirements:
 - Pages and content should load efficiently and without significant waiting times.
- Safety-Critical Requirements:
 - The system should ensure the safety and integrity of critical data, preventing loss or corruption in the event of power outages or system failures.
- Precision or Accuracy Requirements:
 - The system should maintain accurate and precise data and content throughout its life-cycle.
- Reliability and Availability Requirements:
 - The system should be reliable and available to users consistently, minimizing downtime for maintenance or updates.
- Robustness or Fault-Tolerance Requirements:
 - The system should be resilient to errors and faults, capable of recovering without data loss or disruption to user activities.
- Capacity Requirements:

- The system should have sufficient capacity to store and manage large volumes of data and content.
- Scalability and Extensibility Requirements:
 - The system should be scalable, capable of handling increased user load and accommodating future growth and expansion.
- Longevity Requirements:
 - The system should have a long lifespan and be adaptable to meet the evolving needs of users over time.

Operational and Environmental Requirements:

- Expected Physical Environment:
 - The system should be compatible with popular web browsers, ensuring cross-browser compatibility.
 - The system should be responsive and accessible across different devices, including desktops, tablets, and mobile devices.
- Productization Requirements:
 - The system should be designed to meet the needs and expectations of users and stakeholders.

Maintainability and Support Requirements:

- Maintenance Requirements:
 - The system should be easily maintainable, with clear documentation and guidelines provided to assist administrators and developers.
- Supportability Requirements:
 - The system should provide user support and assistance resources to address any issues or problems users may encounter.

Security Requirements:

- Access Requirements:

- The system should have robust access controls, ensuring that only authorized users can access data and content.
 - Secure authentication mechanisms, such as usernames and passwords, should be implemented.
 - User login data should be securely stored and managed.
- Integrity Requirements:
- The system should maintain the integrity and consistency of data throughout its lifecycle, preventing unauthorized modifications or tampering.
- Privacy Requirements:
- The system should handle personal data in compliance with applicable privacy laws and regulations.

Cultural Requirements:

- The system should be designed with sensitivity to cultural differences and diverse perspectives.
- It should not contain any discriminatory language or content.

Legal Requirements:

- The system should comply with relevant data privacy and protection laws and regulations.
- It should also comply with intellectual property laws and regulations.

4.4 Design Software System, Product

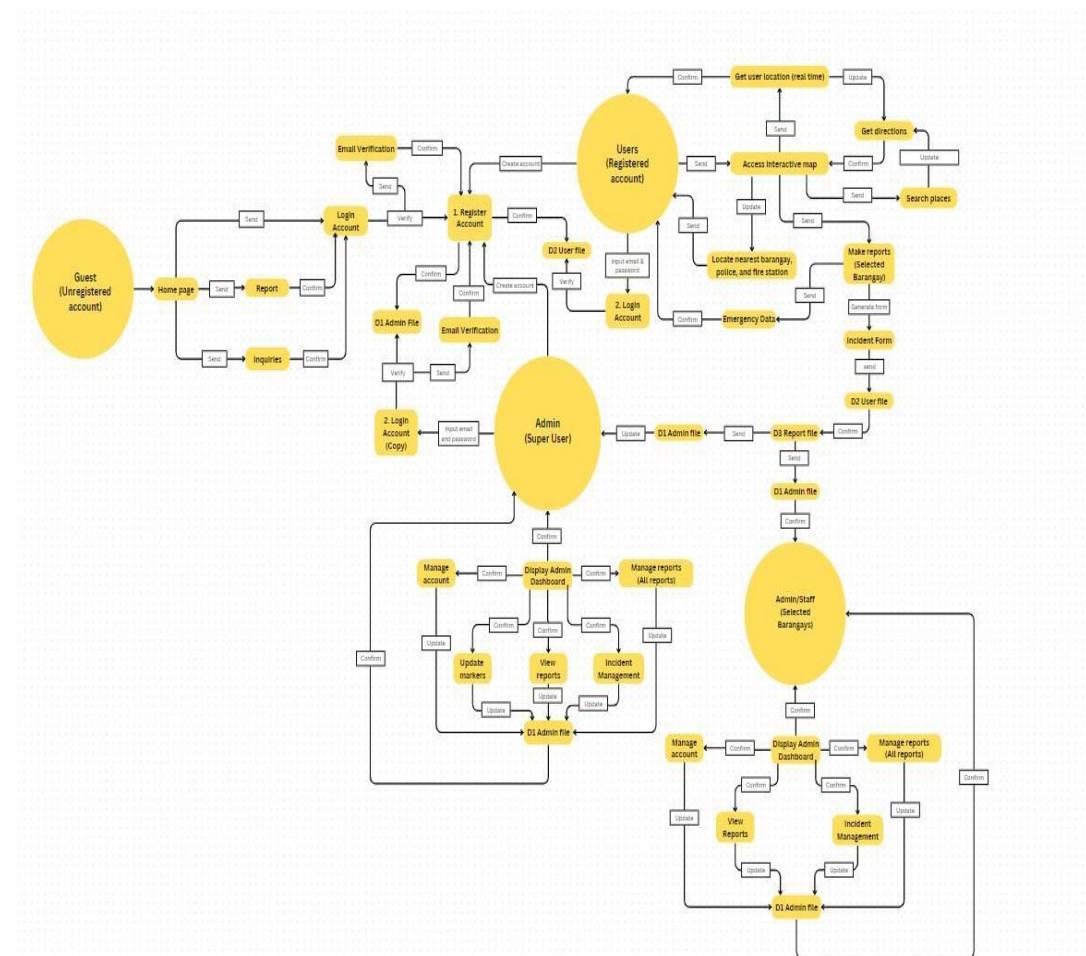
4.4.1 Design Software

4.4.1.1 Data Flow Diagram (DFD)

a. Level 0 – Context Diagram



a. Data Flow Diagram (Level 1)



4.4.2 Interface Application

The design of the Interface Application for the Crime Awareness Hub System aims to deliver a smooth and user-friendly experience. It encompasses several essential components, which are as follows:

4.4.2.1 System Features

- Login Page
- Registration Page
- Reporting Form
- Mapping Functionality
- Incident Details(admin/staff)
- System Features
- Authentication and Authorization
- Incident Management

- User Management
- Alternate Routes
- SMS and Email Notification
- Email Verification
- Geo tagging
- Reverse Geo tagging
- Location Real-time Current Location
- Geo location
- Address Auto-complete
- Directions
- Street View
- Markers and Info Windows
- Distance Matrix
- Heat maps
- Custom Styling
- Share Experience hub Geo-Reporting form

4.4.2.2 Algorithms

The Crime Awareness Hub may utilize various algorithms to enhance its functionality and performance. Some algorithms that can be implemented include:

- Geolocation Algorithm

To accurately plot incident locations on the map, the system may employ geolocation algorithms that leverage latitude and longitude coordinates and map projection techniques. These algorithms help translate location data into visual representations on the map.

- Routing Algorithm

When users search for nearby police stations, fire stations, or barangays, a routing algorithm can be utilized to determine the optimal routes from the user's current location to the desired destination. This algorithm considers factors such as distance, traffic conditions, and shortest path calculations.

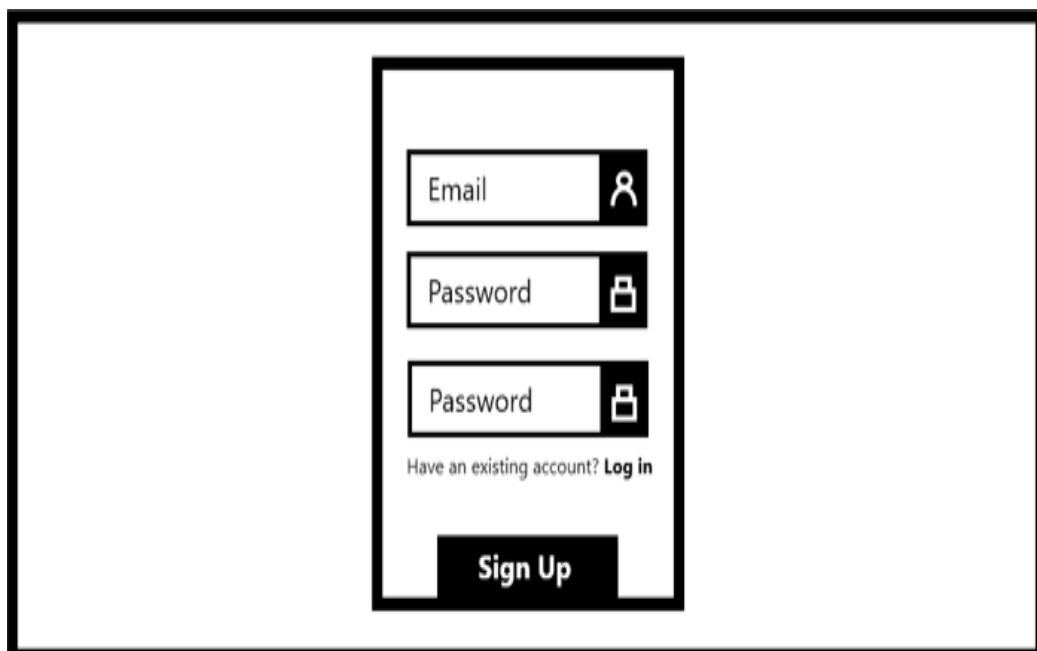
- Authentication Algorithm

The system employs encryption and hashing algorithms to secure user authentication data, such as passwords. These algorithms help protect sensitive information and ensure secure user authentication processes.

- Prediction of Nearest to Farthest Stations Algorithm

It is a system process designed to determine and display emergency information stations, such as police stations, fire stations, or barangays, in order of distance proximity from the user's current location. Leveraging geospatial data and distance calculations, this algorithm evaluates the spatial coordinates of various stations in relation to the user's location. Additionally, it empowers users to submit reports starting from the closest to the farthest located stations.

4.4.2.3 Storyboard



The image shows a login interface. At the top is a large input field labeled "Username" with a user icon. Below it is another input field labeled "Password" with a lock icon. Underneath these fields is a link that says "No account yet? [Sign up.](#)". At the bottom is a large, prominent "LOGIN" button.

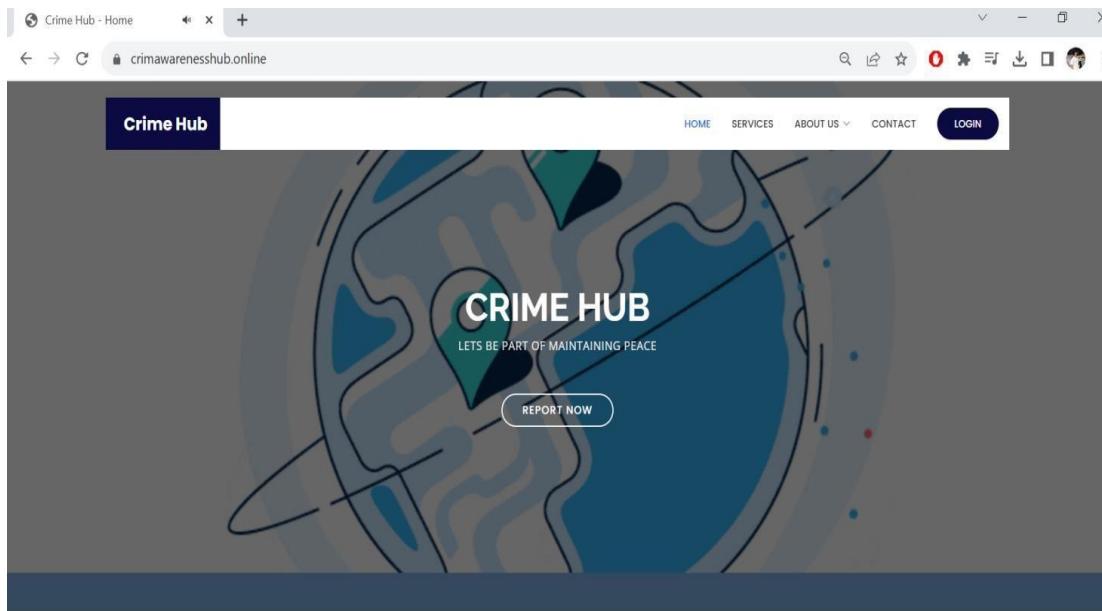
The image shows a crime reporting interface. On the left, there is a map of Zamboanga City with a large exclamation mark icon. Overlaid on the map are the words "Crime Alert" and a "REPORT" button. Below the map, there are fields for "Barangay:" and "Landmark:". To the right of the map is a "REPORT FORM" section containing five input fields: "Reportee", "Number", "Crime Location", "Report To (Barangay)", and "Name the possible Crime". At the bottom right of the form is a large "SUBMIT REPORT" button.

CHAPTER V

DEVELOPMENT AND TESTING

5.1 Description of Prototype

Guest Users - Homepage



YOUR SAFETY OUR

At Crime Hub, we are dedicated to providing you with the tools you need to stay safe and secure. Our mission is to reduce crime and create a safer community for everyone.

Guest Users - About Us Page

YOUR SAFETY, OUR COMMITMENT

Welcome to CRIME AWARENESS HUB, the Trusted Crime Reporting and Safety System

At Crime Hub, we are dedicated to providing you with the tools you need to stay safe and secure. Our mission is to reduce crime and create a safer community for everyone.

- ✓ Easily locate the nearest safety stations
- ✓ Report incidents and concerns with just a few clicks
- ✓ Collaborate with your community through our crime mapping feature
- ✓ 24/7 support and assistance for your peace of mind

Join us in building a safer world. Together, we can make a difference in your community and beyond.

Your Trusted Community Partner

Crime Hub is not just a platform; we are your dedicated partner in creating a safer, more secure community. We invite you to choose us for these compelling reasons:

Transparent Reporting

We ensure clear and honest reporting for every incident. Your voice matters, and we're here to listen.

Rapid Response

Our dedicated team is committed to swift responses, ensuring your reports lead to timely actions and solutions.

Community Empowerment

We believe in the power of community. Together, we can create a safer and more secure environment for all.

Guest Users - About Us Page

Your Trusted Community Partner

Crime Hub is not just a platform; we are your dedicated partner in creating a safer, more secure community. We invite you to choose us for these compelling reasons:

Transparent Reporting

We ensure clear and honest reporting for every incident. Your voice matters, and we're here to listen.

Rapid Response

Our dedicated team is committed to swift responses, ensuring your reports lead to timely actions and solutions.

Community Empowerment

We believe in the power of community. Together, we can create a safer and more secure environment for all.

Your Voice Matters

At Crime Awareness HUB, we believe in the power of your voice. Your safety and the well-being of your community are our top priorities. If you've witnessed or experienced any incident, don't hesitate to report it. Together, we can make a difference and create a safer environment for everyone.

REPORT NOW

Guest Users - Services

SERVICES

Explore the range of services we offer to enhance your experience.

Mapping Locator

Locate nearest places like barangays, fire stations, and police stations with ease.

Crime Reporting

Report crimes to the nearest located stations for a safer community.

Nearby Stations

Discover nearby stations based on your current location for added convenience.

Route Directions

Get detailed route directions from your current location to your destination with additional search capabilities.

Guest Users - Team

https://crimawarnesshub.online/index.php#testimonials

Guest Users - Developers

DEVELOPERS

We are a team of dedicated developers from the Western Mindanao State University, specializing in Computer Science at the Institute of Computer Studies. As fourth-year students, we are passionate about technology and eager to embark on our professional journeys. Our goal is to make a meaningful impact in the tech industry by applying our knowledge and skills to create innovative solutions. Get to know us better and explore.

Faizer Habibon
Full Stack Developer
WESTERN MINDANAO STATE UNIVERSITY
[Twitter](#) [Facebook](#) [Instagram](#)

Marldrey Bernardo
Quality Assurance Engr.
WESTERN MINDANAO STATE UNIVERSITY
[Twitter](#) [Facebook](#) [Instagram](#)

Guest Users - Contact

Crime Hub

HOME SERVICES ABOUT US CONTACT LOGIN

CONTACT US

Have a question or need assistance? Feel free to get in touch with us. We're here to help you. Whether it's a general inquiry, support request, or just to say hello, we'd love to hear from you.



Location:
Baliwasan Rd

Email:
crimehub@gmail.com

Call:
143

Your Name _____ Your Email _____

Guest Users - Contact (with footer part)

Crime Hub

HOME SERVICES ABOUT US CONTACT LOGIN

Phone _____

Subject _____

Message _____

Send Message

Crime Hub

Baliwasan RD.
1234590
7000

Phone: 143
Email: crimehub@gmail.com

Useful Links

- > Home
- > About us
- > Services

Our Services

- > Crime Reporting
- > Mapping locator
- > Nearby Stations
- > Route Directions

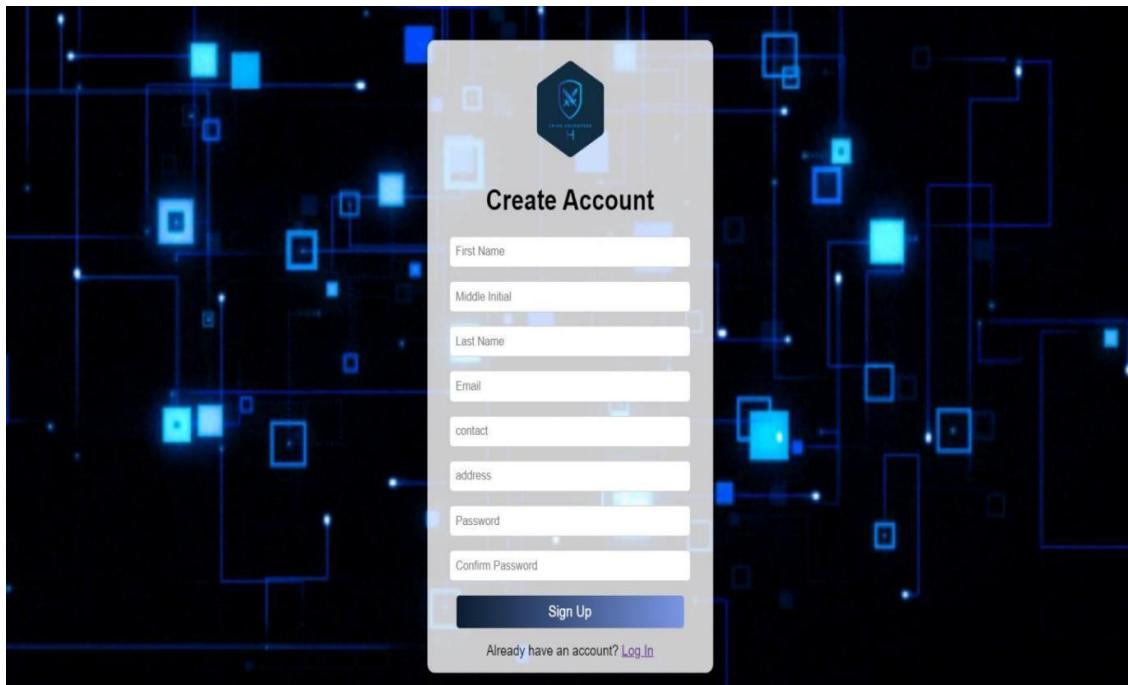
Our Social Links

Twitter icon | Facebook icon | Instagram icon

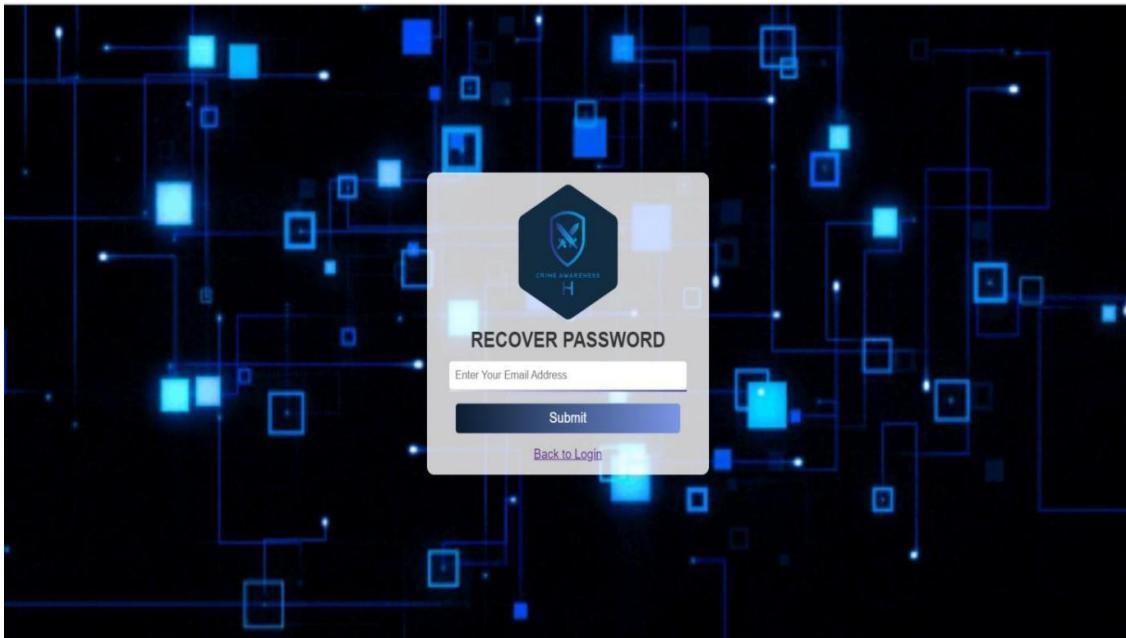
Login Page



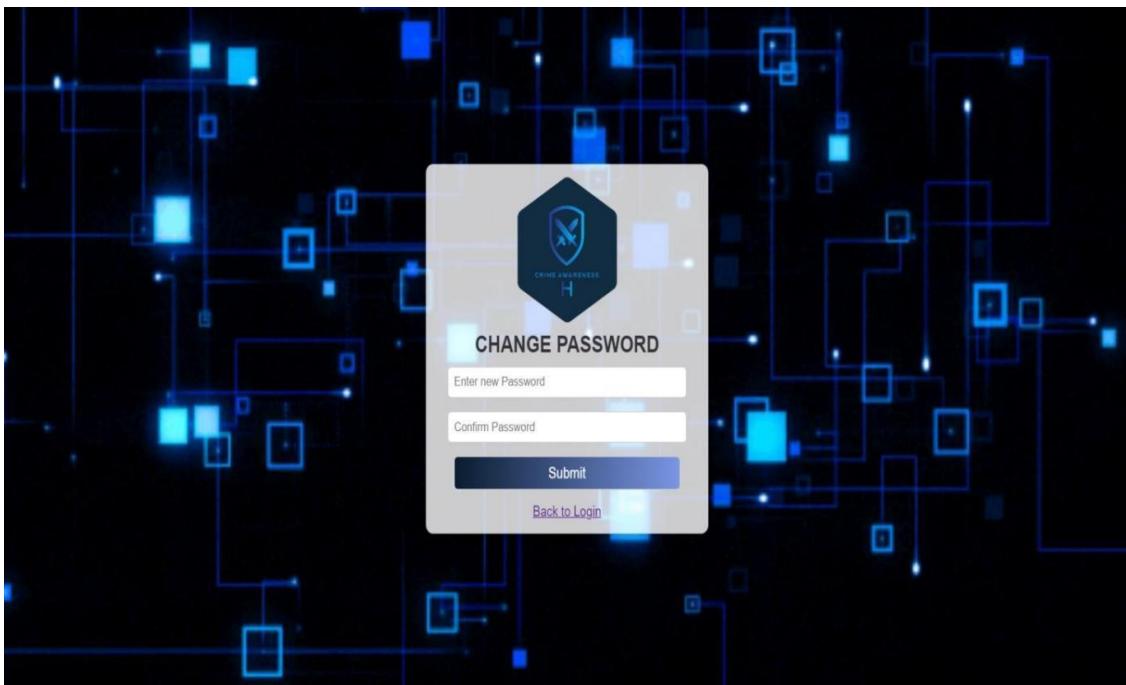
Sign Up Page



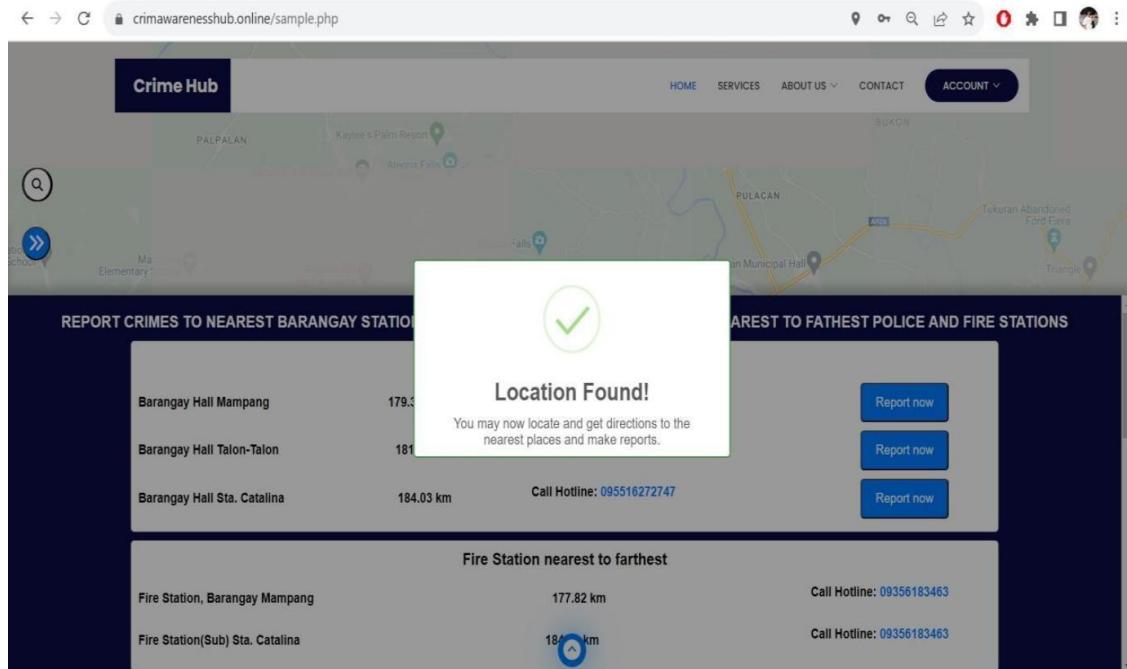
Forgot Password Page



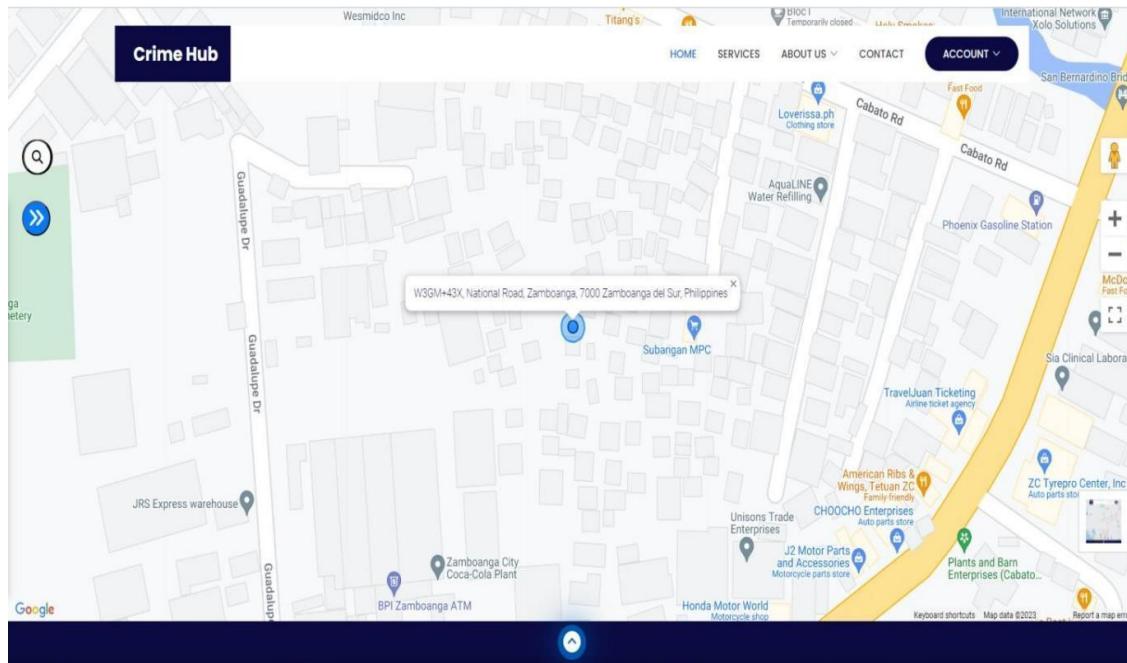
Change Password Page



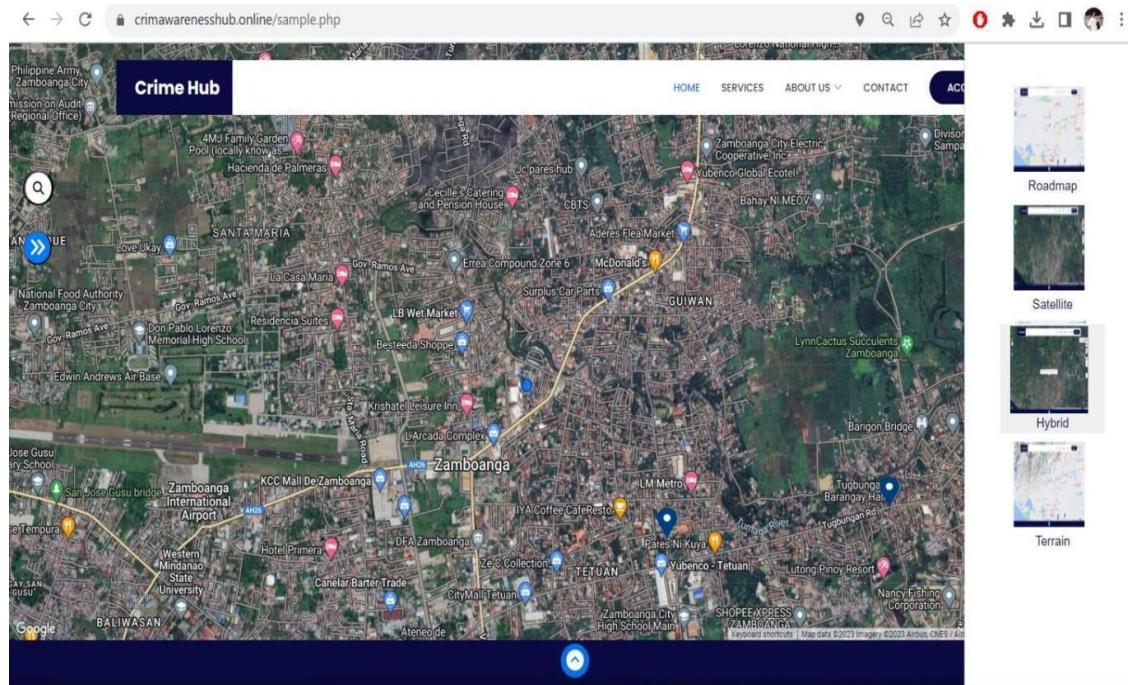
Logged-in Landing Page



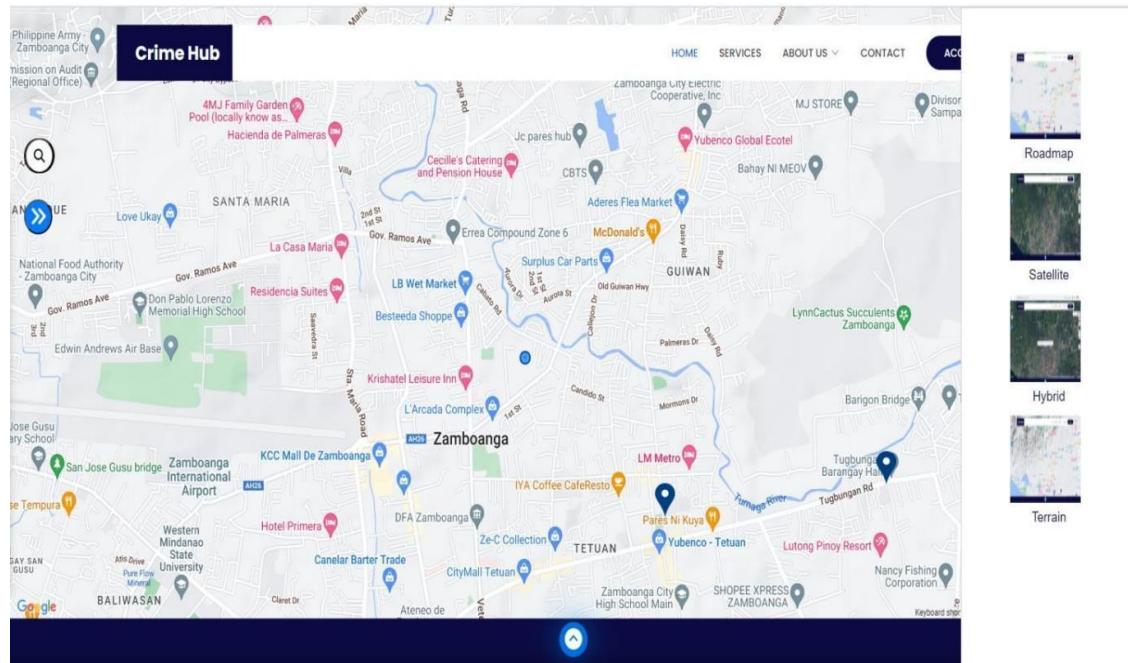
User Logged-in - Locates Real-Time Current Location



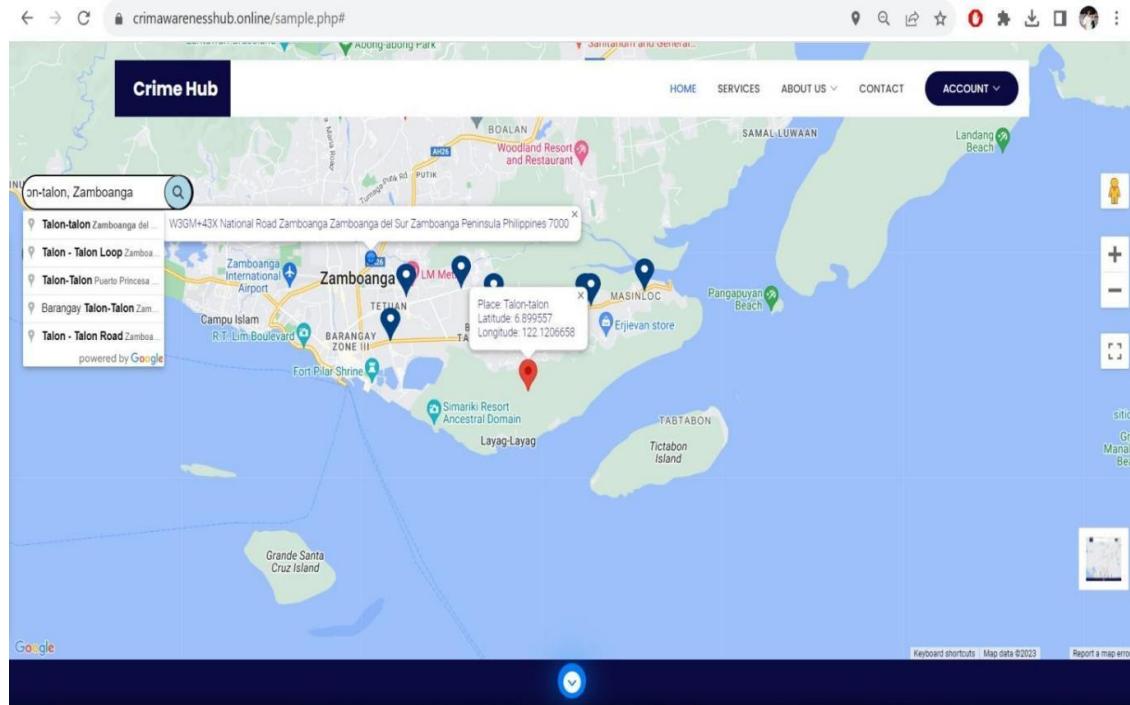
User Logged-in - Map Styles (Hybrid)



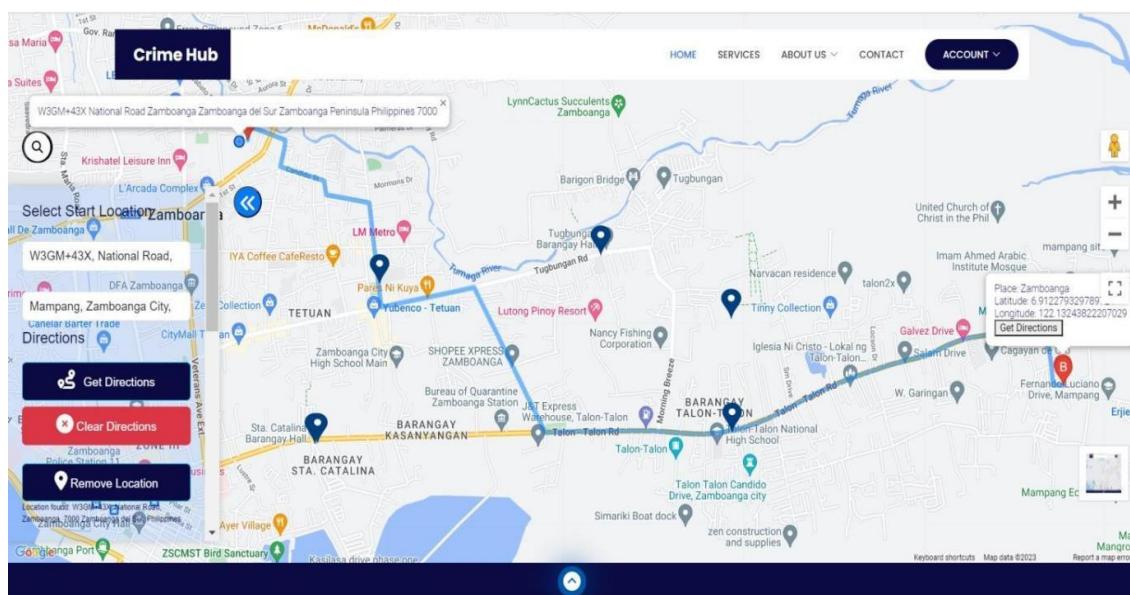
User Logged-in - Map Styles (Road-map)



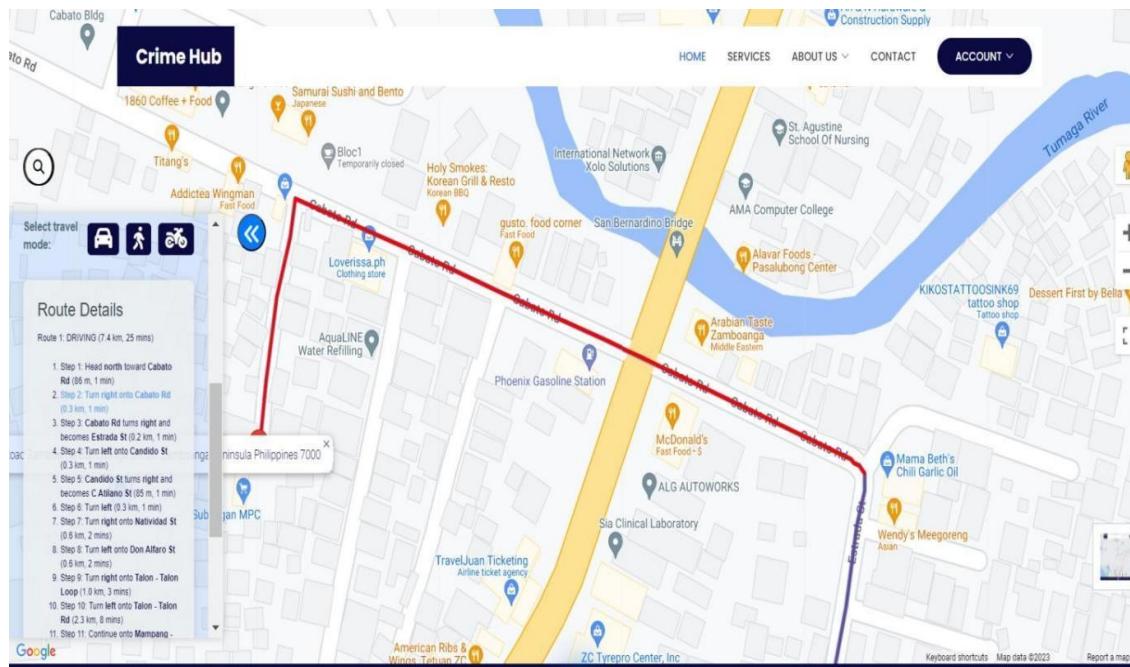
User Logged-in - Search bar



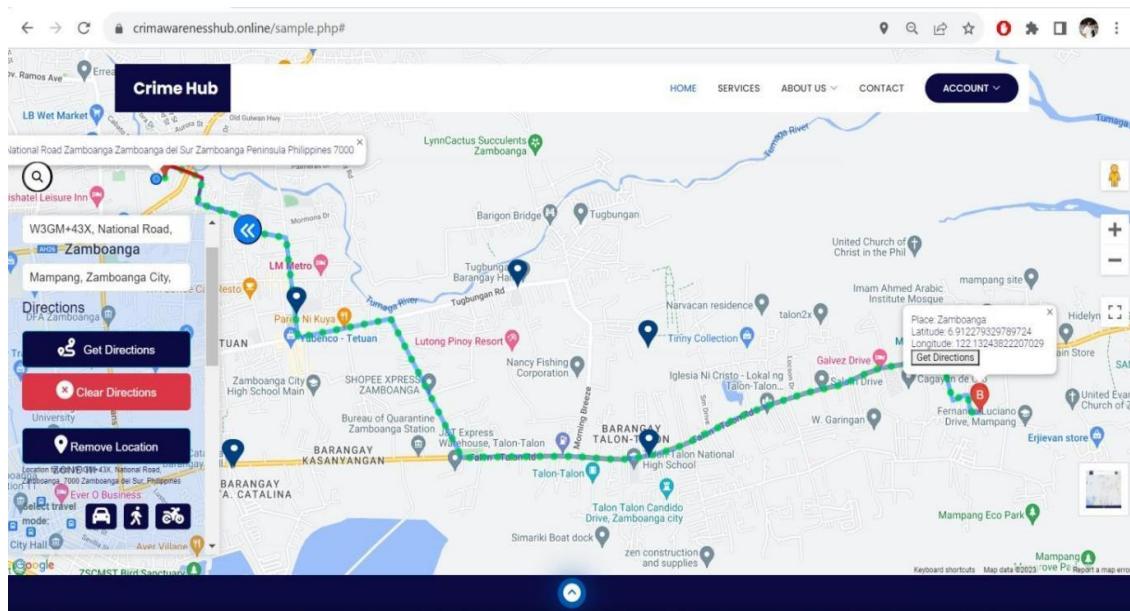
User Logged-in - Sidebar (Get directions)



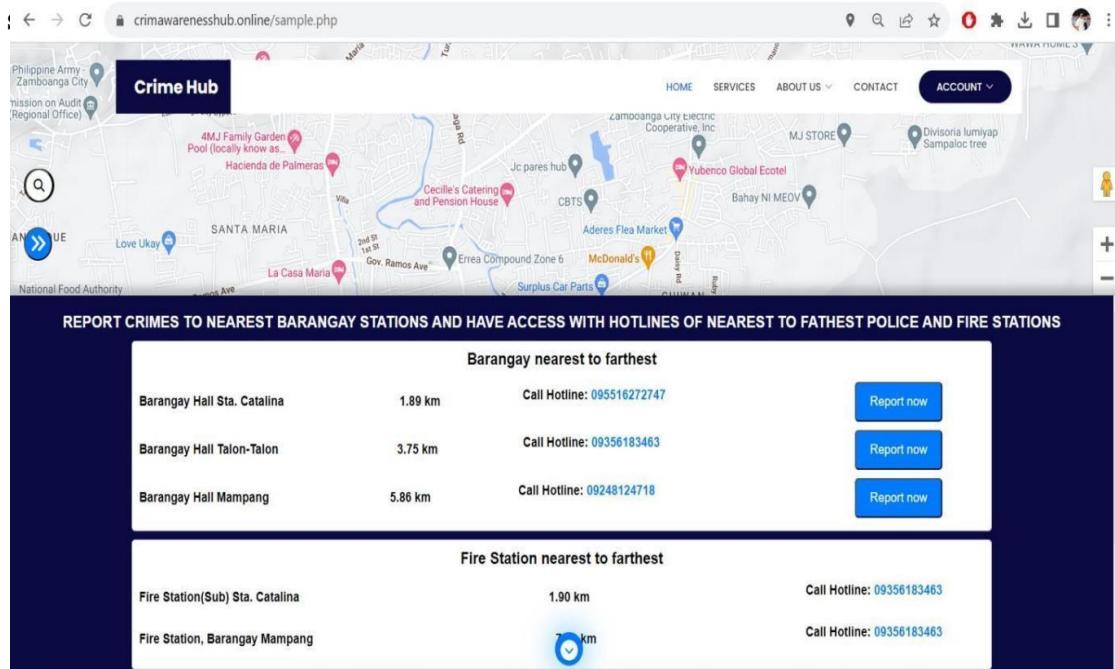
User Logged-in - Step by Step



User Logged-in - Mode Travel (Walking)



User Logged-in - Upbar (Predictions and Reporting)

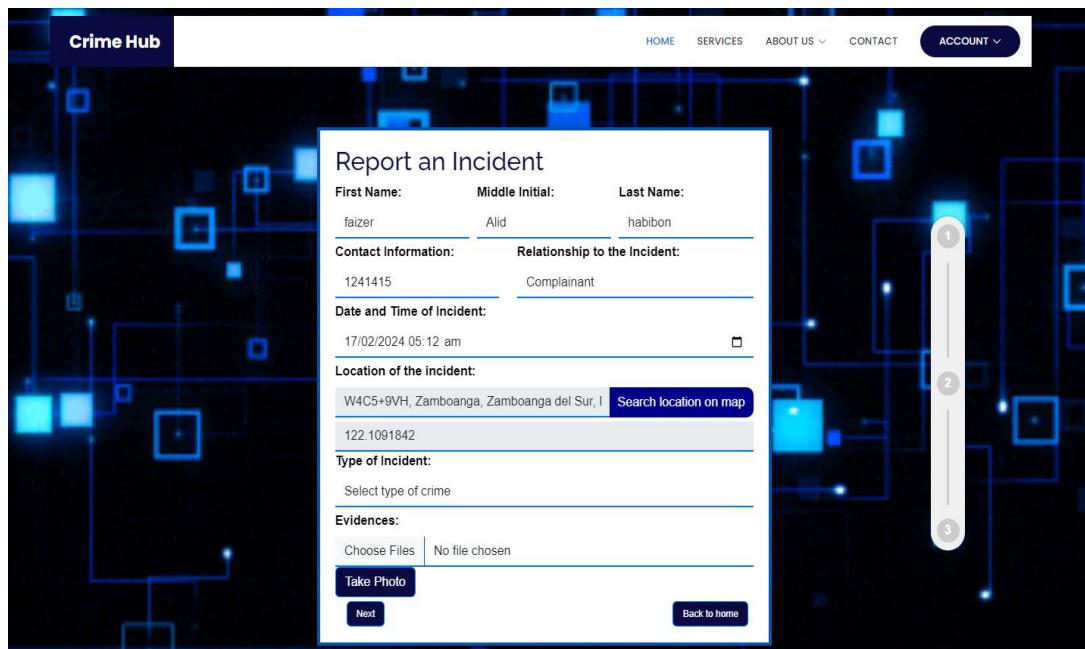


The screenshot shows a map of Zamboanga City with various locations marked. Overlaid on the map is a "Crime Hub" interface. At the top, there's a navigation bar with links for HOME, SERVICES, ABOUT US, CONTACT, and ACCOUNT. Below the map, a section titled "REPORT CRIMES TO NEAREST BARANGAY STATIONS AND HAVE ACCESS WITH HOTLINES OF NEAREST TO FATEST POLICE AND FIRE STATIONS" displays two tables of information:

Barangay nearest to farthest		
Barangay Hall Sta. Catalina	1.89 km	Call Hotline: 095516272747 Report now
Barangay Hall Talon-Talon	3.75 km	Call Hotline: 09356183463 Report now
Barangay Hall Mampang	5.86 km	Call Hotline: 09248124718 Report now

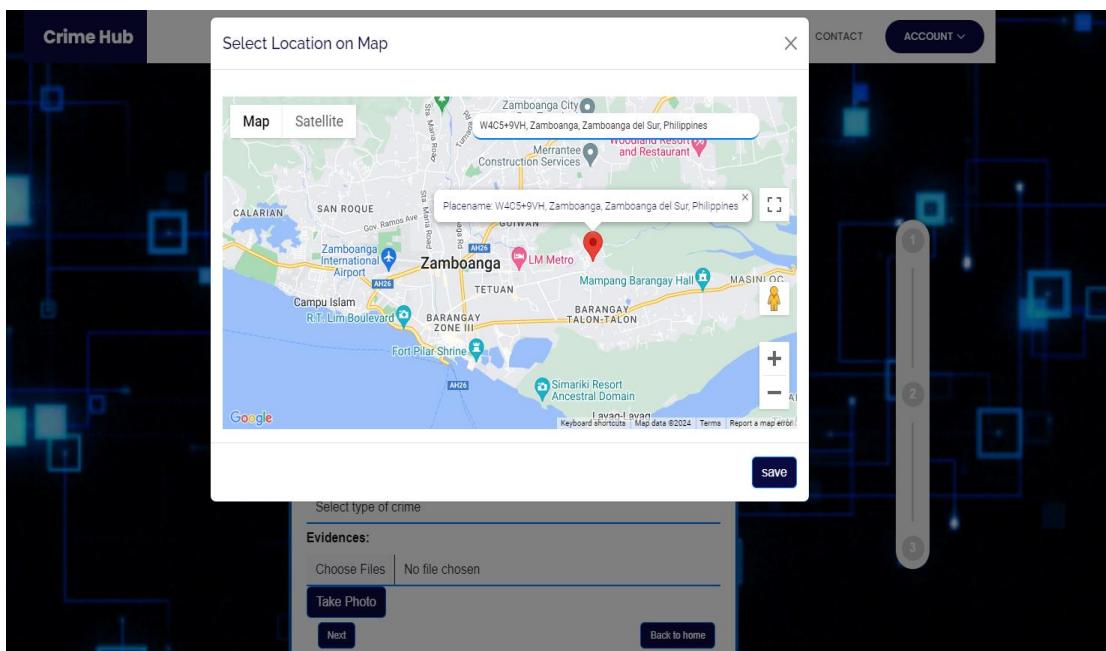
Fire Station nearest to farthest		
Fire Station(Sub) Sta. Catalina	1.90 km	Call Hotline: 09356183463
Fire Station, Barangay Mampang	5.86 km	Call Hotline: 09356183463

User Logged-in - Report Form (First Stage)

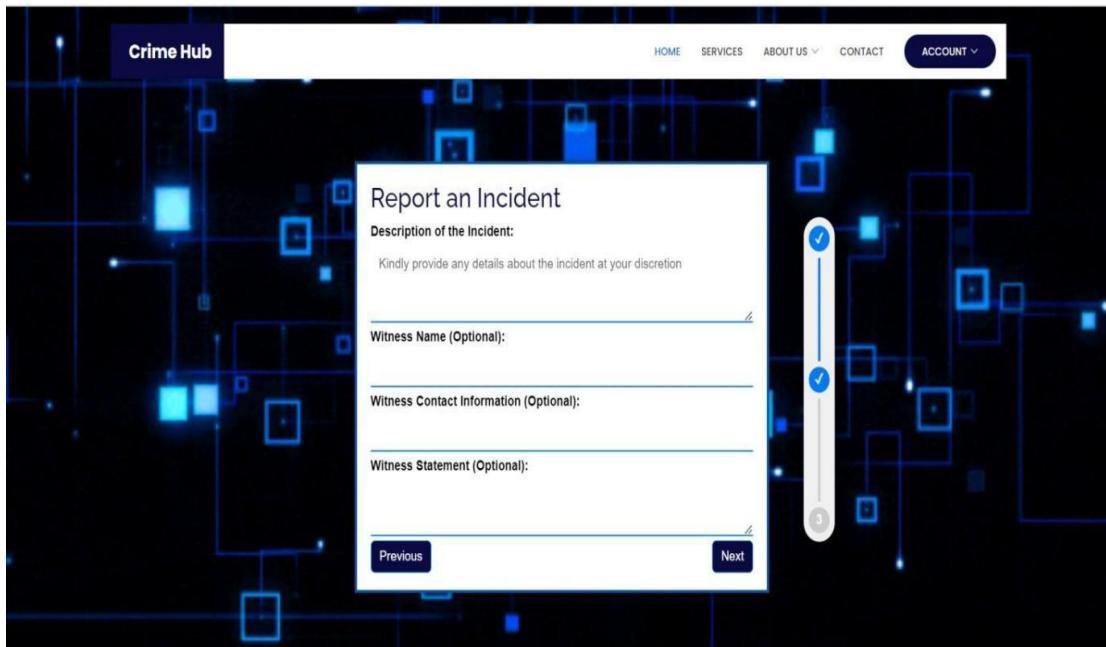


The screenshot shows a "Report an Incident" form overlaid on a dark, futuristic background with glowing blue circuit board patterns. The form fields include:

- First Name: faizer
- Middle Initial: Alid
- Last Name: habibon
- Contact Information: 1241415
- Relationship to the Incident: Complainant
- Date and Time of Incident: 17/02/2024 05:12 am
- Location of the incident: W4C5+9VH, Zamboanga, Zamboanga del Sur, [Search location on map](#)
- Type of Incident: Select type of crime
- Evidences: Choose Files (No file chosen)
- Buttons: Take Photo, Next, Back to home



User Logged-in - Report Form (Second Stage)



User Logged-in - Report Form (Third Stage)

Report an Incident

Indicate if authorities (police, fire department) have been contacted (Optional):

Select an Option

Crime Level:

Low (Minor Incidents)

Safety Concerns (Optional):

Share any safety concerns here (optional)

Preferred Language/Dialect (Optional):

Your prefer dialect

Previous Submit Report

User Logged-in - Receipt Page

Report Receipt

Report ID:	2
First Name:	faizer
Mi:	Ald
Last Name:	hatibon
Contact:	09001647860
Relationship:	complainant
Other Relationship Specify:	
Incident Datetime:	2023-10-28 09:32:00
Location:	Barangay Hall Mampang
Incident Type:	drug_related
Incident Type Specify:	
Authorities Contacted:	yes
Severity:	low
Safety Concerns:	hsjhd
Additional Info:	hdndi
Language:	
Witness Name:	
Witness Contact:	
Incident Description:	hsjhd
Witness Statement:	
Barangay Type:	Barangay Hall Mampang

Incident Media:

Status: In Progress

Okay

User Logged-in - Status Report Page

The screenshot shows the 'Crime Hub' status report page. It includes sections for 'Your latest Reports', 'Under Investigation Reports', and 'Resolved Reports'. The 'Under Investigation Reports' section displays a single entry:

Report ID	First Name	Last Name	Incident Date	Location	Status
2	faizer	habibon	2023-10-28 09:32:00	Barangay Hall Mampong	In Progress

Showing 1 to 1 of 1 entries.

User Logged-in - Share Experience Geo location form

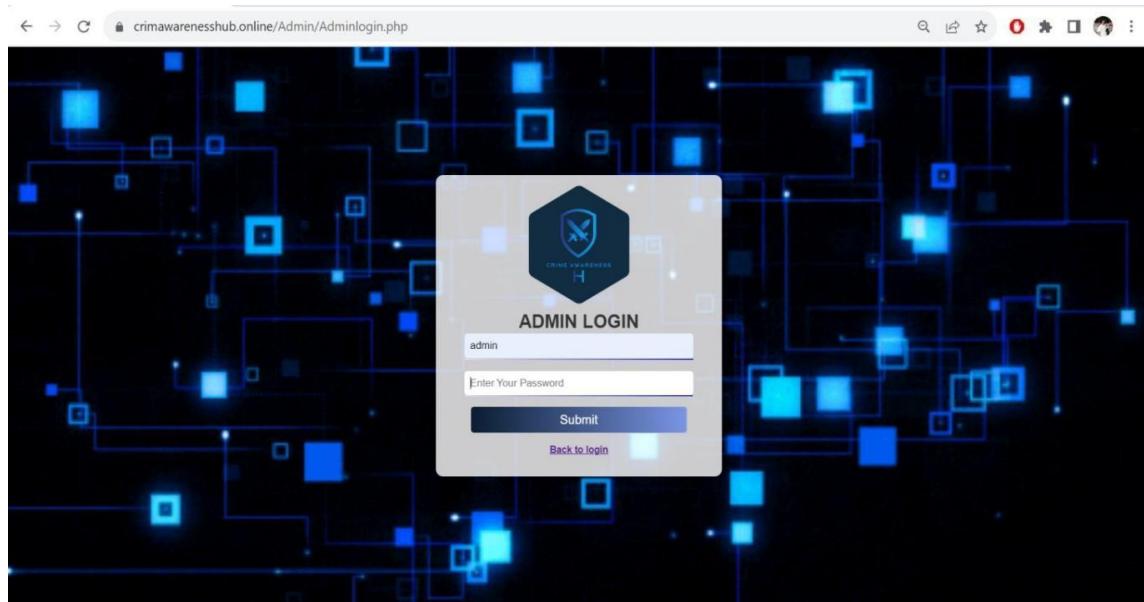
The screenshot shows the 'Add Experience' form overlaid on a map of Zamboanga City. The map includes various landmarks and roads. A callout box on the map indicates an 'Approved Incident' with the following details:

- Username: habibonfaizer6@gmail.com
- Case: burglary
- Description: helo!

The form fields include:

- Username:** Anonymous habibonfaizer6@gmail.com Custom Username
- Crime Location:** A map showing the location of the incident in Zamboanga City.
- Submit Experience** button

Admin Login Page



Admin User Logged-in -Dashboard

#	UserName	Full Name	Status
1	admin	Faizer Habibon	active
2	admin2	zura cute	active
3	admin3		

Admin User Logged-in - Statistics

CRIME HUB

Search

Falizer Habibon ▾

Crime Type Analytics

Incident Crime Type Percentage

harassment noise_complaint theft

PAGES

- Dashboard
- Manage Reports
- Manage Incident Experience
- Manage Heatmap
- Experience Heatmap
- Completed Cases Heatmap
- Manage Inquiries
- Manage Users
- Manage Staffs
- Profile
- Contact
- Register
- Login

Most Common Crime Type (2024)

harassment
33.33% of reported crimes

Monthly Highest Percentage Crime Type (February 2024)

No data available

Past Monthly Highest Percentage Crime Type (January 2024)

harassment
33.33% of reported crimes in January

Past Monthly Highest Percentage Crime Type (December 2023)

assault
33.33% of reported crimes in December

Past Monthly Highest Percentage Crime Type (November 2023)

assault
41.67% of reported crimes in November

Past Monthly Highest Percentage Crime Type (October 2023)

property_damage
100% of reported crimes in October

Manage Staff Members

<localhost/Crimeman/Admin/index.oh#>

CRIME HUB

Report Status

Pending Progress Completed

Reports by Status

Pending 1

PAGES

- Dashboard
- Manage Markers
- Manage Reports
- Manage Inquiries
- Manage Users
- Manage Staffs
- Settings
- Register
- Login

Admin User Logged-in -Manage Markers Page

The screenshot shows a table of markers with the following data:

ID	Latitude	Longitude	Title	Description	Image URL	Created At	Type	Action	Action
8	6.909008906812206	122.086921781301500	Barangay Sta. Catalina	This is Barangay Hall, Sta. Catalina.		2023-11-28 14:42:58	https://www.facebook.com/BLGUMAMPANG	Edit	Delete
11	6.909552109734150	122.112302507717090	Talon-Talon Barangay Hall	This is Barangay Hall, Talon-Talon.		2023-11-28 14:44:47	https://www.facebook.com/pages/Talon-Talon-Barangay-Hall/1296920717117719	Edit	Delete
12	6.915690985518539	122.134408950805660	Mampang Barangay Hall	This is Barangay Hall, Mampang.		2023-11-28 14:45:55	https://www.facebook.com/BLGUMAMPANG	Edit	Delete
13	6.909009239653703	122.087073661386970	Sta. Catalina Sub Fire Station	This is Sub Fire Station, Sta. Catalina.		2023-11-28 14:49:48	https://www.facebook.com/skstacatalina	Edit	Delete
15	6.918649181459553	122.148965283106500	Barangay Mampane	This is Mampane		2023-11-28		Edit	Delete

Admin User Logged-in -Manage Markers Button (Add New Marker)

The screenshot shows a modal window titled "Select Location on Map" with the following fields:

- Latitude *
- Longitude *
- Title *
- Description
- Image Upload
- Choose File
- Facebook Link

The modal contains a map of Zamboanga City, Philippines, with various locations marked. A red dot indicates the selected location. The map includes labels for CALARIAN, SAN ROQUE, GUIWAN, TETUAN, BARANGAY ZONE III, and BARANGAY TALON-TALON. Roads like R.T. Lim Boulevard, Goy Marcos Ave, and Tumaga Park Rd are visible.

Admin User Logged-in -Manage Markers Button (Edit Marker)

The screenshot shows the 'Edit Marker' form. The left sidebar lists various admin pages: Dashboard, Manage Markers, Manage Reports, Manage Inquiries, Manage Users, Manage Staffs, Settings, Register, and Login. The main content area has a title 'Edit Marker' and a sub-instruction 'Update the marker details below.' It contains fields for Latitude (6.909008906812206), Longitude (122.086921781301500), Title (Barangay Sta. Catalina), and Description (This is Barangay Hall, Sta. Catalina). There is also a file input for 'Image' with a note: 'Choose File No file chosen Leave it empty if you don't want to change the image.', a 'FB link' input with the value 'https://www.facebook.com/BLGUMAMPANG', and two buttons at the bottom: 'Update' and 'Back'.

Admin User Logged-in -Manage Markers Button (Delete Marker)

The screenshot shows the 'Manage Markers' page. The left sidebar is identical to the previous screenshot. The main content area displays a table of markers with columns: ID, Latitude, Longitude, Title, Description, Image URL, Created At, Type, and Action (with 'Edit' and 'Delete' buttons). A modal dialog is overlaid on the table, asking 'Are you sure to delete this marker?' with 'Yes, delete!' and 'Cancel' buttons. The table data includes:

ID	Latitude	Longitude	Title	Description	Image URL	Created At	Type	Action	Action
8	6.909008906812206	122.086921781301500				2023-11-28 14:49:48	https://www.facebook.com/BLGUMAMPANG	Edit	Delete
11	6.909552109734150	122.1123023				2023-11-28 14:47:47	https://www.facebook.com/pages/Talon-Talon-Barangay-Hall/1296920717117719	Edit	Delete
12	6.915690985518539	122.1344083				2023-11-28 14:55:55	https://www.facebook.com/BLGUMAMPANG	Edit	Delete
13	6.909009239653703	122.0870731	Sub Fire Station	Station, Sta. Catalina.		2023-11-28 14:49:48	https://www.facebook.com/skstacatalina	Edit	Delete
15	6.918649181459553	122.148965283106500	Barangay Mampang Fire Station	This is Mampang Fire Station		2023-11-28 14:50:26	https://www.facebook.com/2CP56	Edit	Delete
16	6.917592800000000	122.0908579000000000	Tetuan Police Station	This is the Tetuan Police Station		2023-11-28 14:51:11	https://www.facebook.com/2CP56	Edit	Delete
17	6.919169783869794	122.1043320000017170	Tutubanan	This is		2023-11-28 14:51:11	https://www.facebook.com/2CP56	Edit	Delete

Admin User Logged-in -Manage Reports Page

The screenshot shows the 'Manage Incident Reports' page within the CRIME HUB application. The page title is 'Manage Incident Reports' with a subtitle 'Welcome to the Incident Reports section / Modify your Incident Reports'. A search bar labeled 'Search Records' is at the top right. Below is a table with columns: Case No, First Name, Middle Name, Last Name, Contact, Relationship, Other Specify, Incident Datetime, Location, Incident Type, Incident Type Specify, Incident Media, and Authorities Contacted. Two entries are listed:

Case No	First Name	Middle Name	Last Name	Contact	Relationship	Other Specify	Incident Datetime	Location	Incident Type	Incident Type Specify	Incident Media	Authorities Contacted
0002	faizer	Ali	habibon	09061647860	complainant		2023-10-28 09:32:00	Barangay Hall Mampong	drug_related			yes
0001	Maridrey	C.	Bernardo	09659527554	victim		2023-11-30 10:19:00	Barangay Patalon	harassment			no

At the bottom, there are navigation buttons for 'Previous', 'Next', and a search bar.

Admin User Logged-in -Manage Reports Button (View)

The screenshot shows a modal window displaying detailed information about an incident. The modal header says 'Case no: 0002'. The details include:

- First Name: faizer
- Middle Name: Ali
- Last Name: habibon
- Contact: 09061647860
- Relationship: complainant
- Other Relationship Specify:
- Incident Datetime: 2023-10-28 09:32:00
- Incident location: Barangay Hall Mampong
- Incident Type: drug_related
- Incident Type Specify:
- Incident Media:
- Authorities Contacted: yes
- Severity: low
- incident_media: uploads/IMG20231130094426.jpg
- Safety Concerns: hsjhd
- Additional Info:
- Language: hdhd
- Witness Name:
- Witness Contact:
- Incident Description: hsjsjd
- Witness Statement:
- Barangay Type: Barangay Hall Mampong
- Status: In Progress

At the bottom of the modal is an 'Edit' button.

Admin User Logged-in -Manage Reports Button (Edit/Update Report)

The screenshot displays the 'Edit Incident Report' form. The 'Personal Details' section includes fields for First Name (faizer), Middle Initial (A), Last Name (habibon), Contact (09061647860), Relationship (complainant), and Other Relationship Specify. The 'Incident Details' section shows Incident Type (drug-related), Incident Date/Time (28/10/2023 09:32 am), Severity (low), and Incident Description (hsj jd). The 'Witness Section' contains a preview of an incident media file (uploads/IM020231130094426.jpg). The 'Optional Section' includes Authorities Contacted (yes) and Safety Concerns (hsj jd). The 'Status/Remarks Section' shows Status (In Progress) and Remarks (Add your remarks here). At the bottom are 'Save Changes' and 'Cancel' buttons.

Admin User Logged-in -Manage Reports Button (Print Functionality)

The screenshot shows a print dialog box overlaid on a browser window. The browser window displays a table titled 'Manage Incident Reports - Crime Hub'. The table has columns: First Name, Middle Name, Last Name, Contact, Relationship, Other Specify, Incident Date/Time, Location, Incident Type Specify, Incident Media, Authority Contacted, Severity, and Safety Concerns. Two rows of data are shown:

First Name	Middle Name	Last Name	Contact	Relationship	Other Specify	Incident Date/Time	Location	Incident Type Specify	Incident Media	Authority Contacted	Severity	Safety Concerns
faizer	A	habibon	09061647860	complainant		2023-10-28 09:32:00	Barangay Hall Mampong	drug-related		yes	low	hsj jd
Marldrey	C.	Bernardo	0906021764	victim		2023-10-30 09:00:00	Barangay Potulan	harassment		no	low	

The print dialog box has the following settings: Destination (Save as PDF), Pages (All), Layout (Landscape), and a 'More settings' dropdown. At the bottom are 'Save' and 'Cancel' buttons.

Admin User Logged-in -Manage Reports Button (Search Functionality)

Manage Incident Reports

Welcome to the Incident Reports section! / Modify your Incident Reports

Case No	First Name	Middle Name	Last Name	Contact	Relationship	Other Specify	Incident Datetime	Location	Incident Type	Incident Type Specify	Incident Media	Authorities Contacted	Severity	Safety Concerns
0002	faizer	Alid	habibon	09061647860	complainant		2023-10-28 09:32:00	Barangay Hall Mampong	drug-related			yes	low	hejdj

Showing 1 to 1 of 1 entries (filtered from 2 total entries)

Admin User Logged-in -Manage Inquiries Button (Search Functionality)

Manage Contact Section

Inquiries / Manage inquiries and concerns

ID	Name	Email	Subject	Message	Phone	Action
1	habibon	habibonfaizer6@gmail.com	fafa	fafa	09356183463	<button>Delete</button>
2	habibon	habibonfaizer6@gmail.com	ABFKABFKKA	fafa	09356183463	<button>Delete</button>
3	habibon	habibonfaizer6@gmail.com	nothing bat koba kase to sinama	fafa	09356183463	<button>Delete</button>
16	shyniemar	shyniemarh@gmail.com	hello	cute	09356183463	<button>Delete</button>

Admin User Logged-in -Manage Inquiries Button (Delete)

The screenshot shows the CRIME HUB application interface. On the left is a sidebar with navigation links: Dashboard, Manage Markers, Manage Reports, Manage Inquiries, Manage Users, Manage Staffs, Settings, Register, and Login. The main content area is titled "Manage Contact Section" under "Inquiries / Manage inquiries and concerns". It displays a table with columns: ID, Name, Email, Subject, Message, Phone, and Action. There are six rows of data. A modal dialog box is overlaid on the page, containing a large exclamation mark icon, the text "Are you sure to delete this inquiry?", a note "Please confirm your action", and two buttons: "Proceed with deletion" (red) and "Cancel" (blue).

ID	Name	Email	Subject	Message	Phone	Action
1	habibon	habibonfaizer6@gmail.com	fafa	fafa	09356183463	<button>Delete</button>
2	habibon	habibonfaizer6@gmail.com	fafa	fafa	09356183463	<button>Delete</button>
3	habibon	habibonfaizer6@gmail.com	fafa	fafa	09356183463	<button>Delete</button>
16	shyniemar	shyniemarh@gmail.com	cute	cute	09356183463	<button>Delete</button>

Admin User Logged-in -Manage Staffs

The screenshot shows the CRIME HUB application interface. The sidebar includes: Dashboard, Manage Markers, Manage Reports, Manage Inquiries, Manage Staffs, Settings, Register, and Login. The main area is titled "Manage Users" under "Users / Verified User". It features a "Print" button, a "Search Records" input field, and a "Add Admin Staffs" button. Below is a table with columns: ID, Username, Name, addedby, Status, and Actions. The table contains 7 entries. At the bottom, it says "Showing 1 to 7 of 7 entries" and has "Previous", "Next", and a page number "1".

ID	Username	Name	addedby	Status	Actions
1	admin	Faizer Habibon	zura cute	active	<button>Deactivate</button>
2	admin2	zura cute	Faizer Habibon	active	<button>Deactivate</button>
3	admin3	cute	zura cute	active	<button>Deactivate</button>
4	admin4	cute	zura cute	active	<button>Deactivate</button>
5	shy	shyshy	Faizer Habibon	active	<button>Deactivate</button>
6	Mampang_admin	mampang	Faizer Habibon	active	<button>Deactivate</button>
7	cute	cute	shyshy	active	<button>Deactivate</button>

Admin User Logged-in -Manage Staffs Button (Add New Admin User)

Add a new admin

Fill out the form below to add a new admin.

User Type *

Select the User Type

Super Admin
Barangay Admin (Barangay Hall Mampang)
Barangay Admin (Barangay Hall Talon-Talon)
Barangay Admin (Barangay Hall Sta. Catalina)
Purok Leader (Barangay Hall Mampang)
Purok Leader (Barangay Hall Talon-Talon)
Purok Leader (Barangay Hall Sta. Catalina)

Password *

Confirm Password *

Submit Cancel

Admin User Logged-in -Manage Compeleted Reports(Red circle Heatmap)

CRIME HUB

Manage Completed Reports

Show 10 records Print

Case No	First Name	Middle Name	Last Name	Contact	Incident Date/Time	Location	Incident Type	Incident Media	Barangay Type	Status	Action	Action
0007	faizer	Alid	habibon	09356183463	2023-12-19 09:47:00	44MH+M3, General Santos City, South Cotabato, Philippines	noise_complaint		Barangay Hall Mampang	Completed/Resolved	Edit	Delete
0006	faizer	Alid	habibon	09356183463	2023-12-19 05:20:00	44MH+M3, General Santos City, South Cotabato, Philippines	theft		Barangay Hall Mampang	Completed/Resolved	Edit	Delete
0005	faizer	Alid	habibon	1241415	2023-12-11 01:10:00	W4C4+PP3, Zamboanga del Sur, Philippines	noise_complaint		Barangay Hall Talon-Talon	approved	Edit	Delete
0004	faizer	Alid	habibon	1241415	2023-11-27 18:49:00	talon talon	assault		Barangay Hall Sto.	approved	Edit	Delete

Admin User Logged-in -Manage User Experiences (Orange circle Heatmap)

CRIME HUB

Search Q

Faizer Habibon

PAGES

- Dashboard
- Manage Reports
- Manage Incident Experience
- Manage Heatmap
- Experience Heatmap
- Completed Cases Heatmap
- Manage Inquiries
- Manage Users

Manage Experiences

Users / Verify Experience

Print Search Records

ID	Type of Crime	Experience Details	Marker Location	Crime Location	username	Status	Action	Action
1	burglary	ffafa	Lat: 6.921400000000000, Lng: 122.07900000000000		habibonfaizer6@gmail.com	approved	Edit	Delete
37	burglary	fafafaf	Lat: 6.930100316575787, Lng: 122.060765745906150		habibonfaizer6@gmail.com	approved	Edit	Delete

Showing 1 to 2 of 2 entries

Previous 1 Next

Admin User Logged-in -Manage User Button (Deactivate)

CRIME HUB

Search Q

Faizer Habibon

PAGES

- Dashboard
- Manage Markers
- Manage Reports
- Manage Inquiries
- Manage Users
- Manage Staffs
- Settings
- Register
- Login

Manage Users

Users / Verified User

Add Admin Staffs Search Records

ID	Username	Status	Actions		
1	admin	active	Deactivate		
2	admin2	active	Deactivate		
3	admin3	active	Deactivate		
4	admin4	active	Deactivate		
5	shy	active	Deactivate		
6	Mampang_admin	mampang	Faizer Habibon	active	Deactivate
7	cute	cute	shyshy	active	Deactivate

Showing 1 to 7 of 7 entries

Previous 1 Next


 Are you sure to deactivate this user?
 Please confirm your action
Proceed with deactivation Cancel

Admin User Logged-in -Manage Markers Button (Reactivate)

CRIME HUB

Manage Users

ID	Username	Name	addedBy	Status	Actions
1	admin	Faizer Habibon	zura_cute	active	Deactivate
2	admin2	zura_cute	Faizer Habibon	active	Deactivate
3	admin3	cute	zura_cute	active	Deactivate
4	admin4	cute	zura_cute	active	Deactivate
5	shy	shyshy	Faizer Habibon	active	Deactivate
6	Mampang_admin	mampang	Faizer Habibon	active	Deactivate
7	cute	cute	shyshy	active	Deactivate

Showing 1 to 7 of 7 entries

Add Admin Staffs

Search Records

! Are you sure to reactivate this user?
Please confirm your action
Proceed with activation Cancel

Admin User Logged-in -Manage Markers Button (Print Functionality)

Manage Staffs - Crime HUB

ID	Username	Name	addedBy	Status	Actions
1	admin	Faizer Habibon	zura_cute	active	Deactivate
2	admin2	zura_cute	Faizer Habibon	active	Deactivate
3	admin3	cute	zura_cute	active	Deactivate
4	admin4	cute	zura_cute	active	Deactivate
5	shy	shyshy	Faizer Habibon	active	Deactivate
6	Mampang_admin	mampang	Faizer Habibon	active	Deactivate
7	cute	cute	shyshy	active	Deactivate

Print

1 page

Destination: Save as PDF

Pages: All

Layout: Landscape

More settings

Save Cancel

Admin User Logged-in - Settings (Account Profile)

The screenshot shows the 'Account Profile' section of the admin settings. It displays the user's name (Faizer Habibon), role (super_admin), and other account details like Full Name, Added BY, and User Type.

Account Profile	Change Password
Full Name	Username
Added BY	AddedBy
User Type	super_admin

Admin User Logged-in - Log out/ Sign Out

The screenshot shows the admin dashboard with a user menu open. The 'Sign Out' option is highlighted in blue, indicating it is selected.

- My Profile
- Sign Out**

5.2 Development

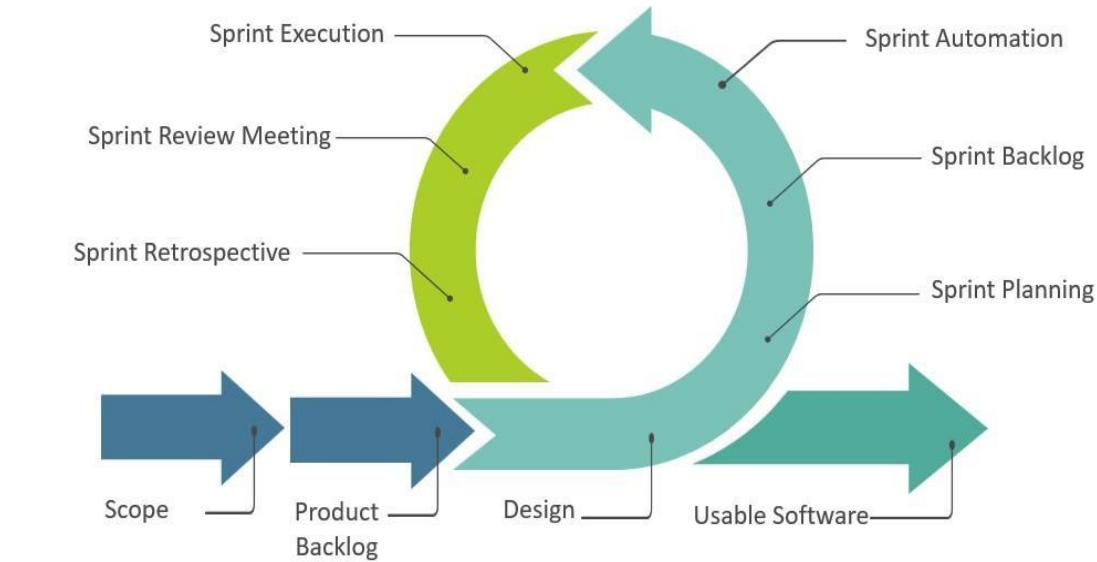


Figure 5 Scrum Agile Methodology

The developers decided to use the Scrum Agile Methodology as the chosen framework in the development of our research project, which is focused on the building of the Crime Awareness Hub. This decision is based on its effectiveness in collaborative project management. Consider it a collaborative team effort to create a crime awareness platform that is both efficient and effective.

Why Scrum, you might wonder? Well, it's like choosing a well-organized game plan, breaking down our activities into manageable portions. It's a bit like playing a game where every small win contributes to the overall success – an analogy that resonates with our journey.

Scrum is distinguished by its flexibility, which is analogous to altering our strategy based on the evolving dynamics of the project, much like solving different portions of a jigsaw. Scrum's popularity among practitioners stems from its capacity to support work in tiny stages, enabling continual progress without overwhelming the team. This strategy depicts our Crime Awareness Hub as a helpful resource for users, figuratively depicting the ascent of a mountain, guaranteeing we are on the correct track to developing a platform that substantially contributes to crime awareness in Zamboanga City.

In summary, the adoption of Scrum serves as a smart and adaptable method within the research project, guaranteeing that the Crime Awareness Hub matures into a dependable and effective resource for the community.

5.3 Testing

Table 2 Features to be Tested

Module Name	Applicable Roles	Description
Mapping and Directions	All Registered Users	Validates accurate retrieval of the user's current location, generation of directions, and calculation of the distance matrix.
Nearest to Farthest Barangay	All Registered Users	Tests the system's ability to predict and display emergency stations, ordering barangays based on proximity from the user's location.
Emergency Hotlines & Reporting	All Registered Users	Validates user access to emergency hotlines and functionality of the incident reporting button, enabling users to report incidents.
Report Tracking	All Registered Users	Confirms the generation of a receipt upon report submission and validates the tracking feature categorizing reports into pending, under investigation, and complete or resolved.
Admin Management	Super Admins, Barangay Admins, Purok Admins	Tests functions of super admins and barangay admins, including limitations for barangay and purok admins based on the origin of reports, and the ability to edit, delete, and update reports.
Email and SwiftMailer Notifications	Super Admins, Barangay Admins	Validates the sending of remarks and status updates to users via email or SwiftMailer, ensuring effective communication between admins and users.

User Authentication	All Registered Users	Tests the login and registration pages, ensuring secure authentication processes and protecting sensitive user information using encryption and hashing algorithms.
Mapping Functionality	All Registered Users	Validates the system's ability to automatically retrieve user's current location, provide directions between two places, and integrate real-time location updates.
Incident Details	All Users, Admins	Tests the accuracy and completeness of incident details displayed to both users and admins, ensuring relevant information is communicated effectively.

The following testing stages will take place in relation to "Crime Awareness Hub: A Web-Based Platform Empowering Users to Report Index or Non-Index Crimes in Zamboanga City":

- Alpha Testing
- Beta Testing
- Test cases.

Risk and Issues

Table 3 Testing Plan Risk and Issues

Risk	Mitigation
Incomplete modules due to skills and time constraints	The development team will make extensive use of documentation and tutorials. To guarantee that modules are completed, team members will be encouraged to work together and ask advisers for help when needed.
Lack of competence or abilities among team members for specific tests	Members who lack specialized testing abilities will have their tutorials and documentation thoroughly reviewed, and they will be provided with the training and tools required to close any skills gaps.
Time limits caused by personal, environmental, or other causes	Activities will be prioritized, with an emphasis on vital duties. To make sure that testing operations proceed in accordance with the project timetable, the team will efficiently assess and manage time.
Technical hazards, such as the incapacity	There will be an analysis of security concerns along with a potential look into software and hardware failures. To

to integrate features	mitigate any possible technological concerns, countermeasures will be put in place.
Lack of cooperation affecting team productivity	Team members will receive encouragement and support in their assignments, fostering a collaborative and motivated work environment for enhanced performance.

Test Logic

Key Elements of Test Logic:

1. Test Team Composition:

Plan 1: External members outside the development team may conduct testing if equipped with a laptop or desktop. This brings in new ideas and skills.

Plan 2: If we can't get outside help directly, we'll hire skilled programmers from another group to do the testing for us. This way, we still get the expertise we need.

Testing will commence upon fulfilling the following criteria:

- Finalization of testing team members.
- Completion of core software modules.
- Availability of a comprehensive test plan.
- Finalized test specifications.
- Establishment of the requisite test environment.

Test Objective:

The major purpose of our testing efforts is to thoroughly confirm the Crime Awareness Hub's functional features. Our priority is to provide precision and dependability in every critical module, aligning operations with defined criteria effortlessly. Through this thorough testing, we want to strengthen the system's resistance to any flaws, ensuring reliable performance in real-world circumstances.

Criteria for Test Suspension

Must a critical mass of 40% of test cases exhibit failure, a temporary suspension will be instituted. Resumption will be contingent upon swift and effective resolutions implemented in subsequent iterations.

Exit Criteria

The triumphant completion of this testing phase demands a flawless run rate of 100%. Any shortfall will trigger a meticulous iteration process to rectify the identified issues. Furthermore, a passing rate of 80% or higher is mandatory to validate the functional precision we aim to achieve.

Resource Planning

- System Resource
- Human Resource

Table 4 Testing Plan System Resource

No.	Resources	Description
1	Computer or Laptop	At least computers running on Windows 7 or higher, 4GB RAM or more, Processor Base Frequency of 1.8GHz or higher, and 75 MB of available disk space or more.
2	Internet Connection	Minimal Bandwidth of 0.75 Mbit/s upload and 0.75 Mbit/s download (*)
3	Testing Tools	The appropriate testing tools will be used for this project.

Table 5 Testing Plan Human Resource

No.	Resources	Description
1	Computer or Laptop	At least computers running on Windows 7 or higher, 4GB RAM or more, Processor Base Frequency of 1.8GHz or higher, and 75 MB of available disk space or more.
2	Internet Connection	Minimal Bandwidth of 0.75 Mbit/s upload and 0.75 Mbit/s download (*)
3	Testing Tools	The appropriate testing tools will be used for this project.

Test Environment

The figure below illustrates the designated test environment for this project:

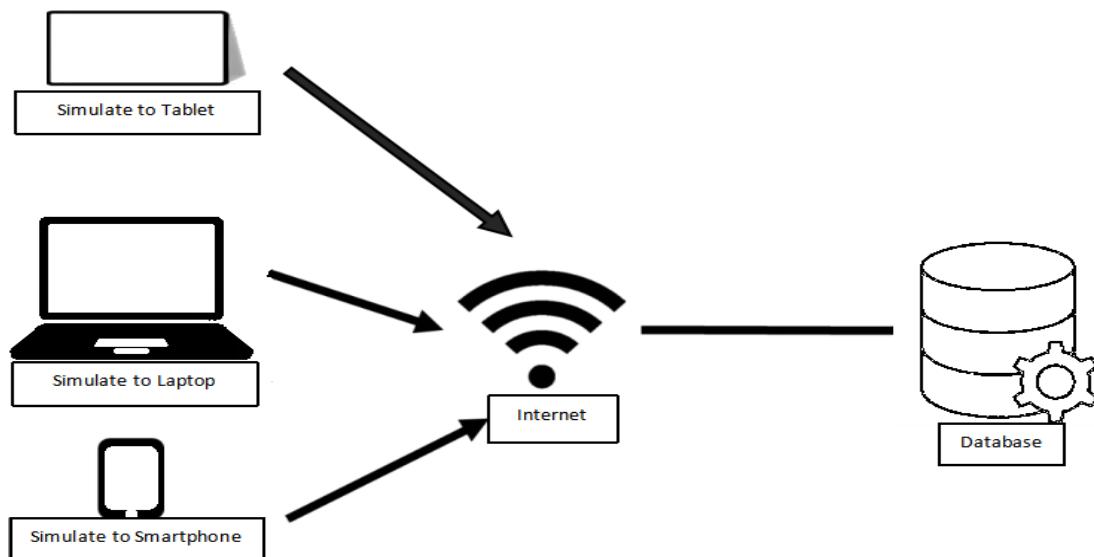


Figure 6 Test Plan Test Environment

The Tester Users will utilize laptops, smartphones, and tablets to ensure comprehensive coverage and adherence to project objectives. The successful execution of the project's goals also necessitates a stable internet connection and access to the project's database.

Schedule and Estimation

Table 6: Schedule and Estimation

Task	Members	Description	Estimate Effort
Creation of the Test Specification	Test Manager and Test Analyst or Designer	Involves defining the test objectives, scope, and criteria. The test manager collaborates with the test analyst or designer to create a comprehensive test specification document.	50-man hours
Test Analysis and Test Design	Test Analyst or Designer	This phase focuses on analyzing requirements and designing test scenarios, test cases, and test data. The test analyst or designer ensures that the testing strategy aligns with project goals.	50-man hours
Test	Test Analyst or	Involves configuring the testing	40-man

Environment Setup	Designer and Tester	environment, including setting up the Crime Awareness Hub mapping features. This step ensures that the testing tools and resources are ready for use.	hours
Test Execution	Tester	The tester executes the test cases, interacts with the Crime Awareness Hub map functionalities, and validates that the system behaves as expected.	80-man hours
Defect Identification and Reporting	Tester and Quality Assurance Engineer	The tester and quality assurance engineer collaborate to identify and report defects. They ensure that each issue is documented accurately, facilitating effective communication for resolution.	40-man hours
Test Report	Tester and Quality Assurance Engineer	Creation of a comprehensive test report, summarizing test activities, results, and any issues encountered during testing. This report aids in decision-making for potential system enhancements.	40-man hours
Test Delivery	Tester and Test Manager	Involves the delivery of the finalized Crime Awareness Hub, along with all relevant documentation, to ensure a smooth transition to the operational phase.	24-man hours
Total			324-man hours

Schedule to complete task

Task ID	Task Description	Task Duration	Start Date	End Date
1	Capstone Project Title submissions	4 days	June 14, 2023	June 18, 2023
2	Capstone Chapters 1-4 submission	9 days	June 21, 2023	June 30, 2023
3	Capstone Chapters 1-4 revisions	6 days	July 1, 2023	July 7, 2023
4	Mock Defense Deliverable	1 day	July 8, 2023	July 8, 2023
5	Week 4 Progress Report	4 days	July 13, 2023	July 17, 2023
6	Initial Title Defense	1 hour	July 18, 2023	July 18, 2023
7	Week 5 Progress Report	2 days	July 19, 2023	July 20, 2023
8	Submission of files for re-defense (no approved titles)	1 hour	July 21, 2023	July 21, 2023
9	Re-defense of groups w/ no approved title	1 hour	August 9, 2023	August 9, 2023
10	Submission of Defense	10	August 21, 2023	August 21, 2023

	Deliverable	mins	2023	
11	Approved Title: Crime Awareness Hub: A Web-Based Platform Empowering Users to Report Index or Non-Index Crimes in Zamboanga City.	1 day	August 22, 2023	August 22, 2023
12	Planning of GUI/wire frames and finalization of approved title	2 days	August 24, 2023	August 26, 2023
13	Start of Development - Learning map apis, and testing different map apis	10 days	August 26, 2023	September 6, 2023
14	Initiate project by integrating the final map API (Google Maps API),	3 days	September 7, 2023	September 10, 2023
15	Mapping Features Development: search bar, Map-styles (UI design) .	3 days	September 11, 2023	September 14, 2023
16	Prediction of Nearest to Farthest Stations Algorithm	10 days	September 15, 2023	September 25, 2023
17	Mapping - Mode of travelling and Custom Map Markers	2 days	September 26, 2023	September 28, 2023
18	Data Gathering (Barangays and Police)	2 days	September 29, 2023	October 1, 2023
19	Street view/Pegman Zoom and Pan Controls UI improvement	2 days	October 2, 2023	October 4, 2023
20	Modification of UI toggle “Upbar” under prediction of nearest to farthest stations	1 day	October 5, 2023	October 6, 2023
21	Reporting development (UI/database)	3 days	October 8, 2023	October 11, 2023
22	Development of all modules/features for front end website	4 days	October 12, 2023	October 16, 2023
23	Contact page with database	1 day	October 17, 2023	October 18, 2023
24	Developing Admin side (fetching, managing pages, Crud)	4 days	October 19, 2023	October 23, 2023
25	Continuous improvement of Admin side	2 days	October 24, 2023	October 26, 2023
26	Modification of the UI designs for homepage and modules	2 days	October 27, 2023	November 29, 2023
27	Consultation and checking of progress with Capstone Adviser	1 day	October 30, 2023	October 30, 2023
28	Enhance project by incorporating additional functionalities into the mapping and reporting feature based on specific project requirements and own preferences	4days	November 1, 2023	November 5, 2023

29	Test Planning	2 days	November 6, 2023	November 8, 2023
30	Alpha Testing	2 days	November 9, 2023	November 11, 2023
31	Unit Testing	2 days	November 12, 2023	November 14, 2023
32	Integration Testing	1 day	November 16, 2023	November 17, 2023
33	System Testing	1 day	November 19, 2023	November 20, 2023
34	Beta Testing	2 days	November 22, 2023	November 24, 2023
35	User Acceptance Testing (UAT)	1 day	November 24, 2023	November 25 2023
36	Identifying errors and bugs	1 day	November 26, 2023	November 26, 2023
37	Rebuild and implementation of modules	2 days	November 27, 2023	November 29, 2023
38	Successful completion and consent from all clients involved	1 day	November 30, 2023	November 30, 2023

Gantt Chart



Test Deliverable

Below are the test deliverable of this project for before, during, and after the testing phase.

- Before Testing Phase

- Documentation of the test plan
- Documentation of the test cases and designing the test environment
- Design specifications of the testing phase.

- During Testing

- Test Tools
- Simulators (using browser for both phones and laptop/desktop)
- Test Data
- Test Traceability Matrix

- After the Testing Cycle

- Test results and reports
- Reports for any defects
- Installation plan or guidelines
- Release note

Alpha Testing

5.4 Test Cases

Project Name:	Crime Awareness Hub
Module Name:	Authentication Module – Register/Create an Account
Reference Document:	Functional Requirements
Created By:	Quality Assurance Engineer, Marldrey C. Bernardo
Date Created:	November 23, 2023
Executed By:	Quality Assurance Engineer, Marldrey C. Bernardo
Date Executed:	November 30, 2023

TEST CASE ID	TEST SCENARIO	TEST CASE	PRE-CONDITION	TEST STEPS	TEST DATA	EXPECTED RESULTS	POST CONDITION	ACTUAL RESULTS	STATUS (PASS/FAIL)
TC_REGIS_001	Account Registration	Enter full name, valid email, contact number, address, and password that matches	Requires a valid name, valid email, contact number, address, and password that matches with the confirm password to register.	1. Enter full name 2. Enter email 3. Enter contact number	1. Valid full name 2. Valid email 3. Valid contact number	Account creation successful,	Stays on the registration page	Same with the expected results	PASS

		with the confirm password		4. Enter address	4. Valid address				
				5. Enter password	5. Valid password				
				6. Enter matched confirm password	6. Matched valid password				
				7. Click the “Sign Up” button					
TC_REGIS_001	Account Registration	Enter full name, email, contact number, address, and password that mismatched with	Requires a valid name, valid email, contact number, address, and password that matches with the confirm password to register.	1. Enter full name	Valid full name	Cannot proceed to register with an error “The password does not match”	Stays at the registration page	Same with the expected results	PASS

		the confirm password		4. Enter address	Valid address				
				5. Enter password	Valid password				
				6. Enter matched confirmed password	Mismatched password				
				7. Click the “Sign Up” button					
TC_REGIS_001	Account Registration	Enter full name, invalid email, contact number, address, and password that mismatch	Requires full name, valid email, valid password matches with the confirmed password to register	1. Enter full name	1. Valid full name	Cannot proceed to register with an error “Please include an @ in the email address”	Stays on the registration page	Same with the expected results	PASS
				2. Enter email	2. Invalid email				
				3. Enter contact	3. Valid contact				

		hed with the confirm password		number	number				
				4. Enter address	4. Valid address				
				5. Enter passwo rd	5. Valid passwo rd				
				6. Enter matche d confir m passwo rd	6. Valid confir m passwo rd				
				7. Click the “Sign Up” button					
TC_REGIS_001	Account Registration	Enter full name, valid email, contact number, address, and	Requires a valid name, valid email, contact number, address, and password that matches with	1. Enter full name	1. Valid full name	Cannot proceed to register with an error “The email is already used”	Stays on the registration page	Same with the expected results	PASS
				2. Enter existin g email	2. Valid email				

		password that matches with the confirm password	the confirm password to register.	3. Enter contact number	3. Valid contact number				
				4. Enter address	4. Valid address				
				5. Enter password	5. Valid password				
				6. Enter matched confirmation password	6. Valid confirmation password				
				7. Click the “Sign Up” button					
TC_REGIS_001	Account Registration & SweetAlert Message	Enter full name, valid email, contact number, address,	Requires a valid name, valid email, contact number, address, and password that	1. Enter full name	1. Valid full name	Account creation successful and a SweetAlert Message will pop	Stays on the registration page	Same with the expected results	PASS

		and password that matches with the confirm password	matches with the confirm password to register.	3. Enter contact number	3. Valid contact number	“We have sent a verification link to your Email Address”			
				4. Enter address	4. Valid address				
				5. Enter password	5. Valid password				
				6. Enter matched confirm password	6. Valid confirm password				
				7. Click the “Sign Up” button					

Project Name:	Crime Awareness Hub
Module Name:	Authentication Module – Login Account
Reference Document:	Functional Requirements
Created By:	Quality Assurance Engineer, Marldrey C. Bernardo
Date Created:	November 23, 2023
Executed By:	Quality Assurance Engineer, Marldrey C. Bernardo
Date Executed:	November 30, 2023

TEST CASE ID	TEST SCENARIO	TEST CASE	PRE-CONDITION	TEST STEPS	TEST DATA	EXPECTED RESULTS	POST CONDITION	ACTUAL RESULTS	STATUS (PASS/FAIL)	
TC_LOGIN_001	Login with email verification	Enter email and password	Requires a valid email, and valid password to login.	1. 2.	1. Enter email 2. Enter password	1. Unregistered email 2. Valid password	Cannot proceed to login with an error “Your account has not been verified yet”	Stays on the login page	Same with the expected results	PASS
TC_LOGIN_001	Login with email verification	Enter email and password	Requires a valid email, and valid password to login.	1. 2.	1. Enter email 2. Enter password	1. Mismatched email 2. Mismatched password	Cannot proceed to login with an error “Wrong email or password”	Stays on the login page	Same with the expected results	PASS

TC_LOGIN_001	Login with email verification	Enter email and password	Requires a valid email, and valid password to login.	1. Enter email	1. Invalid email	Cannot proceed to login with an error "Please include an @ in the email address"	Stays on the login page	Same with the expected results	PASS
				2. Enter password	2. Valid password				
TC_LOGIN_001	Login with email verification	Enter email and password	Requires a valid email, and valid password to login.	1. Enter email	1. Valid email	Cannot proceed to login with an error "Wrong email or password"	Stays on the login page	Same with the expected results	PASS
				2. Enter password	2. Mismatched password				
TC_LOGIN_001	Login with email verification	Enter email and password	Requires a valid email, and valid password to login.	1. Enter email	1. Unregistered email	Cannot proceed to login with an error "You don't have an account"	Stays on the login page	Same with the expected results	PASS
				1. Enter password	1. Invalid password				
TC_LOGIN_001	Login with email verification	Enter email and password	Requires to check emails from Gmail, valid email,	1. Go to Gmail and	1. Verified email	Account login successful and will be	Stays on the login page	Same with the expected results	PASS

			and valid password to login.	check your mail		redirected to the map page.			
				2. Check for your inbox or spam section	2. Valid password				
				3. Open the mail sent by Crime Awareness Hub					
				4. Click "Verify Your Account"					
				5. Enter email 6. Enter					

				password					
				7. Click “login” button					

Project Name:	Crime Awareness Hub
Module Name:	User Module - Forgot Password
Reference Document:	Functional Requirements
Created By:	Quality Assurance Engineer, Marldrey C. Bernardo
Date Created:	November 23, 2023
Executed By:	Quality Assurance Engineer, Marldrey C. Bernardo
Date Executed:	November 30, 2023

TEST CASE ID	TEST SCENARIO	TEST CASE	PRE-CONDITION	TEST STEPS	TEST DATA	EXPECTED RESULTS	POST CONDITION	ACTUAL RESULTS	STATUS (PASS/FAIL)
TC_FORGOT_01	Email Sent for Password Reset	Enter email address	Requires valid email address	1. Enter email 2. Click the “Submit” button	Valid email address	Email sent to the user's registered account for password reset. With SweetAlert pop up	Stays on the recover password page	Same with the expected results	PASS

				3. Go to Gmail and check your mail		“We've sent a reset link to your email”			
				4. Check your inbox					
				5. Open the mail sent by Crime Awareness Hub					
				6. Click “Reset Password”					
TC_FORGOT_01	Email Sent for Password Reset	Enter email address	Requires valid email address	1. Enter email	Invalid email address	Cannot proceed to recover password with an error “Please include an @ in the email address”	Stays on the recover password page	Same with the expected results	PASS

TC_FORGOT_01	Password Change	Enter password and confirm password	Requires valid password	1. Enter password	Valid password	Password successfully changed. With SweetAlert pop up “Password has been changed successfully !”	Stays on the changed password page	Same with the expected results	PASS
				2. Enter confirm password	Valid matched confirm password				
				3. Click the “Submit” button					
TC_FORGOT_01	Password Change	Enter password and confirm password	Requires valid password	1. Enter password	Valid password	Cannot proceed to change password with an error “password and email do not match” With SweetAlert pop up “password and email do not match”	Stays on the changed password page	Same with the expected results	PASS
				2. Enter confirm password	Mism atched confirm password				
				3. Click the “Submit” button					

Project Name:	Crime Awareness Hub
Module Name:	User Module – User Dashboard
Reference Document:	Functional Requirements
Created By:	Quality Assurance Engineer, Marldrey C. Bernardo
Date Created:	November 23, 2023
Executed By:	Quality Assurance Engineer, Marldrey C. Bernardo
Date Executed:	November 30, 2023

TEST CASE ID	TEST SCENARIO	TEST CASE	PRE-CONDITION	TEST STEPS	TEST DATA	EXPECTED RESULTS	POST CONDITION	ACTUAL RESULTS	STATUS (PASS/FAIL)
TC_USER_DAS_HBOARD_001	Map Display and Functionality	User	Valid login credentials	1. Access the user dashboard and map display	Valid user session	User can access the map features and functionalities	Stays at the map page	Same with the expected results	PASS
TC_USER_DAS_HBOARD_001	Search Bar Functionality	User	Valid login credentials	1. Click to toggle the “Search Bar” button to	Valid user session	The Search bar offers relevant location suggestions based on the user's input.	Stays at the map page	Same with the expected results	PASS

				access the Google Map suggest ion					
TC_USER_DAS HBOARD_001	Get Directions Feature	User	Valid login credentials	2. Click the "Get Direc tions" feature	Valid user session	The "Get Directions" feature delivers precise location results, providing accurate route information from the current location to the user- input destination.	Stays at the map page	Same with the expected results	PASS

				ons” to access the route details					
TC_USER_DAS_HBOARD_001	Map Style Options	User	Valid login credentials	1. Click the “Map Tiles” button 2. Select map styles (Road map, Satellite, Hybrid, Terrain)	Valid user session	The map styles varies based on the preferences of the user.	Stays at the map page	Same with the expected results	PASS
TC_USER_DAS_HBOARD_001	Pegman (Street View)	User	Valid login credentials	1. Click and drag pegman onto the map street view	Valid user session	Pegman accurately initiates Street View.	Stays at the map page	Same with the expected results	PASS

TC_USER_DAS HBOARD_001	Toggle Sidebar and Options	User	Valid login credentials	1. Click to toggle the “Sideb ar” button 2. Select Sidebar options (Get direc tio ns, Clear direc tio ns, Remov e locatio ns, and Types of travel mode)	Valid user session	The sidebar toggle and options works as intended.	Stays at the map page	Same with the expected results	
TC_USER_DAS HBOARD_001	Share Experience Heat Maps								PASS

TC_USER_DAS HBOARD_001	Custom Markers on the Map	User	Valid login credentials	1. Verify the display of custom marker on the map	Valid user session	Custom markers are accurately shown on the map.	Stays at the map page	Same with the expected results	
TC_USER_DAS HBOARD_001	Info Window Content	User	Valid login credentials	1. Click Custo m marker s 2. Info Windo ws Conten t pop up (image s, links,	Valid user session	Info Windows display content accurately.	Stays at the map page	Same with the expected results	PASS

TC_USER_DAS HBOARD_001	Report Availability Bar	User	Valid login credentials	1. Click to toggle “Report Availability Bar” button	Valid user session	Report availability bar toggle animation works accurately.	Stays at the map page	Same with the expected results	PASS
TC_USER_DAS HBOARD_001	Predicted Nearest Stations	User	Valid login credentials	1. Verify the display of predicted nearest stations (Barangay, Police Station, and Fire Station)	Valid user session	Predicted nearest stations display accurately.	Stays at the map page	Same with the expected results	PASS

Project Name:	Crime Awareness Hub
Module Name:	Guest User Homepage
Reference Document:	Functional Requirements
Created By:	Quality Assurance Engineer, Marldrey C. Bernardo
Date Created:	November 23, 2023
Executed By:	Quality Assurance Engineer, Marldrey C. Bernardo
Date Executed:	November 30, 2023

TEST CASE ID	TEST SCENARIO	TEST CASE	PRE-CONDITION	TEST STEPS	TEST DATA	EXPECTED RESULTS	POST CONDITION	ACTUAL RESULTS	STATUS (PASS/FAIL)
TC_HOMEPAGE_001	Information Display	Guest	Guest users are required to visit the website.	1. Scroll down at the end of page	Guest user session	Guest user can access the homepage information of Crime Awareness Hub.	Stays at the homepage	Same with the expected results	PASS
TC_HOMEPAGE_001	Interactive Content Crime Map Functionality	Guest	Guest users are required to visit the website.	1. Click the different sections of the homepage navigation bar (Home, Services, About Us, Contact, and Login)	Guest user session	Guest users have the ability to access the navigation bar, which contains hyperlinked text directing them to	Stays at the homepage	Same with the expected results	PASS

TC_HOMEPAGE_001	Social Media Integration	Guest	Guest users are required to visit the website.	1. Click the “Social media icon” to access the social media pages of Crime Awareness Hub.	Guest user session	Social media icon links to the user's preferred social media page.	Stays at the homepage	Same with the expected results	PASS
TC_HOMEPAGE_001	Send Inquiries	Guest	Guest users are required to visit the website.	1. Scrolls down the website 2. Go to “Contact Us” section 3. Enter guest user's full name, valid email, contact number, subject of inquiries, and message the user want to	Guest user session	Guest sends inquiries to Crime Awareness Hub base from their concerns or suggestions .	Stays at the homepage	Same with the expected results	PASS

				address					
				4. Click “Send Message”					

Project Name:	Crime Awareness Hub
Module Name:	User Module- User Engagement
Reference Document:	Functional Requirements
Created By:	Quality Assurance Engineer, Marldrey C. Bernardo
Date Created:	November 23, 2023
Executed By:	Quality Assurance Engineer, Marldrey C. Bernardo
Date Executed:	November 30, 2023

TEST CASE ID	TEST SCENARIO	TEST CASE	PRE-CONDITI ON	TEST STEPS	TEST DATA	EXPECTED RESULTS	POST CONDITI ON	ACTUAL RESULTS	STATUS (PASS/FAIL)
TC_REPORT_001	Submission Successful	User	Valid login credentials to access the incident report page	1. Click the “Report Now” button from the map page. 2. Fill out everything in the incident form.	User session	Incident report submitted successful	Stays on the incident report page	Same with the expected results	PASS

TC_REPORT_00 1	Required Field Validation	User	Valid login credentials to access the incident report page	1. Click the “Report Now” button from the map page. 2. Fill out but not everything in the incident form.	User session	The form shows error messages when required fields are not filled out.	Stays on the incident report page	Same with the expected results	PASS
TC_REPORT_00 1	Report Status Accuracy	User	Valid login credentials to access the report status page	1. Click the “Account” button 2. Click the “Report Status” button	User session	Shows accurate details of the report (fill name of user, incident date, location of the incident, status of the report)	Stays on the report status page	Same with the expected results	PASS
TC_REPORT_00 1	Search Filter Reports by Status	User	Valid login credentials to access the report	1. Click the “Account” button 2. Click the “Report Status” button	User session	Users have the ability to filter their search within each report status table.	Stays on the report status page	Same with the expected results	PASS

			status page	3. Click “Search box”					
				4. Input the details the user wish to search or filter.					
TC_REPORT_001	Export Reports Data	User	Valid login credentials to access the report status page	1. Click the “Account” button 2. Click the “Report Status” button 3. Click “Print” button base from its report type (latest report, under investigation, and resolved reports)	User session	Users have the capability to print reports, selecting the report type they wish to print.	Stays on the report status page	Same with the expected results	PASS
TC_REPORT_001	Report Receipt Display after	User	Valid login credentials to	1. After the user finalize the incident details.	User session	The receipt must be presented with precise and	Stays on the report status page	Same with the expected results	PASS

	Submission		access the report receipt page	2. Click the “Submit Report” button then the user will be directed to the report receipt page.		correct information (Report details provided by the user)			
TC_REPORT_001	Status Change Functionality	User	Valid login credentials to access the report status page	1. Click the “Account” button 2. Click the “Report Status” button to view the updated status report.	User session	The status will be changed accordingly, and emails will be sent if considered necessary.	Stays on the report status page	Same with the expected results	PASS
TC_REPORT_001	Report Notification via SMS and Email								

Project Name:	Crime Awareness Hub
Module Name:	Admin Module – Admin Dashboard
Reference Document:	Functional Requirements
Created By:	Quality Assurance Engineer, Marldrey C. Bernardo
Date Created:	November 23, 2023

Executed By:	Quality Assurance Engineer, Marldrey C. Bernardo
Date Executed:	November 30, 2023

TEST CASE ID	TEST SCENARIO	TEST CASE	PRE-CONDITION	TEST STEPS	TEST DATA	EXPECTED RESULTS	POST CONDITION	ACTUAL RESULTS	STATUS (PASS/FAIL)
TC_ADMIN_DA SHBOARD_001	Dashboard Statistic and Display	Admin	Valid admin credentials to access admin dashboard page.	1. Enter valid email 2. Enter password 3. Click “Login” button.	Valid admin session	Overall statistics should be displayed accurately in the admin dashboard.	Stays in the Dashboard page	Same with the expected results	PASS
TC_ADMIN_DA SHBOARD_001	Cards Accuracy on Dashboard	Admin	Valid admin credentials to access admin dashboard page.	1. Enter valid email 2. Enter password	Valid admin session	Cards should display accurate information.	Stays in the Dashboard page	Same with the expected results	PASS

				3. Click “Login ” button.					
TC_ADMIN_DA SHBOARD_001	Manage Markers Functionalit y	Admin	Valid admin credentials to access admin dashboard page.	1. Admin login 2. Click “Manage Markers” in the dashboard sidebar .	Valid admin session	Changes to the markers should be visible on the map from the user's perspective.	Stays in the Dashboard page	Same with the expected results	PASS
TC_ADMIN_DA SHBOARD_001	Manage Report Functionalit y	Admin	Valid admin credentials to access admin dashboard page.	1. Admin login 2. Click “Manage Reports” in the dashboard sidebar .	Valid admin session	Emails providing status updates should be sent successfully.	Stays in the Dashboard page	Same with the expected results	PASS

				.						
TC_ADMIN_DA SHBOARD_001	Manage User	Admin	Valid admin credentials to access admin dashboard page.	1. Admin login 2. Click “Ma nage Us ers” in the dash boar d side bar 3. Click “Deacti vate” button to deacti vate user accoun t. Or Click “Reacti vate” button	Valid admin session	User account will be changed accordingly (Deactivate or Reactivate)	Stays in the Dashboard page	Same with the expected results	PASS	

				to reactivate user account.					
TC_ADMIN_DA SHBOARD_001	Manage Inquiries Functionalities	Admin	Valid admin credentials to access admin dashboard page.	1. Admin login 2. Click "Manage Inquiries" in the dashboard sidebar.	Valid admin session	Details of inquiries should be displayed, and the "delete" button is functional.	Stays in the Dashboard page	Same with the expected results	PASS
TC_ADMIN_DA SHBOARD_001	Profile Settings for Admins	Admin	Valid admin credentials to access admin dashboard page.	1. Admin login 2. Click "Manage Markers" in the dashboard sidebar.	Valid admin session	Status update emails should be sent successfully.	Stays in the Dashboard page	Same with the expected results	PASS

				.						
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Project Name:	Crime Awareness Hub
Module Name:	User Module – Mapping and Navigation
Reference Document:	Functional Requirements
Created By:	Quality Assurance Engineer, Marldrey C. Bernardo
Date Created:	November 23, 2023
Executed By:	Quality Assurance Engineer, Marldrey C. Bernardo
Date Executed:	November 30, 2023

TEST CASE ID	TEST SCENARIO	TEST CASE	PRE-COND ITION	TEST STEPS	TEST DATA	EXPECTED RESULTS	POST CONDITION	ACTUA L RESULT S	STATUS (PASS/FAIL)
TC_MAP_NAVIGATION_001	Zoom In and Zoom Out Functionality	Authenti cated User	Map display ed	1. Use the zoom in/out controls on the map.	Map feature and functio nalities	.Map should zoom in and out smoothly and accurately.	Stays at the map page	Same with the expected results	PASS
TC_MAP_NAVIGATION_001	Pan Functionality	Authenti cated User	Map display ed	1. Click and drag across the map	Map feature and functio nalities	The map should smoothly pan in the desired	Stays at the map page	Same with the expected results	PASS

						direction without interruptions .			
TC_MAP_NAVIGATION_001	Street View Integration	Authenticated User	Map displayed	1. Click on a location to activate Street View. .	Map feature and functionalities	Street View should be activated, offering a seamless 360-degree panoramic perspective.	Stays at the map page	Same with the expected results	PASS
TC_MAP_NAVIGATION_001	Route Planning	Authenticated User	Map displayed	1. Use the route planning feature to navigate between two points	Map feature and functionalities	The map should show the most efficient route, providing turn-by-turn directions.	Stays at the map page	Same with the expected results	PASS
TC_MAP_NAVIGATION_001	Offline Map Functionality	Authenticated User	Map displayed	1. Disable internet connectivity and access the map.	Map feature and functionalities	An offline or cached version of the map should be available for access.	Stays at the map page	Same with the expected results	PASS

TC_MAP_NAVIGATION_001	Real-Time Incident Updates	Authenticated User	Map displayed	1. Check for real-time incident updates on the map.	Map feature and functionalities	Recent incidents should be precisely shown on the map.	Stays at the map page	Same with the expected results	PASS
TC_MAP_NAVIGATION_001	Map Responsiveness	Authenticated User	Map displayed	1. Resize the browser window or use different devices.	Map feature and functionalities	Map elements should adjust responsively to different screen sizes.	Stays at the map page	Same with the expected results	PASS
TC_MAP_NAVIGATION_001	Location Based Alerts	Authenticated User	Map displayed	1. Check for location-based alerts or notifications	Map feature and functionalities	User should receive relevant alerts based on their location.	Stays at the map page	Same with the expected results	PASS
TC_MAP_NAVIGATION_001	Predictive Policing Data Overlay	Authenticated User	Map displayed	1. Enable the predictive policing data overlay.	Map feature and functionalities	Map should display relevant crime data.	Stays at the map page	Same with the expected results	PASS
TC_MAP_NAVIGATION_001	Test Geolocation Functionality	Authenticated User	Map displayed	1. Enable geolocation on the device.	Map feature and functionalities	Map should center on the user's current location.	Stays at the map page	Same with the expected results	PASS

Project Name:	Crime Awareness Hub
Module Name:	User Module – Sidebar and Map Options
Reference Document:	Functional Requirements
Created By:	Quality Assurance Engineer, Marldrey C. Bernardo
Date Created:	November 23, 2023
Executed By:	Quality Assurance Engineer, Marldrey C. Bernardo
Date Executed:	November 30, 2023

TEST CASE ID	TEST SCENARIO	TEST CASE	PRE-CONDITION	TEST STEPS	TEST DATA	EXPECTED RESULTS	POST CONDITION	ACTUAL RESULTS	STATUS (PASS/FAIL)
TC_SIDEBAR_MAP_OPTIONS_001	Pegman (Street View)	Authenticated User	Map Displayed	Click drag and drop “Pegman” icon to the map	User session	Map should transition to Street View mode.	Stays at map page	Same with the expected results	PASS
TC_SIDEBAR_MAP_OPTIONS_001	Toggle Sidebar and Options	Authenticated User	Map Displayed	1. Toggle the sidebar	User session	Sidebar should be hidden or displayed based on the toggle action.	Stays at map page	Same with the expected results	PASS
TC_SIDEBAR_MAP_OPTIONS_001	Zoom In and Zoom Out Slider Functionality	Authenticated User	Map Displayed	1. Click the plus button to zoom in. 1. Click the minus button to zoom out.	User session	Zoom slider should work smoothly when the user choose to zoom in and zoom	Stays at map page	Same with the expected results	PASS

TC_SIDEBAR_MAP_OPTIONS_001	Map Styles Options Functionality	Authenticated User	Map Displayed	1. Click the “Map Tiles” button 2. Select map styles (Roadmap, Satellite, Hybrid, Terrain)	User session	The map styles varies based on the preferences of the user.	Stays at map page	Same with the expected results	PASS

Project Name:	Crime Awareness Hub
Module Name:	Admin Module – SweetAlertMessage Pop-ups
Reference Document:	Functional Requirements
Created By:	Quality Assurance Engineer, Marldrey C. Bernardo
Date Created:	November 23, 2023
Executed By:	Quality Assurance Engineer, Marldrey C. Bernardo
Date Executed:	November 30, 2023

TEST CASE ID	TEST SCENARIO	TEST CASE	PRE-CONDITION	TEST STEPS	TEST DATA	EXPECTED RESULTS	POST CONDITION	ACTUAL RESULTS	STATUS (PASS/FAIL)
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TC_SWEETALE RT_ADMIN_001	Display Marker Errors	Admin User	Marker management actions	N/A	Invalid marker data	SweetAlert pop-up should display an error message for the action.	Stays at the admin dashboard	Same with the expected results	PASS
TC_SWEETALE RT_ADMIN_001	Display for Report Error	Admin User	Report management actions	N/A	Invalid report data	SweetAlert pop-up should display an error message for the action.	Stays at the admin dashboard	Same with the expected results	PASS
TC_SWEETALE RT_ADMIN_001	Display for User Error	Admin User	User management actions	N/A	Invalid user data	SweetAlert pop-up should display an error message for the action.	Stays at the admin dashboard	Same with the expected results	PASS
TC_SWEETALE RT_ADMIN_001	Display for Inquiry Error	Admin User	Inquiry management actions	N/A	Invalid inquiry data	SweetAlert pop-up should display an error message for the action.	Stays at the admin dashboard	Same with the expected results	PASS
TC_SWEETALE RT_ADMIN_001	Display for Password Change Error	Admin User	Password change actions	N/A	Invalid new password	SweetAlert pop-up should display an	Stays at the admin dashboard	Same with the expected results	PASS

						error message for the action.			
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5.5 Implementation Plan

This comprehensive implementation plan serves as a strategic roadmap for the seamless integration of the Crime Awareness Hub System. It meticulously outlines tasks, deliverables, and resource requirements to facilitate the successful deployment of this cutting-edge technology. Acting as a communication tool with the users, the plan ensures proper integration into the targeted environment. The project manager will assume a pivotal role in overseeing implementation, ensuring the team comprehends strategies, and proactively addressing potential implications and risks.

1.1 Purpose

The primary goal of this implementation plan is to guide the seamless deployment of the Crime Awareness Hub System, encompassing a thorough discussion of the overarching strategy, tactics, and procedures. Specifically designed to empower selected Barangays in Zamboanga City, the system serves as a dynamic platform for effective communication with citizens regarding the current status of reported crimes. This will be hosted online, allowing users to effortlessly report incidents, obtain directions, check their real-time location, and access information about the nearest to farthest emergency stations, along with an emergency hotline and so forth, contributing to the creation of a safer community. The plan underscores the importance of providing selected barangays with robust tools for the efficient management and analysis of crime data, further enhancing the system's overall effectiveness.

1.2 System Overview

This implementation plan functions as a strategic guide for the proficient transformation of our system. In addition to providing a roadmap for the successful conversion. It provides an in-depth analysis of the broad approaches, specific techniques, and procedural nuances inherent in the Crime Awareness Hub System. This part functions as an informative guide, explaining the systematic approach to execution and making sure that every aspect fits together to achieve the system's goals.

1.2.1 System Description

The Crime Awareness Hub System offers a user-friendly experience right from the registration process with verification method to a welcoming guest homepage and a personalized logged-in homepage. Users immediately experiences a mapping functionality upon logging in, seamlessly integrating reporting features. As users log in, the system swiftly requests their location, displaying their real-time coordinates. Additionally, the system calculates and presents the nearest to farthest Barangay stations, fire stations, and police facilities.

This dynamic platform allows users to specifically report non-index crimes to Barangays, providing access to police and fire station hotlines during emergencies. Users can also enjoy custom markers on the map, offering information about system entities. The system facilitates directions, searches for specific places, and encompasses various map features.

Hosted online through Hostinger's domain, the system's SQL database is fortified, ensuring robustness and scalability for structured data storage. Administrators are kept informed about occurrences, enabling them to manage custom markers, user accounts, and reports effectively. The system also integrates with third-party accounts for streamlined information dissemination, report tracking, record-keeping, and features such as print functions and search capabilities.

1.2.2 Assumptions and Constraints

To implement the proposed system successfully, specific software compatibility across various platforms is essential. The Crime Awareness Hub System is optimized for the following web browsers:

Personal Computer (PC): Microsoft Edge, Google

Chrome Mobile: Google Chrome

Tab: Google Chrome

Hardware Requirements

The minimum hardware specifications for optimal performance of the web application are outlined in the table below:

Operating System	Any operating system with a compatible browser
Processor	Intel® Celeron® Processor 847, 1.10 GHz, or equivalent/higher
Storage	Between 1.3 GB - 2.3 GB or higher
RAM	Minimum of 2GB
Hard Disk	500 GB or higher
Internet Connection	Latency not exceeding 90ms

1.2.3 System Organization

This section focuses on the systematic organization that is essential to the Crime Awareness Hub's operational excellence. The abilities we possess are supported by a framework that has been rigorously created to ensure seamless functionality and efficient utilization.

Hardware:

The various equipment necessary for the project's implementation are as follows:

- Laptop/Desktop
- Charger for Laptop
- External storage

Software:

The essential software and applications needed for the successful completion of the project include:

Programming Languages:

- PHP
- HTML
- JavaScript
- CSS

Database Management:

- MySQL
- phpMyAdmin
- XAMPP

Development Tools:

- Visual Studio Code
- Notepad++

1.3 Glossary

This section compiles definitions for terms recurrently used throughout this project documentation, each with contextual meanings within the unique framework of the Crime Awareness Hub system. While these terms may not align precisely with their dictionary counterparts, they hold specific connotations in the context of our project.

Term	Definition
Barangay	A group or community within the Philippine administration, consisting of fifty to one hundred families.
Barangay Official	The elected official overseeing a minor administrative division or the Barangay.
Selected Barangay	Refers to specific barangays initially chosen under Region 9, such as Sta. Catalina, and Talon-Talon.
Newcomers	Denotes tourists or individuals passing through the city without a permanent residence within the municipality, not directly associated with a residency.
Web-based	Describes a system or application accessible through the internet.
Zamboanga City	One of the cities in the Zamboanga Peninsula, located within the island of Mindanao.

2 Management Overview

This section provides a strategic overview of the procedures and strategies crucial

for the implementation of the Crime Awareness Hub. Serving as a guide for the system's effective deployment, it delves into the specifics of general strategies, tactics, and procedures.

2.1 Description of Implementation

The deployment and installation of the Crime Awareness Hub project will occur online, ensuring accessibility through phones, tablets, desktops, or laptops with an internet connection. To optimize efficiency, the implementation plan will follow a phased approach, ideal for office environments with time constraints. This phased strategy involves an initial roll-out to a limited user group, progressively expanding to cover the entire target environment, minimizing disruptions and enabling swift issue resolution.

2.2 Points-of-Contact

Outlined below are key entities and users central to the Crime Awareness Hub project, streamlining communication.

Role	Name	Contact Number
Site Implementation Representative	Barangay Sta. Catalina Office, Barangay Talon-Talon Office.	0905-798-8042 0906-445-1059
Project Manager	Faizer A. Habibon	0935-618-3463
Program Managers	Marldrey C. Bernardo/Faizer A. Habibon	0965-952-7554 0935-618-3463
Quality Assurance Manager	Marldrey C. Bernardo	0965-952-7554

2.3 Major Tasks

This subsection outlines key tasks, their allocated resources, and the designated personnel responsible for execution, emphasizing the unique requirements of implementing this project.

Task	Resources	Key Person
Oversee the overall implementation planning and coordination	Laptop and Internet Connection	Project Manager

Provide any technical help	Laptop and Internet Connection	Team
Conduct site surveys before implementation	Laptop and Internet Connection	Team
Prior requirements such as the modules shall be done before implementation	Laptop and Internet Connection	Team
Assigned personnel for the implementation team	Laptop and Internet Connection	Team

2.1 Implementation Schedule

Presented below is the updated schedule encompassing essential activities for the successful implementation of the Crime Awareness Hub. The timeline includes pre-implementation tasks and key milestones:

#	Task Description	Task Duration	Start Date	End Date
1	Capstone Project Title submissions	4 days	June 14, 2023	June 18, 2023
2	Capstone Chapters 1-4 submission	9 days	June 21, 2023	June 30, 2023
3	Capstone Chapters 1-4 revisions	6 days	July 1, 2023	July 7, 2023
4	Mock Defense Deliverable	1 day	July 8, 2023	July 8, 2023
5	Week 4 Progress Report	4 days	July 13, 2023	July 17, 2023
6	Initial Title Defense	1 hour	July 18, 2023	July 18, 2023
7	Week 5 Progress Report	2 days	July 19, 2023	July 20, 2023
8	Submission of files for re-defense (no approved titles)	1 hour	July 21, 2023	July 21, 2023
9	Re-defense of groups w/ no approved title	1 hour	August 9, 2023	August 9, 2023
10	Submission of Defense Deliverable	10 mins	August 21, 2023	August 21, 2023
11	Approved Title	1 day	August 22, 2023	August 22, 2023
12	Planning of GUI/wire frames and finalization of approved title	2 days	August 24, 2023	August 26, 2023
13	Start of Development - Learning map apis, and testing different map apis	10 days	August 26, 2023	September 6, 2023

1 4	Initiate project by integrating the final map API (Google Maps API),	3 days	September 7, 2023	September 10, 2023
1 5	Mapping Features Development: search bar, Map-styles (UI design) .	3 days	September 11, 2023	September 14, 2023
1 6	Prediction of Nearest to Farthest Stations Algorithm	10 days	September 15, 2023	September 25, 2023
1 7	Mapping - Mode of travelling and Custom Map Markers	2 days	September 26, 2023	September 28, 2023
1 8	Data Gathering (Barangays and Police)	2 days	September 29, 2023	October 1, 2023
1 9	Street view/Pegman Zoom and Pan Controls UI improvement	2 days	October 2, 2023	October 4, 2023
2 0	Modification of UI toggle “Upbar” under prediction of nearest to farthest stations	1 day	October 5, 2023	October 6, 2023
2 1	Reporting development(UI/database)	3 days	October 8, 2023	October 11, 2023
2 2	Development of all modules/features for front end website	4 days	October 12, 2023	October 16, 2023
2 3	Contact page with database	1 day	October 17, 2023	October 18, 2023
2 4	Developing Admin side (fetching, managing pages, Crud)	4 days	October 19, 2023	October 23, 2023
2 5	Continuous improvement of Admin side	2 days	October 24, 2023	October 26, 2023
2 6	Modification of the UI designs for homepage and modules	2 days	October 27, 2023	November 29, 2023
2 7	Consultation and checking of progress with Capstone Adviser	1 day	October 30, 2023	October 30, 2023
2 8	Enhance project by incorporating additional functionalities into the mapping and reporting feature.	4days	November 1, 2023	November 5, 2023
2 9	Test Planning	2 days	November 6, 2023	November 8, 2023
3 0	Alpha Testing	2 days	November 9, 2023	November 11, 2023

3 1	Unit Testing	2 days	November 12, 2023	November 14, 2023
3 2	Integration Testing	1 day	November 16, 2023	November 17, 2023
3 3	System Testing	1 day	November 19, 2023	November 20, 2023
3 4	Beta Testing	2 days	November 22, 2023	November 24, 2023
3 5	User Acceptance Testing (UAT)	1 day	November 24, 2023	November 25 2023
3 6	Identifying errors and bugs	1 day	November 26, 2023	November 26, 2023
3 7	Rebuild and implementation of modules	2 days	November 27, 2023	November 29, 2023
3 8	Successful completion and consent from all clients involved	1 day	November 30, 2023	November 30, 2023

Security and Privacy

This section meticulously addresses the security and privacy aspects of the Crime Awareness Hub, emphasizing robust features and precautions during implementation.

2.1.1 System Security Features

User Authentication: The Crime Awareness Hub project employs strict user authentication via email and password verification. Passwords will contain case sensitive characters for further protection. In addition, a password recovery mechanism will be built, which would deliver reset options to users' registered email addresses in the event of lost passwords.

Privacy Policy: Users will have access to a comprehensive privacy policy, outlining identity verification, data usage, and personal information handling. This policy adheres to fundamental principles ensuring user data confidentiality.

2.1.2 Security Set-Up During project Implementation

The Crime Awareness Hub, which is hosted on Hostinger, emphasizes user privacy and system integrity through strong security. The use of Hostinger's secure protocols assures secure data transmission. The use of PHP, MySQL, and secure email improves database security. Integrating securely with external APIs such as Google Maps boosts functionality. It improves data security and resiliency. Anti-impersonation techniques improve security against hackers and unwanted access. The Crime Awareness Hub is devoted to offering a secure and dependable service in accordance with industry best practices.

3 Implementation Support

This section furnishes essential details facilitating the seamless implementation and overall success of the Crime Awareness Hub.

3.1 Hardware, Software, Facilities, and Materials

3.1.1 Hardware

The pivotal equipment essential for the successful implementation of the Crime Awareness Hub includes:

- Laptop/Desktop, cellphone, Tablet
- Charger for laptop/Tablet
- External storage

3.1.2 Software

The requisite software and applications vital for project completion are:

- PHP
- HTML
- JavaScript
- CSS
- MySQL
- phpMyAdmin
- XAMPP

- Visual Studio Code

3.1.3 Facilities

Given the decentralized nature of the development team, working remotely and utilizing various social media platforms for communication eliminates the need for a specific facility or exclusive work environment.

3.1.4 Materials

Materials crucial for the Crime Awareness Hub implementation include:

- Laptop/Desktop, Cellphone, and Tablet
- Charger for laptop/Tablet

3.2 Documentation

This section encompasses the supplementary documentation required to fortify the project's anticipated deliverables.

3.3 Personnel

The following names listed below are the project proponents and their respective roles in shaping this project.

Project Proponent Names	Roles
Faizer A. Habibon	Project Manager & Lead Developer
Faizer A. Habibon	UI / UX Designer
Marldrey C. Bernardo	Quality Assurance Engineer/Tester

3.3.1 Staffing Requirements

The project team comprises three members, each contributing to multiple roles to ensure the comprehensive development of the Crime Awareness Hub.

- Project Manager: The Project Manager assumes a pivotal role, overseeing the entire project life cycle. Responsibilities include project initiation, planning, design, execution, monitoring, controlling, and closure.

- Developers: Developers are instrumental in identifying and implementing coding tasks. Their responsibilities encompass designing components, establishing data connections, installing necessary applications, and conducting thorough testing of the software system.
- UI/UX Designer: The UI/UX Designer plays a crucial role in gathering and evaluating user requirements. Responsibilities extend to illustrating design ideas through storyboards, process flows, and sitemaps. This role also involves designing graphic user interface elements like menus, tabs, and widgets.
- Tester: The Tester is responsible for reviewing software requirements and crafting a comprehensive list of test scenarios. Tasks include executing usability tests, analyzing results, identifying errors or bugs, and assessing the overall usability of the system. The Tester also prepares detailed reports on software testing.

3.3.2 Training of Implementation Staff

To excel in the development of this project, the project proponents should possess the following skills, qualifications, and experiences:

- Adaptability, the ability to adapt and switch between various tasks is essential. This skill is particularly crucial for managing time efficiently and contributing to the project amid busy schedules.
- Versatility, Proficiency in multitasking is valuable for effective project development. It enables the team to compensate for any knowledge gaps or limitations among its members.
- Communication Proficiency, Exceptional communication skills are imperative. Proficiency in both verbal communication during video calls via platforms like Google Meet and written communication through social media channels such as Messenger is beneficial for team collaboration.
- Familiarity with Development Practices: Knowledge of different development methodologies and software testing platforms and environments is essential for effective project implementation.
- Testing Competency, A fundamental understanding of testing methodologies and their practical application is crucial. This knowledge enhances the team's ability to ensure the reliability and functionality of the Crime Awareness Hub

CHAPTER VI

RESULTS AND DISCUSSION

6.1 Introduction

This study is designed a web-based platform empowering user to report index or non- index crimes in Zamboanga City having user-friendly web application that allows users to find the nearest police stations, fire stations, and barangays based on their current location. The feature ensures residents to quickly contact the law enforcement in the event of an emergency or when reporting crimes becomes necessary. This part of the study discusses the system and testing conducted.

The system offers a user interface enabling individuals to register and log in using their basic personal details. To gain access, users need to verify their accounts through an email sent to their designated email address. Once logged in, users can submit crime or incident reports by completing the respective form within the system. A notable feature permits user to identify their current location, simplifying the process of finding the nearest barangay, police station, and fire station. Upon report submission, users receive email notifications regarding the status of their reports, ensuring transparent communication throughout the process. Users can conveniently track and review their previous report submissions by accessing their report history in the receipt section.

The administrator's side encompasses several crucial functionalities. Administrators possess the ability to view, manage, and verify reports generated from the data submitted by users. The data provided by users is pivotal for the incident management process, particularly in addressing crime or incident reports. The system is designed to handle the management of location markers, essential for precisely identifying the selected barangays, police stations, and fire stations throughout the city's districts. This mapping feature enhances the overall precision and efficiency of the system. Administrators also have the capability to generate printed reports, classified into three distinct categories: latest reports, reports under investigation, and resolved reports. This categorization ensures a methodical and organized approach to managing the information provided by users, facilitating effective and efficient administration of the system.

6.2 Summary of Findings

The researchers performed alpha and beta testing on the system, utilizing 50 sample users. Following this, the researchers developed test cases for each module and functionality to evaluate the system. Below are following summary of the test results obtained from the 50 sampled users.

Test Result						
Executed	Passed					100
	Failed					0
	Total Tests Executed					100
Module	Description	% TCs Executed	% TCs Passed	% TCs Pending	Priority	Remarks
Login	Sign in into existing account	100%	100%	0	High	
Registration	Create new account for new user	100%	100%	0	High	
Authentication and Authorization	Account verification, forgot password, and recover password.	100%	100%	0	High	
Email validation	User email verification from Gmail.	100%	100%	0	High	
Account	Users, admins, and super admins.	100%	100%	0	High	
Home page	This highlights the key features, content, and purpose of the system.	100%	100%	0	High	
Inquiries	Basic information details (full name, contact number, and address), inquiry	100%	100%	0	High	

	subject, inquiry message.					
Report Form	Basic information details (full name, contact number, and address), date and time of the incident, Evidences of the incident, Input witness(Optional), crime level, safety concerns, and preferred language.	100%	100%	0	High	
Report Status	Latest reports, under investigation reports, and resolved reports.	100%	100%	0	High	
Report Receipt	View latest report receipt	100%	100%	0	High	
Admin/ Staff	Configure system settings, manage user permissions, troubleshoot technical issues, and ensure the overall functionality and security of the system.	100%	100%	0	High	
Interactive Map	Search location, get directions, map markers, up bar button (barangay nearest to farthest, fire station nearest to farthest, and police station nearest to farthest base from current location of the user, report button to report incident report.)	100%	100%	0	High	
Get user current location (real time)	Access and display the real-time geographical position of a user.	100%	100%	0	High	
Get directions	Users receive navigational guidance from one location to another.	100%	100%	0	High	

Markers	Visual indicators placed on the map to highlight specific points of interest such as: selected barangays, police station, and fire station.	100%	100%	0	High	
Manage markers	Allows admins to add, edit, or remove markers, typically represented by symbols and organize geographic information.	100%	100%	0	High	
Manage reports	Allows authorized administrators or designated staff, to oversee, update, and organize reports submitted by users.	100%	100%	0	High	
Manage Heatmaps	Allows authorized administrators validates, confirms and display heatmaps on the map.	100%	100%	0	High	
Manage Statistics	Allows authorized administrators visualize highest and most common crime monthly.	100%	100%	0	High	
Manage accounts	Allows administrators to oversee and control accounts. By creating new account, modifying account details, updating permissions, and deactivating or deleting accounts when necessary.	100%	100%	0	High	

On November 22, 2023, beta testing took place in Barangay Sta. Catalina, Barangay Talon-talon, and Barangay Mampang, with Mr. Asbir Taha serving as the encoder and Mr. Kenneth Diasnes, an SK Kagawad, participating. They evaluated the system by filling out the evaluation form found in Appendix D. The assessment involved rating the usability functionalities of the modules on a scale of 1 to 5, with one being the lowest and ten being the highest. The results indicated a maximum rating of ten for the usability of all modules. Testers expressed that the system improved the existing reporting process and was user-friendly. However, concerns were raised regarding potential limitations for certain users in terms of accessing technology. The evaluation form is provided below:

Tester Name: Dianes, Keneth			
Module	Description & Functions	Pass/Fail	Usability (1 to 5)
Login	Sign in into existing account	Pass	5
Registration	Create new account for new user	Pass	5
Authentication and Authorization	Account verification, forgot password, and recover password.		5
	Were the instructions and requirements for creating a new account clear and easy?	Pass	5
	Is the "Forgot Password" link easily visible on the login page?	Pass	5
	Is the login page secure and user-friendly during the verification process?	Pass	5
Email validation	User email verification from Gmail.		
	Did you receive a verification email after registering the account?	Pass	5
Home page	This highlights the key features, content, and purpose of the system.		
	Is the navigation on the home page intuitive and easy to use?	Pass	5
	Did you find the information presented on the home page clear and easily	Pass	5

	understandable?		
	Is the page responsive and quick to load?	Pass	5
Inquiries	Basic information details (full name, contact number, and address), inquiry subject, inquiry message.		
	How easy is it for you to find the "Inquiries" section in the user interface?	Pass	5
Report Form	Basic information details (full name, contact number, and address), date and time of the incident, Evidences of the incident, Input witness(Optional), crime level, safety concerns, and preferred language.		
	Is the process of filling out the report form intuitive and easy to understand?	Pass	5
	Did you encounter any difficulties in selecting or inputting information into the form?	Pass	5
	Are the instructions provided clear and concise within the report form?	Pass	5
	Does it indicate the status of a user's report from the report status section after they've submitted an incident report?	Pass	5
	Can users easily find and select the appropriate incident category or type in the report form?	Pass	5
Report Status and Report Receipt	Users can monitor their reports that falls into three categories such as latest reports, under investigation, and resolved reports.		
	Is it easy to find and access the status of your submitted reports?	Pass	5
	Is the display of report status clear and understandable?	Pass	5
	Are there different status categories, and do they provide meaningful information?	Pass	5
	Can users easily share or export a summary of their submitted report for	Pass	5

	personal records or follow-up?		
	Is there a receipt provided to users after submitting an incident report?	Pass	5
	Can users opt for receiving real-time email notifications on the status changes of their submitted reports? (from latest reports, under investigation reports, resolved reports.)	Pass	5
Interactive Map	Dynamic and user-engaging digital representation of geographic information.		
	Did the map display shows accurate information?	Pass	5
	Does the "Get User Location" feature signify the successful identification of your current position on the map?	Pass	5
	Did the “Get Directions” feature provide correct and precise results?	Pass	5
	Is the zooming and panning functionality smooth and responsive?	Pass	5
	Can you quickly search for specific locations or addresses on the map?	Pass	5
	Are there customization options for adjusting the appearance of the map to suit your preferences?	Pass	5
Markers	Visual indicators placed on a map to highlight specific points of interest, selected barangays, police station, and fire station.		
	How noticeable and distinguishable are the dynamic markers on the map?	Pass	5
	Can you easily understand the meaning or significance of each dynamic marker? (ex. Barangay hall, police station, and fire station)	Pass	5
Heatmaps	How noticeable and distinguishable are the dynamic heatmaps on the map?	pass	5
	Does the info content for heatmaps provides useful information for	pass	5

	awareness?		
Did you find the overall activity challenging?	The overall activity was not particularly difficult.	Pass	5
How would you rate the user-friendliness of Crime Awareness Hub? Can you share your feedback on the intuitiveness of the user interface.	The Crime Awareness Hub's usability is excellent in my opinion. The user interface is simple and easy to use, making it simple to navigate and access necessary features in the system.	Pass	5
How straightforward is the process of reporting incidents and concerns?	The procedure for reporting incidents and concerns is simple. It allows users to submit relevant information quickly and easily.	Pass	5
Can you quickly find information about locating the nearest safety stations?	Yes, locating the nearest safety stations is simple.	Pass	5
How secure and private does the interface feel when accessing safety resources?	When navigating to safety resources, the interface feels secure.	Pass	5
Which feature in the system do you find beneficial?	The mapping functionality stands out as the most useful feature of the system for me. It accurately pinpoints my current location and provides directions to destinations of my choice.	Pass	5
Which feature in the system do you find least beneficial?	None.	Pass	5
Is there anything in the system that seemed more complicated than necessary?	None.	Pass	5

Tester Name: Taha, Asbir			
Module	Description & Functions	Pass/Fail	Usability (1 to 5)
Login	Sign in into existing account	Pass	5
Registration	Create new account for new user	Pass	5
Authentication and Authorization	Account verification, forgot password, and recover password.		5
	Were the instructions and requirements for creating a new account clear and easy?	Pass	5
	Is the "Forgot Password" link easily visible on the login page?	Pass	5
	Is the login page secure and user-friendly during the verification process?	Pass	5
Email validation	User email verification from Gmail.		
	Did you receive a verification email after registering the account?	Pass	5
Home page	This highlights the key features, content, and purpose of the system.		
	Is the navigation on the home page intuitive and easy to use?	Pass	5
	Did you find the information presented on the home page clear and easily understandable?	Pass	5
	Is the page responsive and quick to load?	Pass	5
Inquiries	Basic information details (full name, contact number, and address), inquiry subject, inquiry message.	Pass	5
	How easy is it for you to find the "Inquiries" section in the user interface?	Pass	5
Report Form	Basic information details (full name, contact number, and address), date and time of the incident, Evidences of the		

	incident, Input witness(Optional), crime level, safety concerns, and preferred language.		
	Is the process of filling out the report form intuitive and easy to understand?	Pass	5
	Did you encounter any difficulties in selecting or inputting information into the form?	Pass	5
	Are the instructions provided clear and concise within the report form?	Pass	5
	Does it indicate the status of a user's report from the report status section after they've submitted an incident report?	Pass	5
	Can users easily find and select the appropriate incident category or type in the report form?	Pass	5
Report Status and Report Receipt	Users can monitor their reports that falls into three categories such as latest reports, under investigation, and resolved reports.		
	Is it easy to find and access the status of your submitted reports?	Pass	5
	Is the display of report status clear and understandable?	Pass	5
	Are there different status categories, and do they provide meaningful information?	Pass	5
	Can users easily share or export a summary of their submitted report for personal records or follow-up?	Pass	5
	Is there a receipt provided to users after submitting an incident report?	Pass	5
	Can users opt for receiving real-time email notifications on the status changes of their submitted reports? (from latest reports, under investigation reports, resolved reports.)	Pass	5
Interactive Map	Dynamic and user-engaging digital representation of geographic information.		

	Did the map display shows accurate information?	Pass	5
	Does the "Get User Location" feature signify the successful identification of your current position on the map?	Pass	5
	Did the “Get Directions” feature provide correct and precise results?	Pass	5
	Is the zooming and panning functionality smooth and responsive?	Pass	5
	Can you quickly search for specific locations or addresses on the map?	Pass	5
	Are there customization options for adjusting the appearance of the map to suit your preferences?	Pass	5
Markers	Visual indicators placed on a map to highlight specific points of interest, selected barangays, police station, and fire station.		
	How noticeable and distinguishable are the dynamic markers on the map?	Pass	5
	Can you easily understand the meaning or significance of each dynamic marker? (ex. Barangay hall, police station, and fire station)	Pass	5
Heatmaps	How noticeable and distinguishable are the dynamic heatmaps on the map?	pass	5
	Does the info content for heatmaps provides useful information for awareness?	pass	5
Did you find the overall activity challenging?	No, the overall activity was not difficult.	Pass	5
How would you rate the user-friendliness of Crime Awareness Hub? Can you share your feedback on the intuitiveness of	I would give the Crime Awareness Hub a high rating for user-friendliness. The accessibility of features in the system is easy and simple to use.	Pass	5

the user interface.			
How straightforward is the process of reporting incidents and concerns?	The procedure for reporting incidents and concerns is very straightforward.	Pass	5
Can you quickly find information about locating the nearest safety stations?	Finding information about nearby safety stations is simple and smooth. From my current location, I can clearly see the nearest to farthest stations for barangay, police station, and fire station.	Pass	5
How secure and private does the interface feel when accessing safety resources?	I appreciate the strong security measures placed by the researchers to protect user data while accessing critical safety information.	Pass	5
Which feature in the system do you find beneficial?	The reporting system, in my opinion, is the beneficial feature of the system. When I want to submit a complaint about a specific incident, reporting it online as a citizen makes the process faster and more convenient for local authorities to address my concerns.	Pass	5
Which feature in the system do you find least beneficial?	None at all.	Pass	5
Is there anything in the system that seemed more complicated than necessary?	None so far.	Pass	5

On November 22, 2023, beta testing took place in Barangay Sta. Catalina, Barangay Talon-talon, and Barangay Mampang, with Mr. Asbir Taha serving as the encoder and Mr. Kenneth Diasnes, an SK Kagawad, participating. They evaluated the system by filling out the evaluation form found in Appendix D. The assessment involved rating the usability functionalities of the modules on a scale of 1 to 5, with one being the lowest and ten being the highest. The results indicated a maximum rating of ten for the usability of all modules. Testers expressed that the system improved the existing reporting process and was user-friendly. However, concerns were raised regarding

potential limitations for certain users in terms of accessing technology. The evaluation form is provided below:

Tester Name: Dianes, Kenneth			
Module	Description & Functions	Pass/Fail	Usability (1 to 5)
Login	Sign in into existing account	Pass	5
Registration	Create new account for new user	Pass	5
Authentication and Authorization	Account verification, forgot password, and recover password.		5
	Were the instructions and requirements for creating a new account clear and easy?	Pass	5
	Is the "Forgot Password" link easily visible on the login page?	Pass	5
	Is the login page secure and user-friendly during the verification process?	Pass	5
Email validation	User email verification from Gmail.		
	Did you receive a verification email after registering the account?	Pass	5
Home page	This highlights the key features, content, and purpose of the system.		
	Is the navigation on the home page intuitive and easy to use?	Pass	5
	Did you find the information presented on the home page clear and easily understandable?	Pass	5
	Is the page responsive and quick to load?	Pass	5
Inquiries	Basic information details (full name, contact number, and address), inquiry subject, inquiry message.		
	How easy is it for you to find the "Inquiries" section in the user interface?	Pass	5
Report Form	Basic information details (full name,		

	contact number, and address), date and time of the incident, Evidences of the incident, Input witness(Optional), crime level, safety concerns, and preferred language.		
	Is the process of filling out the report form intuitive and easy to understand?	Pass	5
	Did you encounter any difficulties in selecting or inputting information into the form?	Pass	5
	Are the instructions provided clear and concise within the report form?	Pass	5
	Does it indicate the status of a user's report from the report status section after they've submitted an incident report?	Pass	5
	Can users easily find and select the appropriate incident category or type in the report form?	Pass	5
Report Status and Report Receipt	Users can monitor their reports that falls into three categories such as latest reports, under investigation, and resolved reports.		
	Is it easy to find and access the status of your submitted reports?	Pass	5
	Is the display of report status clear and understandable?	Pass	5
	Are there different status categories, and do they provide meaningful information?	Pass	5
	Can users easily share or export a summary of their submitted report for personal records or follow-up?	Pass	5
	Is there a receipt provided to users after submitting an incident report?	Pass	5
	Can users opt for receiving real-time email notifications on the status changes of their submitted reports? (from latest reports, under investigation reports, resolved reports.)	Pass	5

Interactive Map	Dynamic and user-engaging digital representation of geographic information.		
	Did the map display shows accurate information?	Pass	5
	Does the "Get User Location" feature signify the successful identification of your current position on the map?	Pass	5
	Did the “Get Directions” feature provide correct and precise results?	Pass	5
	Is the zooming and panning functionality smooth and responsive?	Pass	5
	Can you quickly search for specific locations or addresses on the map?	Pass	5
	Are there customization options for adjusting the appearance of the map to suit your preferences?	Pass	5
Markers	Visual indicators placed on a map to highlight specific points of interest, selected barangays, police station, and fire station.		
	How noticeable and distinguishable are the dynamic markers on the map?	Pass	5
	Can you easily understand the meaning or significance of each dynamic marker? (ex. Barangay hall, police station, and fire station)	Pass	5
Heatmaps	How noticeable and distinguishable are the dynamic heatmaps on the map?	pass	5
	Does the info content for heatmaps provides useful information for awareness?	pass	5
Did you find the overall activity challenging?	The overall activity was not particularly difficult.	Pass	5
How would you rate the user-friendliness of Crime Awareness Hub? Can you share your	The Crime Awareness Hub's usability is excellent in my opinion. The user interface is simple and easy to use, making it simple to navigate and access necessary features in the system.	Pass	5

feedback on the intuitiveness of the user interface.			
How straightforward is the process of reporting incidents and concerns?	The procedure for reporting incidents and concerns is simple. It allows users to submit relevant information quickly and easily.	Pass	5
Can you quickly find information about locating the nearest safety stations?	Yes, locating the nearest safety stations is simple.	Pass	5
How secure and private does the interface feel when accessing safety resources?	When navigating to safety resources, the interface feels secure.	Pass	5
Which feature in the system do you find beneficial?	The mapping functionality stands out as the most useful feature of the system for me. It accurately pinpoints my current location and provides directions to destinations of my choice.	Pass	5
Which feature in the system do you find least beneficial?	None.	Pass	5
Is there anything in the system that seemed more complicated than necessary?	None.	Pass	5

Tester Name: Taha, Asbir			
Module	Description & Functions	Pass/Fail	Usability (1 to 5)
Login	Sign in into existing account	Pass	5
Registration	Create new account for new user	Pass	5
Authentication and Authorization	Account verification, forgot password, and recover password.		5

	Were the instructions and requirements for creating a new account clear and easy?	Pass	5
	Is the "Forgot Password" link easily visible on the login page?	Pass	5
	Is the login page secure and user-friendly during the verification process?	Pass	5
Email validation	User email verification from Gmail.		
	Did you receive a verification email after registering the account?	Pass	5
Home page	This highlights the key features, content, and purpose of the system.		
	Is the navigation on the home page intuitive and easy to use?	Pass	5
	Did you find the information presented on the home page clear and easily understandable?	Pass	5
	Is the page responsive and quick to load?	Pass	5
Inquiries	Basic information details (full name, contact number, and address), inquiry subject, inquiry message.	Pass	5
	How easy is it for you to find the "Inquiries" section in the user interface?	Pass	5
Report Form	Basic information details (full name, contact number, and address), date and time of the incident, Evidences of the incident, Input witness(Optional), crime level, safety concerns, and preferred language.		
	Is the process of filling out the report form intuitive and easy to understand?	Pass	5
	Did you encounter any difficulties in selecting or inputting information into the form?	Pass	5
	Are the instructions provided clear and concise within the report form?	Pass	5

	Does it indicate the status of a user's report from the report status section after they've submitted an incident report?	Pass	5
	Can users easily find and select the appropriate incident category or type in the report form?	Pass	5
Report Status and Report Receipt	Users can monitor their reports that falls into three categories such as latest reports, under investigation, and resolved reports.		
	Is it easy to find and access the status of your submitted reports?	Pass	5
	Is the display of report status clear and understandable?	Pass	5
	Are there different status categories, and do they provide meaningful information?	Pass	5
	Can users easily share or export a summary of their submitted report for personal records or follow-up?	Pass	5
	Is there a receipt provided to users after submitting an incident report?	Pass	5
	Can users opt for receiving real-time email notifications on the status changes of their submitted reports? (from latest reports, under investigation reports, resolved reports.)	Pass	5
Interactive Map	Dynamic and user-engaging digital representation of geographic information.		
	Did the map display shows accurate information?	Pass	5
	Does the "Get User Location" feature signify the successful identification of your current position on the map?	Pass	5
	Did the "Get Directions" feature provide correct and precise results?	Pass	5
	Is the zooming and panning functionality smooth and responsive?	Pass	5

	Can you quickly search for specific locations or addresses on the map?	Pass	5
	Are there customization options for adjusting the appearance of the map to suit your preferences?	Pass	5
Markers	Visual indicators placed on a map to highlight specific points of interest, selected barangays, police station, and fire station.		
	How noticeable and distinguishable are the dynamic markers on the map?	Pass	5
	Can you easily understand the meaning or significance of each dynamic marker? (ex. Barangay hall, police station, and fire station)	Pass	5
Heatmaps	How noticeable and distinguishable are the dynamic heatmaps on the map?	pass	5
	Does the info content for heatmaps provides useful information for awareness?	pass	5
Did you find the overall activity challenging?	No, the overall activity was not difficult.	Pass	5
How would you rate the user-friendliness of Crime Awareness Hub? Can you share your feedback on the intuitiveness of the user interface.	I would give the Crime Awareness Hub a high rating for user-friendliness. The accessibility of features in the system is easy and simple to use.	Pass	5
How straightforward is the process of reporting incidents and concerns?	The procedure for reporting incidents and concerns is very straightforward.	Pass	5
Can you quickly find information about locating the nearest safety	Finding information about nearby safety stations is simple and smooth. From my current location, I can clearly see the nearest to farthest stations for barangay,	Pass	5

stations?	police station, and fire station.		
How secure and private does the interface feel when accessing safety resources?	I appreciate the strong security measures placed by the researchers to protect user data while accessing critical safety information.	Pass	5
Which feature in the system do you find beneficial?	The reporting system, in my opinion, is the beneficial feature of the system. When I want to submit a complaint about a specific incident, reporting it online as a citizen makes the process faster and more convenient for local authorities to address my concerns.	Pass	5
Heatmaps	How noticeable and distinguishable are the dynamic heatmaps on the map?	pass	5
	Does the info content for heatmaps provides useful information for awareness?	pass	5
Which feature in the system do you find least beneficial?	None at all.	Pass	5
Is there anything in the system that seemed more complicated than necessary?	None so far.	Pass	5

CHAPTER VII

CONCLUSION AND RECOMMENDATIONS

7.1 Conclusion

The development of Crime Awareness Hub emphasizes the critical importance of addressing crime awareness and public safety in Zamboanga City, while also acknowledging the multifaceted challenges posed by both index and non-index crimes. These crimes not only have an immediate impact on the victims, but they also contribute to a lower quality of life and a greater sense of insecurity in the community. The researchers performed alpha and beta testing involving 50 sampled users, creating a test case for each system module, as outlined in the testing plan test cases section of this documentation. After the alpha testing, beta testing was carried out in three chosen barangays, namely Barangay Sta. Catalina, Barangay Talon-talon, and Barangay Mampang. The beta testing took place on November 22, 2023, with the participation of Mr. Asbir Taha serves as the chief officer responsible for handling complaints within the barangay and SK Kagawad Mr. Kenneth Diasnes. The testers collectively affirmed that the specified objectives were met during the beta testing phase:

Visitors without accounts have the ability to view the homepage content, encompassing sections such as the homepage with navigation bar that includes services, about us, the team (barangay, police station, and fire station information), the developers, contact us (for inquiries), and the login option.

Users have the capability to explore the homepage navigation bar, features, and content. They can also log in, access an interactive map with various functionalities (including a search button, map tiles, zoom in and out, full-screen mode, pegman, obtaining the user's current location, and get directions from the user current location to an entered location). Additionally, users can utilize the up-bar button to locate for barangays, fire stations, and police stations from nearest to farthest from user current location, clear current location data, and use the "report now" button, which involves a report form collecting incident details from the user. The platform also allows users to monitor status reports, categorizing them as the latest reports, those under investigation report, and resolved reports, along with providing a report receipt.

Administrator and staffs can login, access admin dashboard that includes, manage marker(add markers, edit marker details, delete markers), manage reports (search records, print report incident, edit report, and delete report), manage inquiries (view and delete), manage users (deactivate and reactive user, print all listed user, search user), manage staff (add admin staff as super user, barangay admin for Mampang, Talon-talon, and Sta. Catalina, username and password required), and settings(admin profile and change password.)

7.2 Recommendations

To improve the success of the Crime Awareness Hub initiative, many significant recommendations are made. starting with the user interface should be refined on a regular basis to ensure that it stays intuitive and accessible. Regular system upgrades and maintenance plans should also be implemented to ensure system stability and security.

Community engagement strategies should be developed to encourage active participation among residents, law enforcement agencies, and stakeholders. Strengthening partnerships with local authorities.

Broadening the platform's range by opening up to other areas in Zamboanga City and nearby places will help fight crime better in the region. Surveys and suggestions from users will allow for timely updates. Outreach through social media, local news outlets, and community ties will spread word and get more people involved.

Finally, it is vital to create a sustainability strategy for long-term operation and success beyond initial implementation. The platform's viability depends on this essential plan. Following these suggestions, the Crime Awareness Hub initiative can reinforce its role in promoting community safety. It will foster collaboration and encourage residents' contributions to a secure environment.

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APPENDIX A

Greetings! In partial fulfilment with requirements in IT 140 (Capstone Project and Research 1), the researchers would like to interview for our project titled “Crime Awareness Hub: A Web-Based Platform Empowering Users to Report Index or Non-Index Crimes in Zamboanga City.” To know about the prospect’s overall barangay process. All of the answers will be kept strictly confidential. Thank you.

INTERVIEW QUESTIONS

Questions about the process:

1. How is the process for reports or complaints done in barangay?
- There are various complaint categories determined by the complainant's situation. Additionally, an official complaint form is available, and the barangay can inquire about the preferred language for collecting incident data from the complainant or the person reporting the incident.

2. What is the process for reports coming from the complainant?
- At the barangay level, scheduling is done for confrontation and mediation in response to a report or complaint. The complainant's preference plays a crucial role, whether they opt for a blotter entry, recording the complaint details in the barangay's record book, or proceeding with a formal complaint. The scheduling is tailored to the complainant's convenience. For instance, if a complaint is filed within a day, the scheduled time for addressing the complaint is set on a specific day. The respondent or suspect is then served with a subpoena or through a summon letter.

3. If the police and fire station are needed, how does the barangay connect with them? Do they contact the police or fire station, or is there another method or process?
- The barangay contacts the fire station and police through hotline numbers and other form of communication connections.

4. When it comes to emergencies, how does the barangay handle them? Do they take actions based on information from the complainant, or do they directly handle

the crime report?

- Example: There was a problem last night in the barangay involving two elderly individuals, a stabbing incident almost occurred, and the victim was almost stabbed. When the complainant came to the barangay to report, the report was forwarded to prepare for filing a blotter against the suspect. This is the process in the barangay since barangay is close to the police station, giving them quick access to crime-involved situations and the fire station. Even if it's a bit far, it's still within the barangay's Area of Responsibility (AOR). Last time, they found a missing minor in gov camins ave as long as it's within their range. If they can't respond, they coordinate with other barangays for support or have the barangay itself in that location handle the situation. They can't just enter the responsibility of other barangays without coordinating.

5. Regarding the process of validating all crime reports and complaints, is the validation process the same, or do they have different required processes?

- The barangay receive the complaint and first ask about the incident encountered by the complainant. They validate the report based on details such as the time, date, and how the incident started. Then there comes a time when the respondent becomes the complainant because the respondent went to the barangay first before the complaint. For instance, a barangay kagawad got into a fight with a tanod because the kagawad did something wrong to the tanod, making the tanod angry. The kagawad having done wrong, tried to punch the tanod first, but the tanod cleverly avoided it. The kagawad then went to the barangay to file a complaint. During the confrontation, it was revealed that the kagawad was at fault because the kagawad attempted to punch the tanod, and the tanod did nothing. The first confrontation is always heated, coming from both the complainant and respondent.

6. If there's a false report from the complainant, how do you handle it? Also, how do you prevent false reports from the complainant?

- If there's a false report, the barangay discuss it based on witnesses or information from reliable sources. Before, when they didn't have Intel or connections, they investigated. The Kagawad mentioned having experience in peace and order, so they are trained in mediation methods because not always is the one who sets the complaint correct. Sometimes, the one complaining is the one at fault.

APPENDIX B

Sign Up Module

```

<?php
$msg = "";

if (isset($_POST['submit'])) {
    $firstname = mysqli_real_escape_string($con, $_POST['firstname']);
    $lastname = mysqli_real_escape_string($con, $_POST['lastname']);
    $MI = mysqli_real_escape_string($con, $_POST['MI']);
    $email = mysqli_real_escape_string($con, $_POST['email']);
    $contact = mysqli_real_escape_string($con, $_POST['contact']);
    $address = mysqli_real_escape_string($con, $_POST['address']);
    $password = mysqli_real_escape_string($con, $_POST['password']);
    $cpassword = mysqli_real_escape_string($con, $_POST['cpassword']);
    $user_type = mysqli_real_escape_string($con, $_POST['user_type']);
    $code = mysqli_real_escape_string($con, md5(rand()));

    if (mysqli_num_rows(mysqli_query($con, "SELECT * FROM users WHERE email='{$email}'")) > 0) {
        echo "</div>";
        echo '<script type="text/javascript">';
        echo 'swal("error!", "The email is already used!", "error").then(function() { window.location = "signup.php"; })';
        echo '</script>';
    } else {
        if ($password === $cpassword) {
            $sql = "INSERT INTO users (user_type, firstname, lastname, MI, email, mobilenum, address, password, code, status) VALUES ('{$user_type}', '{$firstname}', '{$lastname}', '{$MI}', '{$email}', '{$contact}', '{$address}', '{$password}', '{$code}', 'active')";
            echo "</div>";

            $class1 = "'preview-icon bg-success'";
            $class2 = "'ti-info-alt mx-0'";
            $code_msg =
                "<div class=$class1>
                <i class=$class2>
                </i>
                </div>";

            $code_msg = mysqli_real_escape_string($con, $code_msg);

            $msg = "User registration!";
            $msg_disp = "A user has successfully registered!";
            $Now = new DateTime('now', new DateTimeZone('Asia/Taipei'));
            $Now = $Now->format('Y-m-d H:i:s');
            $sql = "INSERT INTO users (user_type, firstname, lastname, MI, email, mobilenum, address, password, code, status) VALUES ('{$user_type}', '{$firstname}', '{$lastname}', '{$MI}', '{$email}', '{$contact}', '{$address}', '{$password}', '{$code}', 'active')";
            $result = mysqli_query($con, $sql);
        }
    }
}

```

```

if ($result) {
    // Success: Send verification email using Swift Mailer
    try {
        $transport = (new Swift_SmtpTransport('smtp.gmail.com', 465, 'ssl'))
            ->setUsername('habibonfaizer6@gmail.com')
            ->setPassword('etck zkik hguq imbn')
            ->setStreamOptions(['ssl' => ['allow_self_signed' => true, 'verify_peer' => false, 'verify_peer_name' => false]]);
    }

    // Create the Mailer using your created Transport
    $mailer = new Swift_Mailer($transport);

    // Create the message
    $message = (new Swift_Message('Crime Map Account Verification'))
        ->setFrom(['habibonfaizer6@gmail.com' => 'CRIME AWARENESS HUB'])
        ->setTo([$email => $firstname . ' ' . $lastname])
        ->setBody(
            '<html>
                <head></head>
                <body>
                    <div style="font-family: Arial, sans-serif; padding: 20px; background-color: #f5f5f5;">
                        <div style="background-color: #fff; padding: 20px; border-radius: 10px; box-shadow: 0 0 10px rgba(0,0,0,0.1);">
                            <h2 style="color: #0b0b42;">Welcome to Crime Awareness Hub</h2>
                            <p style="font-size: 16px;">Greetings from the Crime Hub team!</p>
                            <p style="font-size: 16px;">In order to access your account, please verify your email
                                address by clicking the button below:</p>
                            <p><a style="display: inline-block; padding: 10px 20px; background-color: #0b0b42; color: #fff; text-decoration: none; border-radius: 5px;" href="https://crimawarenesshub.online/login.php?verification=' .
                                $code . '">Verify Your Account</a></p>
                            <p style="font-size: 16px;">If you did not request this verification, you can ignore this
                                email. Your account will not be created or accessed.</p>
                        </div>
                    </div>
                </body>
            </html>',
            'text/html'
        );
    }

    // Send the message
    $result = $mailer->send($message);
    echo '<script type="text/javascript">';
    echo 'swal("success!", "We have sent a verification link to your Email address.",';
    "success").then(function() {
        window.location = "signup.php"; });
    echo '</script>';
} catch (Exception $e) {
    echo 'Message could not be sent. Mailer Error: ' . $e->getMessage();
}
} else {
    // Handle registration failure
}

```

```

        }
    } else {
        echo "</div>";
        echo '<script type="text/javascript">';
        echo 'swal("error!", "The password does not match!", "error").then(function() { window.location =
"signup.php";});';
        echo '</script>';
    }
}
?>

```

Login Module

```

if ($_SERVER['REQUEST_METHOD'] == "POST") {
    // Something was posted
    $email = $_POST['email'];
    $password = $_POST['password'];
    // $firstname = $_POST['firstname'];
    // $lastname = $_POST['lastname'];
    if (!empty($email) && !empty($password) && !is_numeric($email)) {
        // Read from the database
        $query = "SELECT * FROM users WHERE email = '$email' LIMIT 1";
        $result = mysqli_query($con, $query);

        if ($result && mysqli_num_rows($result) > 0) {
            $user_data = mysqli_fetch_assoc($result);

            if ($user_data['code'] == '') {
                if ($user_data['status'] == 'active') { // Check if account is active
                    if ($user_data['password'] === $password) {
                        $_SESSION['user_id'] = $user_data['id'];
                        $_SESSION['email'] = $user_data['email'];
                        $_SESSION['firstname'] = $user_data['firstname'];
                        $_SESSION['lastname'] = $user_data['lastname'];
                        header("Location: sample.php");
                        exit;
                    } else {
                        echo '<script type="text/javascript">';
                        echo 'swal("Error!", "Wrong email or password", "error").then(function() { window.location =
"login.php";});';
                        echo '</script>';
                        exit;
                    }
                } else {
                    echo '<script type="text/javascript">';
                    echo 'swal("Error!", "Your account has been deactivated", "error").then(function() { window.location =
"login.php";});';
                    echo '</script>';
                    exit;
                }
            }
        }
    }
}
?>

```

```

        }
    } else {
        echo '<script type="text/javascript">';
        echo 'swal("Error!", "Your account has not been verified yet", "error").then(function() {
window.location = "login.php";});';
        echo '</script>';
        exit;
    }
} else {
    echo '<script type="text/javascript">';
    echo 'swal("Error!", "You don\'t have an account", "error").then(function() { window.location =
"login.php";});';
    echo '</script>';
    exit;
}
}
}
}

```

Forgotpassword module with reset email verification

```

if (isset($_POST['submit'])) {
    $email = mysqli_real_escape_string($con, $_POST['email']);
    $code = mysqli_real_escape_string($con, md5(rand()));

    if (mysqli_num_rows(mysqli_query($con, "SELECT * FROM users WHERE email='{$email}'")) > 0) {
        $query = mysqli_query($con, "UPDATE users SET code='{$code}' WHERE email='{$email}'");

        if ($query) {
            try {
                $transport = (new Swift_SmtpTransport('smtp.gmail.com', 465, 'ssl'))
                    ->setUsername('habibonfaizer6@gmail.com')
                    ->setPassword('etck zkik hguq imbn')
                    ->setStreamOptions(['ssl' => ['allow_self_signed' => true, 'verify_peer' => false, 'verify_peer_name' =>
false]]);

                $mailer = new Swift_Mailer($transport);

                $message = (new Swift_Message('Crime Awareness HUB Reset Verification'))
                    ->setFrom(['habibonfaizer6@gmail.com' => 'Crime HUB'])
                    ->setTo([$email => $firstname . ' ' . $lastname])
                    ->setBody(
                        '<html>
<head></head>
<body>
<div style="font-family: Arial, sans-serif; padding: 20px; background-color: #f5f5f5;">
<div style="background-color: #fff; padding: 20px; border-radius: 10px; box-shadow: 0 0 10px
rgba(0,0,0,0.1);">
<h2 style="color: #0b0b42;">Password Reset Request</h2>
<p style="font-size: 16px;">Greetings from the Crime HUB team!</p>

```

```

<p style="font-size: 16px;">We have received a request to reset your password. If you did not
initiate this request, please ignore this email.</p>
<p style="font-size: 16px;">Here is your password reset link:</p>
<p><a style="display: inline-block; padding: 10px 20px; background-color: #0b0b42; color:
#fff; text-decoration: none; border-radius: 5px;" href="https://crimawarnershush.online/changepassword.php?reset=' . $code . '">Reset Password</a></p>
<p style="font-size: 16px;">If you encounter any issues, please contact our support team.</p>
</div>
</div>
</body>
</html>',
'text/html'

);

$result = $mailer->send($message);

echo 'Message has been sent';
} catch (Exception $e) {
echo "Message could not be sent. Mailer Error: " . $e->getMessage();
}

echo '<script type="text/javascript">';
echo 'swal("success!", "We\'ve sent a reset link to your email", "success").then(function() {
window.location = "forgotpassword.php";});';
echo '</script>';
} else {
echo '<script type="text/javascript">';
echo 'swal("error!", "invalid email address!", "error").then(function() { window.location =
"forgotpassword.php";});';
echo '</script>';
}
}
}

```

Change password

```
if (isset($_GET['reset'])) {  
  
    if (mysqli_num_rows(mysqli_query($con, "SELECT * FROM users WHERE code='$_GET['reset']'")) > 0) {  
  
        if (isset($_POST['submit'])) {  
  
            $password = mysqli_real_escape_string($con, $_POST['password']);  
  
            $cpassword = mysqli_real_escape_string($con, $_POST['cpassword']);  
  
            if ($password === $cpassword) {  
  
                $query = mysqli_query($con, "UPDATE users SET password='{$password}', code=" WHERE  
code='$_GET['reset']'");  
  
                if ($query) {
```

```

echo '<script type="text/javascript">';

echo 'swal("Success!", "Password has been changed successfully!", "success").then(function() {
window.location = "login.php"; })';

echo '</script>';

}

} else {

echo "</div>";

echo '<script type="text/javascript">';

echo 'swal("error!", "password and email do not matched", "error").then(function() { window.location =
"changepassword.php"; })';

echo '</script>';

}

}

} else {

echo "</div>";

echo '<script type="text/javascript">';

echo 'swal("error!", "error occurred!", "error").then(function() { window.location = "changepassword.php"; })';

echo '</script>';

}

}

} else {

// header("Location: forgotpassword.php");

}

```

Map initiation

```

function initMap() {
  map = new google.maps.Map(document.getElementById('map'), {
    center: { lat: 3.9191687, lng: 142.1038429 },
    zoom: 13,
    mapTypeControl: false,
    mapTypeControlOptions: {
      style: google.maps.MapTypeControlStyle.HORIZONTAL_BAR,
      position: google.maps.ControlPosition.TOP_RIGHT
    },
    fullscreenControl: true,
    fullscreenControlOptions: {
      position: google.maps.ControlPosition.RIGHT
    }
}

```

```
});
```

Map style, Street- view, zoom panning etc.

```
var currentLocationMarker = null;

function toggleView() {
    var map = document.getElementById('map');
    var toggleButton = document.getElementById('toggle-view-button');
    var tiltEnabled = map.style.transform === 'perspective(1000px) rotateX(45deg)';

    if (!tiltEnabled) {
        map.style.transform = 'perspective(1000px) rotateX(45deg)';
        toggleButton.textContent = 'Toggle Top-Down View';
    } else {
        map.style.transform = 'none';
        toggleButton.textContent = 'Toggle 65-degree View';
    }
}

function changeMapType(mapType) {
    map.setMapTypeId(mapType);
    document.getElementById('mapTypeControl').style.display = 'none';
}

function initMap() {
    map = new google.maps.Map(document.getElementById('map'), {
        center: { lat: 3.9191687, lng: 142.1038429 },
        zoom: 13,
        mapTypeControl: false,
        mapTypeControlOptions: {
            style: google.maps.MapTypeControlStyle.HORIZONTAL_BAR,
            position: google.maps.ControlPosition.TOP_RIGHT
        },
        fullscreenControl: true,
        fullscreenControlOptions: {
            position: google.maps.ControlPosition.RIGHT
        }
    });

    // Create a custom map type control button
    var mapTypeControlDiv = document.createElement('div');
    var mapTypeControlUI = document.createElement('div');
    mapTypeControlUI.innerHTML = '';
    mapTypeControlUI.className = 'custom-map-type-button';
    mapTypeControlDiv.appendChild(mapTypeControlUI);

    // Add the custom control to the map
    map.controls[google.maps.ControlPosition.TOP_RIGHT].push(mapTypeControlDiv);

    // Show/hide the map type control when the custom button is clicked
}
```

```

mapTypeControlUI.addEventListener('click', function () {
  var mapTypeControl = document.getElementById('mapTypeControl');
  mapTypeControl.style.display = (mapTypeControl.style.display === 'block' ? 'none' : 'block');
});

// Initialize directionsService
directionsService = new google.maps.DirectionsService();

// Initialize directionsDisplay
directionsDisplay = new google.maps.DirectionsRenderer();
directionsDisplay.setMap(map);

```

Custom Markers

```

// Call the fetchMarkers function to add markers to the map
fetchMarkers(map);

function fetchMarkers(map) {
  fetch('get_markers.php')
    .then(function (response) {
      return response.json();
    })
    .then(function (data) {
      var infoWindows = [];

      data.forEach(function (markerData) {
        var marker = new google.maps.Marker({
          position: { lat: parseFloat(markerData.latitude), lng: parseFloat(markerData.longitude) },
          map: map,
          title: markerData.title,
          icon: {
            url: 'assets/img/bluemarker.png', // Use your custom marker icon
            scaledSize: new google.maps.Size(28, 39), // Adjust the size as needed
          },
          animation: google.maps.Animation.DROP, // Add bounce effect
        });

        // Add a continuous spin effect using CSS animation
        var rotation = 0;
        setInterval(function () {
          rotation += 10;
          marker.setIcon({
            url: 'assets/img/bluemarker.png', // Use your custom marker icon
            scaledSize: new google.maps.Size(28, 39), // Adjust the size as needed
            rotation: rotation,
          });
        }, 100); // Adjust the rotation speed as needed (100 milliseconds in this example)
      });
    });
}

```

```

// Add a bounce effect on mouseover
marker.addListener('mouseover', function () {
    marker.setAnimation(google.maps.Animation.BOUNCE);
});

marker.addListener('mouseout', function () {
    marker.setAnimation(null); // Stop bouncing when mouseout
});

var contentString = '<div class="info-window-content">' +
'<h4>' + markerData.title + '</h4>' +
'<p>' + markerData.description + '</p>' +
'<p>Facebook: <a href=' + markerData.type + '" target="_blank">' + markerData.type + '</a></p>' +
'<img onclick="openModal(\"' + markerData.imagepath + '\")" src=' + markerData.imagepath + ' alt=' +
+ markerData.title + '>' +
'</div>';

var infowindow = new google.maps.InfoWindow({
    content: contentString
});

// Automatically open the InfoWindow after 4 seconds
setTimeout(function () {
    infowindow.open(map, marker);
}, 5000); // 4000 milliseconds = 4 seconds

// Automatically close the InfoWindow after 8 seconds
setTimeout(function () {
    infowindow.close();
}, 9000); // 8000 milliseconds = 8 seconds

// Add a click event listener to the marker to open/close the InfoWindow
marker.addListener('click', function () {
    if (infowindow.getMap()) {
        infowindow.close();
    } else {
        infowindow.open(map, marker);
    }
});

infoWindows.push(infowindow);

// Add a listener for the "Get Directions" button click
google.maps.event.addDomListener(infowindow, 'domready', function () {
    document.getElementById('getDirectionsButton').addEventListener('click', function () {
        // Reverse geocode the latitude and longitude
        var geocoder = new google.maps.Geocoder();
        var latLng = marker.getPosition();

        geocoder.geocode({ 'location': latLng }, function (results, status) {

```

```

if (status === google.maps.GeocoderStatus.OK) {
    if (results[0]) {
        // Get the most accurate place name from the results
        var placeName = results[0].formatted_address;

        // Trigger your left sidebar to open
        toggleLeftSidebar();

        // Fill the end location input field with the filtered place name
        document.getElementById('endLocation').value = placeName;
    } else {
        // If no results are found, use the latitude and longitude
        var placeName = latLng.lat() + ', ' + latLng.lng();
        toggleLeftSidebar();
        document.getElementById('endLocation').value = placeName;
    }
}
});

});

// Close all InfoWindows after 8 seconds
setTimeout(function () {
    infoWindows.forEach(function (infowindow) {
        infowindow.close();
    });
    // Set the map's center to your current location marker
    map.setCenter(currentLocationMarker.getPosition());
    addFogOverlay(map);

}, 9000); // 8000 milliseconds = 8 seconds
})
.catch(function (error) {
    console.error('Error fetching data:', error);
});
}

```

Locating Real-time Current Location, Reverse Geocoding:, Remove function, Get directions

```

// Function to locate the current location
document.getElementById('locateCurrentLocation').addEventListener('click', function () {
    toggleCurrentLocation(map);
});

// Function to toggle the marker on the map
function toggleMarker(map, latLng, placeName) {
    if (currentLocationMarker) {
        currentLocationMarker.setMap(null); // Remove the previous marker
    }
}

```

```

}

// Create a marker with latitude, longitude, and name
var marker = new google.maps.Marker({
  position: latLng,
  map: map,
  title: placeName // Set the title of the marker to the placeName
});

// Open an info window with the place name, latitude, and longitude
var infoWindow = new google.maps.InfoWindow({
  content: 'Place: ' + placeName + '<br>Latitude: ' + latLng.lat() + '<br>Longitude: ' + latLng.lng()
});

// Inside the toggleMarker function, after creating the marker
google.maps.event.addListener(marker, 'click', function () {
  infoWindow.open(map, marker);
});

// Set the current marker to the new marker
currentLocationMarker = marker;
}

// Function to remove the marker from the map
function removeMarker() {
  if (currentLocationMarker) {
    currentLocationMarker.setMap(null); // Remove the marker
    currentLocationMarker = null; // Reset the current marker
  }
}

var button = document.getElementById('locateCurrentLocation');
var statusMessage = document.getElementById('location-status');
var locating = false; // Flag to track the current state

function showLocationFoundMessage() {
  Swal.fire({
    icon: 'success',
    title: 'Location Found!',
    text: 'You may now locate and get directions to the nearest places and make reports.',
    showConfirmButton: false,
    timer: 3000, // Auto-close the alert after 3 seconds
    customClass: {
      popup: 'location-found-swal',
    },
    border: '1px solid #3a74ff',
    borderRadius: '10px',
    color: '#fff',
  });
}

// Flag to control whether to watch the current location or not
var watchCurrentLocationFlag = true;

```

Remove Current Location

```
// Function to show a SweetAlert confirmation message
function showRemoveLocationConfirmation(callback) {
    Swal.fire({
        title: 'Remove Location',
        text: 'Are you sure you want to remove your current location marker?',
        icon: 'warning',
        showCancelButton: true,
        confirmButtonText: 'Remove',
        cancelButtonText: 'Cancel',
        customClass: {
            popup: 'remove-location-swal',
        },
    }).then((result) => {
        if (result.isConfirmed) {
            callback(); // Call the provided callback function if the user confirms

            // Remove the location marker
            if (currentLocationMarker) {
                currentLocationMarker.setMap(null);
                currentLocationMarker = null;
            }

            // Remove the glowing circle
            if (currentLocationCircle) {
                currentLocationCircle.setMap(null);
                currentLocationCircle = null;
            }

            // Explicitly clear the input value
            document.getElementById('start-location-input').value = '';

            // Stop watching the current location
            watchCurrentLocationFlag = false;
        }
    });
}
```

Users-location Custom Marker

```
// Existing code for creating and updating the marker
function createCurrentLocationMarker(map, userLocation, placeName) {
    try {
        var marker = new google.maps.Marker({
            position: userLocation,
            map: map,
            title: placeName,
        });
    }
}
```

```

icon: {
    path: google.maps.SymbolPath.CIRCLE,
    scale: 7,
    fillColor: '#007BFF',
    fillOpacity: 0.7,
    strokeWeight: 2,
    strokeColor: '#0047B3',
},
});

currentLocationMarker = marker;

var infoContent = placeName || 'My Location';
var infoOptions = {
    content: infoContent
};

currentLocationInfoWindow = new google.maps.InfoWindow(infoOptions);

// Open the info window when the marker is clicked
google.maps.event.addListener(marker, 'click', function () {
    currentLocationInfoWindow.open(map, marker);
});

// Create a larger circle around the marker with a glowing effect
var circle = new google.maps.Circle({
    strokeColor: '#007BFF',
    strokeOpacity: 0.8,
    strokeWeight: 2,
    fillColor: '#007BFF',
    fillOpacity: 0.35,
    map: map,
    center: userLocation,
    radius: 5,
    className: 'glowing-circle',
});

// Store the circle in the currentLocationCircle variable
currentLocationCircle = circle;

return marker;
} catch (error) {
    console.error('Error creating marker:', error);
}
}

```

Reverse Geocoding

```

function updateCurrentLocationMarker(userLocation, placeName) {
    try {

```

```

currentLocationMarker.setPosition(userLocation);

var infoContent = placeName || 'My Location';
var infoOptions = {
  content: infoContent
};

currentLocationInfoWindow.setOptions(infoOptions);

// Move the glowing circle to the updated position
currentLocationCircle.setCenter(userLocation);

} catch (error) {
  console.error('Error updating marker:', error);
}

}

var previousPosition = null;
var totalDistance = 0;

function watchCurrentLocation() {
  var isMoving = false; // Flag to track device movement

  navigator.geolocation.watchPosition(
    function (position) {
      if (!watchCurrentLocationFlag) {
        return; // Do not update if the flag is false
      }

      var userLocation = {
        lat: position.coords.latitude,
        lng: position.coords.longitude
      };

      // Use reverse geocoding to get accurate address information
      var geocoder = new google.maps.Geocoder();
      geocoder.geocode({ location: userLocation }, function (results, status) {
        if (status === 'OK' && results && results[0]) {
          var placeName = getFormattedPlaceName(results[0]);

          if (previousPosition) {
            var distance = google.maps.geometry.spherical.computeDistanceBetween(
              new google.maps.LatLng(previousPosition),
              new google.maps.LatLng(userLocation)
            );

            if (distance > 1) {
              updateCurrentLocationMarker(userLocation, placeName);
              totalDistance += distance;
              isMoving = true;
            } else {
              ...
            }
          }
        }
      });
    }
  );
}

```

```

        // If the device is not moving, stop the marker
        isMoving = false;
    }
} else {
    // Update the marker for the initial position
    updateCurrentLocationMarker(userLocation, placeName);
}

// Update the previous position
previousPosition = userLocation;
} else {
    console.error('Reverse geocoding failed:', status);
}
});

},
function (error) {
    console.error('Error getting your location: ' + error.message);
},
{
enableHighAccuracy: true,
maximumAge: 5000, // Set a higher maximumAge value
timeout: 10000 // Set a higher timeout value
}
);
}
}

```

Geocoding and Reverse geocoding Algorithm

```

function getFormattedPlaceName(result) {
    var addressComponents = result.address_components;
    var formattedName = "";

    // Iterate through address components and add them to formattedName
    for (var i = 0; i < addressComponents.length; i++) {
        formattedName += addressComponents[i].long_name + ' ';
    }

    // If the formattedName is empty, use the place code
    if (formattedName.trim() === "") {
        formattedName = result.place_id;
    }

    return formattedName.trim();
}

// Automatically watch and update the current location when the page loads
window.addEventListener('load', function () {
    if (!locating) {
        watchCurrentLocation();
    }
})

```

```

});

function toggleCurrentLocation(map) {
    if (locating) {
        // If currently locating, stop the process
        // Show a confirmation dialog to remove the location
        showRemoveLocationConfirmation(function () {
            // If the user confirms, remove the location
            locating = false;
            button.innerHTML = '<i class="fa-solid fa-map-marker-alt"></i> Locate Current Location';
            statusMessage.textContent = 'Click the button to locate your current location';
            if (currentLocationMarker) {
                currentLocationMarker.setMap(null);
                currentLocationMarker = null;
                if (currentLocationInfoWindow) {
                    currentLocationInfoWindow.close(); // Close the info window
                }
            }
        });

        // Clear the input text
        document.getElementById('start-location-input').value = '';

        // Clear the distance container
        var distanceContainer = document.getElementById('distance-matrix');
        distanceContainer.innerHTML = '';
        removeGlowEffect();

        // Stop watching the current location
        watchCurrentLocationFlag = false;
    });
} else {
    // If not currently locating, start the process
    locating = true;
    button.innerHTML = '<i class="fa-solid fa-map-marker-alt fa-map-marker-hole"></i> Remove Location';
    statusMessage.textContent = 'Locating...';

    if (navigator.geolocation) {
        navigator.geolocation.getCurrentPosition(function (position) {
            var userLocation = {
                lat: position.coords.latitude,
                lng: position.coords.longitude
            };

            // Use the Geocoding API to get accurate address information
            var geocoder = new google.maps.Geocoder();
            geocoder.geocode({ location: userLocation }, function (results, status) {
                if (status === 'OK' && results && results[0]) {
                    var placeName = results[0].formatted_address;
                    document.getElementById('start-location-input').value = placeName;

                    autoToggleUpBar();
                }
            });
        });
    }
}

```

```

map.setCenter(userLocation);

// Create or update the current location marker and info window
if (!currentLocationMarker) {
    createCurrentLocationMarker(map, userLocation, placeName);
}

button.innerHTML = '<i class="fa-solid fa-map-marker-alt fa-map-marker-hole"></i> Remove Location';
statusMessage.textContent = 'Location found: ' + placeName;

var distances = calculateDistances(userLocation, places);
displayDistances(distances);

// Open the info window above the marker
if (currentLocationMarker && currentLocationInfoWindow) {
    currentLocationInfoWindow.open(map, currentLocationMarker);
}

// Show a SweetAlert message when the location is found
showLocationFoundMessage(placeName);
} else {
    document.getElementById('start-location-input').value = 'My Location';
    // Create an info window with "My Location"
    currentLocationInfoWindow = new google.maps.InfoWindow({ content: 'My Location' });
}

addGlowEffect();
});

}, function (error) {
    alert('Error getting your location: ' + error.message);
    locating = false; // Reset the flag on error
    button.innerHTML = '<i class="fa-solid fa-map-marker-alt"></i> Locate Current Location';
    statusMessage.textContent = 'Click the button to locate your current location';
});

removeGlowEffect();
} else {
    alert('Geolocation is not supported by your browser.');
    locating = false; // Reset the flag if geolocation is not supported
    button.innerHTML = '<i class="fa-solid fa-map-marker-alt"></i> Locate Current Location';
    statusMessage.textContent = 'Click the button to locate your current location';
    removeGlowEffect();
}
}

}

// Automatically locate the current location when the page loads
window.addEventListener('load', function () {
    // Trigger the "Locate Current Location" button click
    button.click();
});

```

Remove Circle Function

```
// Add a click event listener for the "Remove Circle" button
var removeCircleButton = document.getElementById('remove-circle-button');
removeCircleButton.addEventListener('click', function () {
    removeGlowingCircle();
});

function removeGlowingCircle() {
    // Check if the glowing circle exists
    if (currentLocationCircle) {
        // Remove the glowing circle from the map
        currentLocationCircle.setMap(null);
        currentLocationCircle = null;
    }
}

var distancesDisplayed = false;
```

Displays Route details

```
// Call the functions to calculate distances and display them
navigator.geolocation.getCurrentPosition(function (position) {
    var userLocation = {
        lat: position.coords.latitude,
        lng: position.coords.longitude
    };
    // Check if distances have already been displayed
    if (!distancesDisplayed) {
        // Calculate distances and display results
        var distances = calculateDistances(userLocation, places);
        displayDistances(distances);
        distancesDisplayed = true; // Set the flag to true
    }
}, function (error) {
    alert('Error getting your location: ' + error.message);
});

// Function to remove the location marker
function removeLocation() {
    if (currentLocationMarker) {
        currentLocationMarker.setMap(null);
        currentLocationMarker = null;
    }
}

var button = document.getElementById('locateCurrentLocation');
var statusMessage = document.getElementById('location-status');
```

```

button.textContent = 'Locate Current Location';
button.removeEventListener('click', removeLocation);
button.addEventListener('click', function () {
    toggleCurrentLocation(map);
});

statusMessage.textContent = 'Click the button to locate your current location';
}

// Global variable to store the current location marker ito ung pulang marker hayst
var currentLocationMarker;
// Initialize directionsService and directionsDisplay as global variables
var directionsService;
var directionsDisplay

```

Routing Algorithms

```

// Initialize directionsService and directionsDisplay as global variables
var directionsService;
var directionsDisplay;
// Function to clear directions and toggle visibility
function clearDirections() {
    var directionsContainer = document.getElementById('directions-container');
    var routeDetailsContainer = document.getElementById('route-details-container');

    // Clear the dotted line if it exists
    if (circleDottedLine) {
        circleDottedLine.setMap(null);
        circleDottedLine = null; // Reset the global variable
    }

    // Clear the existing circle dotted line if it exists
    clearCircleDottedLine();

    // Clear the dotted line if it exists
    if (dottedLine) {
        dottedLine.setMap(null);
        dottedLine.endMarker.setMap(null);
        dottedLine.infoWindow.close();
        dottedLine = null; // Reset the global variable
    }

    if (directionsDisplay && directionsContainer.style.display === 'block') {
        directionsDisplay.setMap(null);
        directionsDisplay = null; // Reset the global variable
        directionsContainer.style.display = 'none';
        routeDetailsContainer.style.display = 'none';
    } else {
        // If directions are not displayed, show them
        directionsContainer.style.display = 'none';
    }
}

```

```

    routeDetailsContainer.style.display = 'none';
}

clearHighlight();
}

// Function to create a new instance of DirectionsRenderer
function createDirectionsRenderer(map) {
    var newDirectionsDisplay = new google.maps.DirectionsRenderer();
    newDirectionsDisplay.setMap(map);
    return newDirectionsDisplay;
}

function displayRouteDetails(result) {
    var route = result.routes[0];
    var routeDetailsElement = document.getElementById('route-details');
    var html = '<h2></h2>';
    var pathList = [];

    route.legs.forEach(function (leg, index) {
        var mode = leg.steps[0].travel_mode;
        var distance = leg.distance.text;
        var duration = leg.duration.text;

        html += '<p>Route ' + (index + 1) + ': ' + mode + ' (' + distance + ', ' + duration + ')</p>';

        // Loop through the steps within the leg
        html += '<ol>';
        leg.steps.forEach(function (step, stepIndex) {
            var stepDistance = step.distance.text;
            var stepDuration = step.duration.text;
            var stepInstructions = step.instructions;

            html += '<li><a href="#" onclick="highlightPath(' + stepIndex + ')">Step ' + (stepIndex + 1) + ': ' +
            stepInstructions + ' (' + stepDistance + ', ' + stepDuration + ')</a></li>';

            // Store path coordinates for later highlighting
            pathList.push(step.path);
        });
        html += '</ol>';
    });

    // Store path list for highlighting
    routeDetailsElement.dataset.pathList = JSON.stringify(pathList);
    routeDetailsElement.innerHTML = html;

    // Show the containers after updating content
    document.getElementById('route-details-container').style.display = 'block';
    document.getElementById('directions-container').style.display = 'block';
}

```

```

// Function to clear all highlighted paths and infowindows
function clearHighlight() {
    // Check if there are any highlighted paths
    if (highlightedPaths.length > 0) {
        // Loop through each highlighted path and remove it from the map
        highlightedPaths.forEach(function (path) {
            path.setMap(null);
        });
        // Clear the array of highlighted paths
        highlightedPaths = [];
    }

    // Check if there are any highlighted infowindows
    if (highlightedInfoWindows.length > 0) {
        // Loop through each highlighted infowindow and close it
        highlightedInfoWindows.forEach(function (infoWindow) {
            infoWindow.close();
        });
        // Clear the array of highlighted infowindows
        highlightedInfoWindows = [];
    }
}

// Global variable to store highlighted paths
var highlightedPaths = [];

// Global variable to store highlighted infowindows
var highlightedInfoWindows = [];

```

Step by step highlighted paths

```

// Function to highlight a specific path on the map and zoom to it
function highlightPath(stepIndex) {
    var routeDetailsElement = document.getElementById('route-details');
    var pathList = JSON.parse(routeDetailsElement.dataset.pathList);
    var map = directionsDisplay.getMap();
    var distanceMatrixService = new google.maps.DistanceMatrixService();

    // Create polyline
    var highlightedPath = new google.maps.Polyline({
        path: pathList[stepIndex],
        geodesic: true,
        strokeColor: '#FF0000',
        strokeOpacity: 1.0,
        strokeWeight: 4 //lapad ng polylines
    });

    highlightedPath.setMap(map);

```

```

// Add the highlighted path to the array
highlightedPaths.push(highlightedPath);

// Add click event listener to the polyline
google.maps.event.addListener(highlightedPath, 'click', function (event) {
    // Calculate distance and duration to the clicked point
    var clickedPointIndex = findClosestPathIndex(event.latLng, pathList[stepIndex]);
    var clickedPoint = pathList[stepIndex][clickedPointIndex];
    var origin = pathList[stepIndex][0];

    distanceMatrixService.getDistanceMatrix({
        origins: [origin],
        destinations: [clickedPoint],
        travelMode: 'DRIVING', // Adjust this based on your use case
        unitSystem: google.maps.UnitSystem.METRIC,
    }, function (response, status) {
        if (status === 'OK') {
            var distance = response.rows[0].elements[0].distance.text;
            var duration = response.rows[0].elements[0].duration.text;

            // Create info window content
            var contentString = '<div><p>Distance: ' + distance + '</p><p>Duration: ' + duration + '</p></div>';
            var infoWindow = new google.maps.InfoWindow({
                content: contentString
            });

            // Open info window at the clicked point
            infoWindow.setPosition(clickedPoint);
            infoWindow.open(map);

            // Add the highlighted infowindow to the array
            highlightedInfoWindows.push(infoWindow);

            // Set the highlighted infowindow
            highlightedInfoWindow = infoWindow;
        } else {
            console.error('Error fetching distance matrix:', status);
        }
    });
});

// Zoom to the highlighted path
var bounds = new google.maps.LatLngBounds();
pathList[stepIndex].forEach(function (point) {
    bounds.extend(point);
});
map.fitBounds(bounds);
}

```

Closes path

```
// Function to find the index of the closest point on the path to a given LatLng
function findClosestPathIndex(latLng, path) {
    var closestIndex = 0;
    var closestDistance = google.maps.geometry.spherical.computeDistanceBetween(latLng, path[0]);

    for (var i = 1; i < path.length; i++) {
        var distance = google.maps.geometry.spherical.computeDistanceBetween(latLng, path[i]);
        if (distance < closestDistance) {
            closestDistance = distance;
            closestIndex = i;
        }
    }
    return closestIndex;
}

// Variable to store the current circle dotted line
// Variable to store the current circle dotted line
var circleDottedLine = null;
var startLocationMarker = null; // Variable to store the start location marker
```

Get Directions & Alternate routes

```
// Function to calculate directions and display route details
function calculateDirections(map) {
    var endLocationInput = document.getElementById('endLocation');
    var endLocation = endLocationInput.value;
    var selectedMode = getSelectedMode(); // Get the selected travel mode

    // Check if the selected mode is "motorcycle"
    if (selectedMode === 'motorcycle') {
        var motorcyclePreferences = {
            avoidTolls: true,
            waypoints: [],
        };
        selectedMode = 'DRIVING';
    }

    // If directionsDisplay doesn't exist, create a new instance
    if (!directionsDisplay) {
        directionsDisplay = createDirectionsRenderer(map);
    }

    // Adjust the suppressMarkers property
    directionsDisplay.setOptions({
        suppressMarkers: false, // Set to false to display markers
    });
}
```

```

navigator.geolocation.getCurrentPosition(function (position) {
    var userLocation = {
        lat: position.coords.latitude,
        lng: position.coords.longitude
    };

    // Manually set the origin to the first point of the first leg
    directionsService.route({
        origin: startlocation,
        destination: endLocation,
        travelMode: selectedMode, // Use the selected travel mode
        provideRouteAlternatives: true, // Enable multiple routes
    }, function (result, status) {
        if (status === 'OK') {
            // Clear the existing circle dotted line if it exists
            clearCircleDottedLine();

            // Add dotted line or circle dotted line based on the travel mode
            if (selectedMode === 'WALKING') {
                addCircleDottedLine(map, startlocation, result.routes[0].legs[0].steps);
            } else {
                addDottedLine(map, userLocation, result.routes[0].legs[0].start_location);
            }

            // Set the directions result to the existing DirectionsRenderer
            directionsDisplay.setDirections(result);
            document.getElementById('directions-container').style.display = 'block';

            // Display route details with the selected travel mode
            displayRouteDetails(result);

            // Display multiple polylines for all possible routes
            displayAllRoutes(result, map);

            // Add a marker at the end location
            var endLocationMarker = new google.maps.Marker({
                position: result.routes[0].legs[0].end_location,
                map: map,
                title: 'End Location',
            });

            // Add an info window to the marker
            var infoWindow = new google.maps.InfoWindow({
                content: '<div>' + endLocation + '</div>',
            });

            // Open the info window when the marker is clicked
            endLocationMarker.addListener('click', function () {
                infoWindow.open(map, endLocationMarker);
            });
        }
    });
});

```

```

    // Add a marker for the start location ("A")
    startLocationMarker = new google.maps.Marker({
        position: result.routes[0].legs[0].start_location,
        map: map,
        title: 'Start Location',
    });

    // Hide the start location marker ("A")
    startLocationMarker.setMap(null);
} else {
    // Display a SweetAlert error message
    Swal.fire({
        title: 'Error',
        text: 'Could not calculate directions: ' + status,
        icon: 'error',
        position: 'top', // Position at the top
        customClass: {
            popup: 'my-sweetalert-popup', // Apply custom class for styling
        },
    });
}
}, function (error) {
    alert('Error getting your location: ' + error.message);
});
}

```

Clear Directions , Remove circles

```

// Function to clear existing circle dotted line
function clearCircleDottedLine() {
    // Check if circleDottedLine exists and set map to null
    if (circleDottedLine) {
        circleDottedLine.setMap(null);
    }

    // Clear the reference to the existing circle dotted line
    circleDottedLine = null;
}

// Variable to store the current dotted line
var dottedLine = null;

// Function to add a dotted line from the current location to the starting point of the route
function addDottedLine(map, startLocation, endLocation) {
    // Number of steps for the dotted line
    var numSteps = 100;

    // Calculate the distance between current location and starting point
    var distance = google.maps.geometry.spherical.computeDistanceBetween(startLocation, endLocation);

```

```

// Estimate the duration based on average walking speed (about 1.4 meters per second)
var duration = Math.ceil(distance / 1.4);

// Compute intermediate points along the dotted line
var path = [];
for (var i = 0; i <= numSteps; i++) {
    var fraction = i / numSteps;
    var dottedPoint = google.maps.geometry.spherical.interpolate(startLocation, endLocation, fraction);
    path.push(dottedPoint);
}

// Check if the dotted line already exists
if (dottedLine) {
    // Update the path and markers of the existing dotted line
    dottedLine.setPath(path);

    // Update the position of the end marker
    dottedLine.endMarker.setPosition(endLocation);

    // Zoom to fit the updated dotted line and the route
    var bounds = new google.maps.LatLngBounds();
    path.forEach(function (point) {
        bounds.extend(point);
    });
    bounds.extend(endLocation);
    map.fitBounds(bounds);
} else {
    // Create a polyline for the dotted line
    dottedLine = new google.maps.Polyline({
        path: path,
        strokeColor: '#0000FF', // Adjust color as needed
        strokeOpacity: 0, // Set opacity to 0 to make it invisible
        icons: [
            {
                icon: {
                    path: google.maps.SymbolPath.CIRCLE, // Circular shape
                    scale: 5, // Adjust scale for the size of the circle dots
                    fillColor: '#0000FF', // Color of the dots
                    fillOpacity: 1,
                    strokeOpacity: 0,
                },
                offset: '0',
                repeat: '20px', // Adjust repeat value to increase/decrease the spacing between dots
            }],
        map: map,
    });

    // Add a gray circle marker at the end of the dotted line
    dottedLine.endMarker = new google.maps.Marker({
        position: endLocation,
        map: map,
    });
}

```

```

icon: {
    path: google.maps.SymbolPath.CIRCLE,
    scale: 10, // Adjust scale for the size of the circle
    fillColor: '#808080', // Gray color
    fillOpacity: 1,
    strokeOpacity: 0,
},
title: 'Destination',
});

// Customize the appearance of the info window with inline styles
var contentString = '<div style="background-color: #2196F3; color: #FFFFFF; padding: 10px; border-radius: 5px;">' +
    '<b>Estimated Duration:</b> ' + duration + ' seconds</div>';

// Create the info window with the customized content
dottedLine.infoWindow = new google.maps.InfoWindow({
    content: contentString,
});

// Attach the info window to the end marker and open it initially
dottedLine.infoWindow.open(map, dottedLine.endMarker);

// Set a timer to close the info window after 5 seconds
setTimeout(function () {
    dottedLine.infoWindow.close();
}, 5000);

// Add click event listener to the marker to toggle the info window
dottedLine.endMarker.addListener('click', function () {
    if (dottedLine.infoWindow.getMap()) {
        dottedLine.infoWindow.close();
    } else {
        dottedLine.infoWindow.open(map, dottedLine.endMarker);
    }
});

// Zoom to fit the dotted line and the route
var bounds = new google.maps.LatLngBounds();
path.forEach(function (point) {
    bounds.extend(point);
});
bounds.extend(endLocation);
map.fitBounds(bounds);
}

}

```

Mode of travelling and clear/remove functions

```
// Function to remove the location marker
```

```

function removeLocation(map) {
    locating = false; // Reset the flag
    button.textContent = 'Locate Current Location';
    statusMessage.textContent = 'Click the button to locate your current location';

    if (currentLocationMarker) {
        currentLocationMarker.setMap(null);
        currentLocationMarker = null;
    }
}

// Function to add a circle dotted line for walking mode
function addCircleDottedLine(map, startLocation, steps) {
    // Number of steps for the dotted line
    var numSteps = 100;

    // Compute intermediate points along the dotted line using walking steps
    var path = [];
    steps.forEach(function (step) {
        step.path.forEach(function (point) {
            path.push(point);
        });
    });

    // Create a polyline for the circle dotted line
    circleDottedLine = new google.maps.Polyline({
        path: path,
        strokeColor: '#00FF00', // Adjust color as needed
        strokeOpacity: 0, // Set opacity to 0 to make it invisible
        icons: [
            icon: {
                path: google.maps.SymbolPath.CIRCLE, // Circular shape
                scale: 5, // Adjust scale for the size of the circle dots
                fillColor: '#00FF00', // Color of the dots
                fillOpacity: 1,
                strokeOpacity: 0,
            },
            offset: '0',
            repeat: '20px', // Adjust repeat value to increase/decrease the spacing between dots
        ],
        map: map,
    });

    // Zoom to fit the circle dotted line and the route
    var bounds = new google.maps.LatLngBounds();
    path.forEach(function (point) {
        bounds.extend(point);
    });
    map.fitBounds(bounds);
}

```

```

// Function to get the selected travel mode
function getSelectedMode() {
    var modeButtons = document.querySelectorAll('.mode-button');
    for (var i = 0; i < modeButtons.length; i++) {
        if (modeButtons[i].classList.contains('active')) {
            return modeButtons[i].getAttribute('data-mode');
        }
    }
    // Default to DRIVING if no mode is selected
    return 'DRIVING';
}

// Add click event listeners to mode buttons
document.querySelectorAll('.mode-button').forEach(function (button) {
    button.addEventListener('click', function () {
        handleModeButtonClick(this);
    });
});

// Function to handle travel mode button clicks
function handleModeButtonClick(button) {
    // Remove the 'active' class from all mode buttons
    document.querySelectorAll('.mode-button').forEach(function (btn) {
        btn.classList.remove('active');
    });

    // Add the 'active' class to the clicked mode button
    button.classList.add('active');

    // Recalculate directions with the selected mode
    calculateDirections(map);
}

// Add click event listeners to mode buttons
document.querySelectorAll('.mode-button').forEach(function (button) {
    button.addEventListener('click', function () {
        handleModeButtonClick(this);
    });
});

function toggleLeftSidebar() {
    var sidebar = document.getElementById('left-sidebar');
    var toggleButton = document.getElementById('left-sidebar-toggle');

    if (sidebar.style.left === '0px') {
        sidebar.style.left = '-300px';
        toggleButton.classList.remove('left-arrow');
        toggleButton.classList.add('right-arrow');
    } else {
        sidebar.style.left = '0px';
        toggleButton.classList.remove('right-arrow');
    }
}

```

```

        toggleButton.classList.add('left-arrow');
    }
}

```

Modals

```

function openModal(imagePath) {
    var modal = document.getElementById('myModal');
    var modalImage = document.getElementById('modalImage');
    modalImage.src = imagePath;
    modal.style.display = 'flex';

    // Added an event listener to close the modal when clicking outside of the image
    modal.onclick = function (event) {
        if (event.target === modal) {
            closeModal();
        }
    };
}

// Updated the closeModal function to clear the onclick event
function closeModal() {
    var modal = document.getElementById('myModal');
    modal.style.display = 'none';
    modal.onclick = null;
}

```

Predictions and Calculations of nearest to farthest stations

```

var places = [
    { name: 'Barangay Hall Talon-Talon', lat: 6.909552109734150, lng: 122.112302507717090 },
    { name: 'Barangay Hall Mampang', lat: 6.915690985518539, lng: 122.134408950805660 },
    { name: 'Barangay Hall Sta. Catalina', lat: 6.909008906812206, lng: 122.086921781301500 },
    { name: 'Police Station, Tetuan', lat: 6.917592800000000, lng: 122.090857900000000 },
    { name: 'Police Station, Tugbungang ', lat: 6.919169782869794, lng: 122.104332000017170 },
    { name: 'Fire Station(Sub) Sta. Catalina', lat: 6.909009239653703, lng: 122.087073661386970 },
    { name: 'Fire Station, Barangay Mampang ', lat: 6.918649181459553, lng: 122.148965283106500 }
];

function calculateDistances(userLocation, places) {
    var distances = {
        Barangay: [],
        'Fire Station': [],
        'Police Station': []
    };

    // Calculate distances from the user's location to each place
    places.forEach(function (place) {
        var placeLocation = new google.maps.LatLng(place.lat, place.lng);

```

```

        var distance = google.maps.geometry.spherical.computeDistanceBetween(userLocation,
placeLocation);
        distances[getCategory(place.name)].push({ name: place.name, distance: distance });
    });

    // Sort the places in each category by distance
    for (var category in distances) {
        distances[category].sort(function (a, b) {
            return a.distance - b.distance;
        });
    }

    return distances;
}

function getCategory(placeName) {
    if (placeName.startsWith('Barangay')) {
        return 'Barangay';
    } else if (placeName.startsWith('Fire Station')) {
        return 'Fire Station';
    } else if (placeName.startsWith('Police Station')) {
        return 'Police Station';
    }
}

function displayDistances(distances) {
    var distanceContainer = document.getElementById('distance-matrix');

    // Display distances for each category
    for (var category in distances) {
        var categoryDistances = distances[category];
        var categoryContainer = document.createElement('div');
        categoryContainer.className = 'category-container';
        categoryContainer.innerHTML = `<h2>${category} nearest to farthest</h2>`;
        var locationsDiv = document.createElement('div');
        locationsDiv.className = 'locations';

        categoryDistances.forEach(function (place, index) {
            var distanceKm = (place.distance / 1000).toFixed(2); // Convert meters to kilometers
            var locationDiv = document.createElement('div');
            locationDiv.className = 'location';
            locationDiv.innerHTML = `
                <span class="location-name">${place.name}</span>
                <span class="location-distance">${distanceKm} km</span>`;
            if (category === 'Barangay') {
                var hotlineNumber = getPhoneNumber(place.name);
                locationDiv.innerHTML += `
                    <p class="location-hotline">Call Hotline: <a
                    href="tel:${hotlineNumber}">${hotlineNumber}</a></p><br>
                    <button class="report-link" data-name="${place.name}">Report now</button>`;
            } else {
                ...
            }
        });
    }
}

```

```

        var hotlineNumber = getPhoneNumber(place.name);
        locationDiv.innerHTML += `

            <p class="location-hotline">Call Hotline: <a
            href="tel:${hotlineNumber}">${hotlineNumber}</a></p>`;

        }

        locationsDiv.appendChild(locationDiv);

    });

    categoryContainer.appendChild(locationsDiv);
    distanceContainer.appendChild(categoryContainer);
}

// Add click event listeners to each "Report Link" button for barangays
var reportLinks = document.getElementsByClassName('report-link');
for (var i = 0; i < reportLinks.length; i++) {
    reportLinks[i].addEventListener('click', function () {
        var barangayName = this.getAttribute('data-name');
        console.log('Clicked on Report Link for: ' + barangayName);
        redirectToReportPage(barangayName);
    });
}
}

function redirectToReportPage(barangayName) {
// Redirect to the single report.php page
window.location.href = 'report.php?barangay=' + encodeURIComponent(barangayName);
}

var reportPage = reportPages[barangayName];
if (reportPage) {
    // Append the selected barangay as a query parameter to the report page URL
    var url = reportPage + '?barangay=' + encodeURIComponent(barangayName);
    console.log('Redirecting to ' + url);
    window.location.href = url;
} else {
    console.log('No report page found for ' + barangayName);
}

function getPhoneNumber(placeName) {
    // Define hotline phone numbers for each place
    var hotlineNumbers = {

        'Barangay Hall Talon-Talon': '09356183463',
        'Barangay Hall Mampang': '09248124718',
        'Barangay Hall Sta. Catalina': '095516272747',
        'Fire Station(Sub) Sta. Catalina': '09356183463',
        'Fire Station, Barangay Mampang ': '09356183463',
        'Police Station, Tetuan': '09356183463',
        'Police Station, Tugbunganan ': '09356183463'

    };
    // Return the hotline phone number for the specified place
    return hotlineNumbers[placeName] || 'N/A';
}

```

```
}
```

Place Suggestions

```
// Function to show start location suggestions
function showStartLocationSuggestions() {
  var startLocationInput = document.getElementById('start-location-input');
  var startLocationSuggestions = document.getElementById('start-location-suggestions');
  var autocomplete = new google.maps.places.Autocomplete(startLocationInput);

  autocomplete.addListener('place_changed', function () {
    var place = autocomplete.getPlace();
    if (!place.geometry) {
      return;
    }
  });
}

// Function to show end location suggestions
function showEndLocationSuggestions() {
  var endLocationInput = document.getElementById('endLocation');
  var endLocationSuggestions = document.getElementById('end-location-suggestions');
  var autocomplete = new google.maps.places.Autocomplete(endLocationInput);

  autocomplete.addListener('place_changed', function () {
    var place = autocomplete.getPlace();
    if (!place.geometry) {
      return;
    }
  });
}
```

Mobile Height Perspective

```
function updateMapHeight() {
  var map = document.getElementById('map');
  var screenHeight = window.innerHeight || document.documentElement.clientHeight || document.body.clientHeight;
  var screenWidth = window.innerWidth || document.documentElement.clientWidth || document.body.clientWidth;

  var margin = 54; // Adjust the margin as needed

  if (screenWidth <= 500) {
    // Adjusted height for small screens with a margin at the bottom
    map.style.height = `calc(${screenHeight}px - ${margin}px)`;
  } else if (screenWidth <= 720) {
    // Adjusted height for screens between 500px and 720px with a margin at the bottom
    map.style.height = `calc(${screenHeight}px - ${margin}px)`;
  } else {
```

```

    // Default height for larger screens with a margin at the bottom
    map.style.height = `calc(${screenHeight}px - ${margin}px)`;
}

if (screenHeight > 468) {
    // Set a min-height for larger screens
    map.style.minHeight = '400px'; // You can adjust the min-height as needed
} else {
    map.style.minHeight = '0'; // Reset min-height for smaller screens
}
}

// Update map height on page load
updateMapHeight();

// Update map height when the window is resized
window.addEventListener('resize', function () {
    updateMapHeight();
});

```

Sidebar for Mapstyles

```

var mapTypeSidebarVisible = false;
var mapTypeSidebar = document.getElementById('mapTypeSidebar');
var toggleButtonImage = document.getElementById('toggleButtonImage');
var smallMap = document.getElementById('smallMap');
var map;

function toggleMapTypeSidebar() {
    if (!mapTypeSidebarVisible) {
        mapTypeSidebar.style.right = '0';
        mapTypeSidebarVisible = true;
        initMapTypeSidebar();
    } else {
        mapTypeSidebar.style.right = '-300px'; // Collapsed width
        mapTypeSidebarVisible = false;
    }
}

function closeMapTypeSidebarOutside(event) {
    if (mapTypeSidebarVisible && !mapTypeSidebar.contains(event.target) && event.target !==
    toggleButtonImage) {
        mapTypeSidebar.style.right = '-300px'; // Collapsed width
        mapTypeSidebarVisible = false;
        document.removeEventListener('click', closeMapTypeSidebarOutside);
    }
}

function initMapTypeSidebar() {
    var smallMapOptions = {

```

```
center: { lat: 3.9191687, lng: 142.1038429 },  
zoom: 8  
};  
// var smallMap = new google.maps.Map(document.getElementById('smallMap'), smallMapOptions);  
document.addEventListener('click', closeMapTypeSidebarOutside);  
}  
  
function changeMapType(mapType) {  
    console.log("Changing map type to:", mapType);  
  
    // Change the toggle button image based on the selected map type  
    var imagePath = 'assets/img/' + mapType + '.png';  
    toggleButtonImage.src = imagePath;  
  
    mapTypeSidebar.style.right = '-300px'; // Collapsed width  
    mapTypeSidebarVisible = false;  
    document.removeEventListener('click', closeMapTypeSidebarOutside);  
}
```

APPENDIX C

TESTING

User Feedback Summary

After engaging with the Crime Awareness Hub system, 50 registered users provided valuable feedback. The system underwent a comprehensive evaluation, covering different aspects. The results of this assessment are detailed below, offering insights into the system's performance, user experience, user evaluation, and any potential enhancements identified by users during their interaction.

Satisfaction Ratings:

- Positive Experience: 98.5%
- Neutral Experience: 0.9%
- Negative Experience: 7%

Key Positive Points:

- Interactive Map: Users have expressed high praise for the Interactive Map feature, lauding its intuitive and user-friendly interface. The functionality goes beyond simple navigation—after logging in, users can customize their map experience. They have the flexibility to adjust map styles, access full screen mode, toggle street map view, and quickly locate their current position through geocoding and reverse geocoding suggestions for enhanced search functionality. Furthermore, users can explore detailed contents and route calculations, making it easy to plan and understand distances. Positioned conveniently in the sidebar, users can also report incidents directly to the selected Barangays, such as Barangay Talon-talon, Sta. Catalina, and Mampang.
- Efficient Reporting System: The web-based reporting system has garnered positive feedback for its efficiency and user-friendly design. Users appreciate the ease of use, and the system's ability to facilitate real-time communication with authorities streamlines the reporting process effectively.

User Interface Design: The user expresses satisfaction with the overall design interface, commending its intuitiveness, ease of navigation, and visual appeal. The

seamless information within the system is highly praised, emphasizing the smooth and well-organized presentation of content.

Areas for Improvement:

- User Guidance: Some users suggested additional guidance within the system, particularly for first-time users navigating the features.
-

Feature Ratings:

Feature	Positive (%)	Neutral (%)	Negative (%)
Registration Process	100	0	0
Email Notification	100	0	0
Homepage and Content	100	0	0
Interactive Map	100	0	0
Get Directions Functionality	98	2	0
Routing Details Functionality	99	1	0
Reporting System	100	0	0
Receipt Report	98	2	1
Report Status	100	0	1
Inquiries and Support	98	1	1
Usability	100	0	0
Mobile Responsiveness	98	2	0
Search Functionality	100	0	0
Data Security	99	1	0
User Interface Design	100	0	0
Performance	97	2	1
Accessibility	97	2	1
User guidance	92	5	3
Customization Option	98	1	1
Share Experiences	100	0	0
Geolocation For			

User Comments:

- Users appreciated the responsiveness and efficiency of the system in emergency situations.
- Some users suggested adding more visual cues to guide them through the reporting process.
- The majority found the map features highly beneficial for quick access to emergency

Overall, the Crime Awareness Hub system has garnered mostly favorable responses, suggesting a notable degree of user contentment. The constructive remarks offer valuable perspectives for potential improvements, guaranteeing ongoing enhancements for an even more enhanced user experience.

These sample users were used for system testing by the researchers:

First Name	Last Name	Reported Barangay Hall Type
Mohammad Ilias	Rabanal	Barangay Talon-talon
Ian	Taha	Barangay Talon-talon
Hashim	Angsa	Barangay Sta. Catalina
Nur	Balla	Barangay Sta. Catalina
Alkenry	Habibon	Barangay Mampang
Khyniemar	Khyniemar	Barangay Sta. Catalina
Mark	De Castro	Barangay Sta. Catalina
Lander	Gucela	Barangay Sta. Catalina
Jelynn	Montejar	Barangay Mampang
Kate	Guldam	Barangay Sta. Catalina
Marino	Bernardo	Barangay Sta. Catalina
Shyniemar	Hassan	Barangay Sta. Catalina
Charlie	Lacandalo	Barangay Talon-talon
Clyde	Francis	Barangay Sta. Catalina
Maezelle	Bernardo	Barangay Sta. Catalina
Qrish	Amik	Barangay Sta. Catalina
Shermina	Habibon	Barangay Mampang

User Evaluation Form					
Features and Functionalities	Very satisfied	Satisfied	Neutral	Dissatisfied	Very dissatisfied
How satisfied were you with the registration process?					
How satisfied were you with the email					

notification system?					
How satisfied were you with the homepage layout and content?					
How satisfied were you with the interactive map feature?					
How satisfied were you with the toggle search bar?					
How satisfied were you with the sidebar functionality?					
How satisfied were you with the upbar features?					
How satisfied were you with the zoom in and zoom out functionality?					
How satisfied were you with the Pegman feature?					
How satisfied were you with the available map styles?					
How satisfied were you with the reporting system?					
How satisfied were you with the receipt report feature?					

How satisfied were you with the report status updates?					
How satisfied were you with the inquiries and support system?					
How satisfied were you with the Sweet Alert notification feature?					
Feedback Questionnaire			Comments or Suggestions		
What aspects of the registration process worked well for you, and what could be improved?					
Do you have any suggestions for improving the email notification feature?					
Are there specific elements on the homepage that you found particularly helpful or confusing?					
Any suggestions for improving the interactive map functionality?					
Any recommendations for improving the sidebar features?					
Do you have any specific feedback regarding the upbar and its components?					
Any thoughts on the effectiveness of the zoom features?					
Any suggestions for enhancing the full-screen experience?					
Any feedback or recommendations for the search bar feature?					
Do you have any specific comments or suggestions regarding the Pegman functionality?					
Any thoughts on the variety and effectiveness of map styles?					
Were there any challenges or positive aspects you encountered while using the reporting system?					
Any recommendations for enhancing the					

receipt report functionality?	
Did you find the report status updates clear and informative? If not, how can they be improved?	
Any comments or suggestions related to Sweet Alert notifications?	

-++++++The following table contains the test result summary of the various test cases done to the different modules within the system.

Test Report						
Executed	Passed				100	
	Failed				0	
	(Total) Test Executed				100	
	(Passed + Failed)					
Pending					0	
In Progress					0	
Blocked					0	
Completed					100 %	
Functions	Description	% TCs Executed	% TCs Passed	TCs Pending	Priority	Remarks
Register Account	Create a new account for the user	100%	100%	0	High	
Verify Registration	Enter a valid name, valid email, valid contact number, valid address, matching password and confirm password.	100%	100%	0	Normal	

Verify Registration	Enter a valid name, valid email, valid contact number, valid, address, mismatched password and confirm password.	100%	100%	0	Normal	
Verify Registration	Enter a name, invalid email, valid contact number, valid, address, matched password and confirm password.	100%	100%	0	Normal	
Verify Registration	Enter valid name, email, valid contact number, valid, address, and password with more than 6 character.	100%	100%	0	Normal	
Verify Registration	Enter valid name, email, valid contact number, valid, address, and password with less than 6 character.	100%	100%	0	Normal	
Verify Registration	Enter valid name, blank email, valid contact number, valid address, and two valid fields for the passwords.	100%	100%	0	Normal	
Verify Registration password and confirm password	Enter an existing name and email verify registration, contact number, address, for password and confirm password are masked.	100%	100%	0	High	
Alphanumeric Codes and Special Characters	Verify that password accepts both alphanumeric codes and special characters.	100%	100%	0	Normal	
Verify Registration	Sends verification link in the email.	100%	100%	0	Normal	

Login Verification	Enter a valid email in the email field.	100%	100%	0	Normal	
Verify User Role	Enter a valid email and password.	100%	100%	0	Normal	
Verify Admin Role	Enter a valid email and password.	100%	100%	0	Normal	
Login Verification	Enter valid email and invalid password.	100%	100%	0	Normal	
Login Verification	Enter invalid email and invalid password	100%	100%	0	Normal	
Login Verification	Enter a blank email and blank password	100%	100%	0	Normal	
Login Verification	Enter a valid email and blank password	100%	100%	0	Normal	
Enter Password	Verify if the password is masked	100%	100%	0	Normal	
Enter Existing Email Account	Verify forgot password.	100%	100%	0	Normal	
Enter Non-existent Email Account	Verify forgot password.	100%	100%	0	Normal	
Submit a Blank Email Field	Verify forgot password.	100%	100%	0	Normal	
Enter Invalid Email Without “@”	Verify forgot password.	100%	100%	0	Normal	
Enter a valid email	Verify that users will receive an email containing a link for resetting their password.	100%	100%	0	Normal	

Account	Verify account deactivation	100%	100%	0	Normal	
Verify a User Access	Admin can access user's module	100%	100%	0	High	
Verify a User Access	Guest users or unregistered accounts cannot access the user's module.	100%	100%	0	High	
Verify a User Report Status Email Notification	Registered users can receive email notification if their report status is changed accordingly.	100%	100%	0	High	
Verify System Sweet Alert Notifications	SweetAlert notifications will appear on the user's screen.	100%	100%	0	High	
Verify System Sweet Alert Notifications	SweetAlert notifications will appear on the admin's screen.	100%	100%	0	High	
Validate System Sweet Alert Notifications	SweetAlert notifications will be displayed on the user's screen when they are using the application's features and functionality.	100%	100%	0	High	
Validate System Sweet Alert Notifications	SweetAlert notifications will be displayed on the admin's screen when they are using the application's features and functionality.	100%	100%	0	High	
Mapping Page	Verify that user can access the map page and that their location is automatically	100%	100%	0	High	

	tracked and shown on the map if their GPS is enabled.					
Mapping Page Homepage	Verify that user click the “Crime Hub” logo they will be directed to the home page.	100%	100%	0	Normal	
Homepage	Verify that user can access the map page by clicking the “Report Now” button.	100%	100%	0	Normal	
Homepage	Verify that user can access the system features and functionality by clicking “SERVICES”	100%	100%	0	Normal	
Homepage	Verify that user can access the system information in the “ABOUT US” categorize by “About us, Team, and Developer”	100%	100%	0	Normal	
Homepage	Verify that user can access inquiries by clicking “CONTACT US”.	100%	100%	0	Normal	
Mapping Page System Information	Verify that user can access the hyperlink text in the navigation bar. (Home, Services, About us, Contact, and Account).	100%	100%	0	Normal	
Mapping Page	Verify that user can sign out the by toggling the “Account” button and click “Sign out”.	100%	100%	0	Normal	
Mapping Page Status Report	Verify that user can access status report by toggling the “Account” button and click “Status Report” in the navigational bar.	100%	100%	0	Normal	

Mapping Page Report Receipt	Verify that user can access report receipt by toggling the “Account” button and click “Receipt” in the navigational bar.	100%	100%	0	Normal	
Toggle Sidebar Search Bar	Verify that user can toggle the sidebar on the map.	100%	100%	0	Normal	
Sidebar Search Bar	Verify that user can utilize the search bar, receiving place suggestions based on their input, when the sidebar is in the toggled position.	100%	100%	0	Normal	
Toggle Sidebar Pegman	Verify that user can toggle pegman on the map.	100%	100%	0	Normal	
Sidebar Pegman	Verify that user can access pegman by click drag and drop on the map.	100%	100%	0	Normal	
Toggle Sidebar Map Tiles	Verify that user can toggle map tiles on the map.	100%	100%	0	Normal	
Sidebar Map Tiles	Verify that user can access different map styles by changing the chosen map style.	100%	100%	0	Normal	
Sidebar Map Tiles	Verify that user can access the map style roadmap on the map.	100%	100%	0	Normal	
Sidebar Map Tiles	Verify that user can access the map style satellite on the map.	100%	100%	0	Normal	
Sidebar Map Tiles	Verify that user can access the map style hybrid on the map.	100%	100%	0	Normal	

Sidebar Map Tiles	Verify that user can access the map style terrain on the map.	100%	100%	0	Normal	
Full screen button in Mapping page	Verify that user can click the full screen button and the screen will switch to full screen mode.	100%	100%	0	Normal	
Zoom Sidebar Options	Verify that user can click the plus button to zoom in the map and minus button to zoom out the map.	100%	100%	0	Normal	
Upbar Glowin g button	Verify if user can access the functionality inside the upbar button.	100%	100%	0	High	
Upbar Glowin g button	Verify if user can access emergency call hotline.	100%	100%	0	High	
Upbar Glowin g button	Verify if user can view the nearest to farthest safety stations algorithm from their current location on the map.	100%	100%	0	High	
Upbar Glowin g button	Verify that user can access the reporting functionality by clicking the "Report Now" button and directed to the incident form page.	100%	100%	0	High	
Upbar Glowin g button	Verify that user can clear data inside the upbar panel.	100%	100%	0	Normal	
Sidebar Arrow Button	Verify that user can access the features and options inside the sidebar arrow button.	100%	100%	0	High	

Sidebar Arrow Button Get Directions	Verify that user can access the "Get Directions" functionality, allows them to obtain route information from their current location to another destination entered by the user.	100%	100%	0	High	
Sidebar Arrow Button Clear Directions	Verify that user can access the "Clear Directions" functionality, allows user to clear the "Get Directions" route information on the map.	100%	100%	0	Normal	
Sidebar Arrow Button Remove Location	Verify that user can access the "Remove Location" functionality, allows user to remove their current location on the map.	100%	100%	0	Normal	
Sidebar Arrow Button Select Travel Mode	Verify that users can access the "Select Travel Mode" functionality, enabling them to calculate travel time by driving or walking, with route details provided and route directions on that map.	100%	100%	0	High	
Sidebar Arrow Button Map Toggle View	Verify that users can access the toggle 65-degree view and toggle top down view on the map.	100%	100%	0	Normal	
Report Incident Page First	Verify that user can automatically see their full name once the form pop	100%	100%	0	Normal	

Form	up.					
Report Incident Page First Form	Verify that user can input all the required fields in the incident form.	100%	100%	0	Normal	
Report Incident Page First Form	Verify that user can input the date and time of the incident.	100%	100%	0	Normal	
Report Incident Page First Form	Verify that user can choose photo files by clicking the “Choose Files” button and take photo by clicking “Take Photo” button on the evidence section.	100%	100%	0	Normal	
Report Incident Page First Form	Verify that user can proceed to the next form if the first form field is empty.	100%	100%	0	Normal	
Report Incident Page First Second Form	Verify that user can proceed to the next form if the second form field is empty.	100%	100%	0	Normal	
Report Incident Page First Second Form	Verify that user can input text into each text box within the second form	100%	100%	0	Normal	
Report Incident Page First Third Form	Verify that user can input text into each text box within the second form	100%	100%	0	Normal	
Report Incident Page First Third Form	Verify that user cannot submit report if the required fields are empty.	100%	100%	0	High	

Report Incident Page First Third Form	Verify that user can submit report if the optional fields are empty.	100%	100%	0	Normal	
Report Incident Page First Third Form	Verify that user can submit report' if the required fields are filled up.	100%	100%	0	Normal	
Report Incident Page First Third Form	Verify that user after submitting the incident report, user is redirected to the receipt page where they receive a report receipt.	100%	100%	0	Normal	
Report Receipt Page	After the user receive a receipt report from the system, user will be directed to the status report page after clicking the "Okay" button.	100%	100%	0	Normal	
Status Report Page Print Functionality	Verify that user can print reports from the chosen category as latest reports, under investigation reports, and resolved reports.	100%	100%	0	Normal	
Status Report Page	Verify that user can view their most recent reports after submitting it through the system.	100%	100%	0	Normal	
Status Report Page	Verify that user can view their under-investigation reports after the admin make changes to their report status.	100%	100%	0	Normal	
Status Report Page	Verify that user can view their resolved reports after the admin make changes to their	100%	100%	0	Normal	

	report status.					
Verify the display of the cards in Admin Dashboard	List of total reports, total admin users, total registered users, and total progress report, total validated reports.	100%	100%	0	High	
Verify the display of the statistics in Admin Dashboard	The triangle graph displays the comprehensive statistics for incident reports, while the affinity diagram shows the overall statistics for report statuses.	100%	100%	0	High	
Verify the table pagination for Manage Incident Reports	Display those user's incident report at the next page.	100%	100%	0	Normal	
Verify the table pagination for Manage User	Display those users at the next page.	100%	100%	0	Normal	
Verify the table pagination for Manage Staff	Display those Admin and Staff at the next page.	100%	100%	0	Normal	
Verify Filter by Column	Filter the column for manage reports, manage user, and manage staffs.	100%	100%	0	Normal	

Verify Filter by Table	Filters the table for manage reports, manage user, and manage staffs.	100%	100%	0	Normal	
Verify Filter by Table	Reset the filter table for manage reports, manage user, and manage staffs.	100%	100%	0	Normal	
Verify Search Filter for Manage reports, Manage user, and Manage staffs.	Displays the filtered input accurately.	100%	100%	0	Normal	
Validate Search Filter	Search filter must be optional.	100%	100%	0	Normal	
Shows the table in a stacked manner	Ensure table responsiveness in small screens	100%	100%	0	Normal	
Shows the data of a specific user.	Verify user details upon clicking a row.	s	100%	0	Normal	
Verify Print Functionality for Manage Incident Reports	Displays the list of incident reports to be printed.	100%	100%	0	Normal	
Verify Print Functionality for Manage Users	Displays the list of users to be printed.	100%	100%	0	Normal	

Verify Print Functionality for Manage Staffs	Displays the list of Admin or Staff to be printed.	100%	100%	0	Normal	
Verify Manage markers	Admin can add markers, edit marker details, and delete markers.	100%	100%	0	High	
Verify the display of Manage Marker s	List of markers id, latitude, longitude, title, description, image, date created, and marker type.	100%	100%	0	Normal	
Verify Manage Incident Reports	Admin can edit user report details and delete user incident report.	100%	100%	0	High	
Verify the display of Incident Reports	List of User's name, contact number, relationship of the incident, incident time, incident location, incident type, incident evidence, authorize contacted, crime level, safety concerns, preferred language, witness name, witness contact, incident description, witness statement, barangay type, and report status.	100%	100%	0	Normal	
Verify the display of Manage Inquiries	List of inquiries id, name, and email, subject of inquiries, message inquiries, and user phone number.	100%	100%	0	Normal	
Verify Manage	Admin can view and delete	100%	100%	0	High	

Inquiries	inquiries.					
Verify the display of Manage Users	List of user id, full name, email, and account status.	100%	100%	0	Normal	
Verify Manage Users	Admin can view list of users, deactivate and reactivate user's account.	100%	100%	0	High	
Verify the display of Manage Staffs	List of admin or staffs id, name, email, and account status.	100%	100%	0	Normal	
Verify Manage Staffs	Admin can view list of admin or staffs, deactivate and reactivate admin or staff's account.	100%	100%	0	High	
Verify the display of Settings	Admin can view their account profile and change their password.	100%	100%	0	High	

The following table contains the test results summary of the various modules within the system.

Test Result						
Executed	Passed					100
	Failed					0
	Total Tests Executed					100
Module	Description	% TCs Executed	% TCs Passed	% TCs Pending	Priority	Remarks

Login	Sign in into existing account	100%	100%	0	High	
Registration	Create new account for new user	100%	100%	0	High	
Authentication and Authorization	Account verification, forgot password, and recover password.	100%	100%	0	High	
Email validation	User email verification from Gmail.	100%	100%	0	High	
Account	Users, admins, and super admins.	100%	100%	0	High	
Home page	This highlights the key features, content, and purpose of the system.	100%	100%	0	High	
Inquiries	Basic information details (full name, contact number, and address), inquiry subject, inquiry message.	100%	100%	0	High	
Report Form	Basic information details (full name, contact number, and address), date and time of the incident, Evidences of the incident, Input witness(Optional), crime level, safety concerns, and preferred language.	100%	100%	0	High	
Report Status	Latest reports, under investigation reports, and resolved reports.	100%	100%	0	High	
Report Receipt	View latest report receipt	100%	100%	0	High	
Admin/ Staff	Configure system settings, manage user permissions,	100%	100%	0	High	

	troubleshoot technical issues, and ensure the overall functionality and security of the system.					
Interactive Map	Search location, get directions, map markers, up bar button (barangay nearest to farthest, fire station nearest to farthest, and police station nearest to farthest base from current location of the user, report button to report incident report.)	100%	100%	0	High	
Get user current location (real time)	Access and display the real-time geographical position of a user.	100%	100%	0	High	
Get directions	Users receive navigational guidance from one location to another.	100%	100%	0	High	
Markers	Visual indicators placed on the map to highlight specific points of interest such as: selected barangays, police station, and fire station.	100%	100%	0	High	
Manage markers	Allows admins to add, edit, or remove markers, typically represented by symbols and organize geographic information.	100%	100%	0	High	

Manage reports	Allows authorized administrators or designated staff, to oversee, update, and organize reports submitted by users.	100%	100%	0	High	
Manage Heatmaps	Allows authorized administrators validates, confirms and display heatmaps on the map.	100%	100%	0	High	
Manage Statistics	Allows authorized administrators visualize highest and most common crime monthly.	100%	100%	0	High	
Manage accounts	Allows administrators to oversee and control accounts. By creating new account, modifying account details, updating permissions, and deactivating or deleting accounts when necessary.	100%	100%	0	High	

Beta Testing Result

Tester Name: Dianes, Kenneth			
Module	Description & Functions	Pass/Fail	Usability (1 to 5)
Login	Sign in into existing account	Pass	5
Registration	Create new account for new user	Pass	5
Authentication and Authorization	Account verification, forgot password, and recover password.		
	Were the instructions and requirements for creating a new account clear and easy?	Pass	5

	Is the "Forgot Password" link easily visible on the login page?	Pass	5
	Is the login page secure and user-friendly during the verification process?	Pass	5
Email validation	User email verification from Gmail.		
	Did you receive a verification email after registering the account?	Pass	5
Home page	This highlights the key features, content, and purpose of the system.		
	Is the navigation on the home page intuitive and easy to use?	Pass	5
	Did you find the information presented on the home page clear and easily understandable?	Pass	5
	Is the page responsive and quick to load?	Pass	5
Inquiries	Basic information details (full name, contact number, and address), inquiry subject, inquiry message.		
	How easy is it for you to find the "Inquiries" section in the user interface?	Pass	5
Report Form	Basic information details (full name, contact number, and address), date and time of the incident, Evidences of the incident, Input witness(Optional), crime level, safety concerns, and preferred language.		
	Is the process of filling out the report form intuitive and easy to understand?	Pass	5
	Did you encounter any difficulties in selecting or inputting information into the form?	Pass	5
	Are the instructions provided clear and concise within the report form?	Pass	5
	Does it indicate the status of a user's report from the report status section after they've submitted an incident	Pass	5

	report?		
	Can users easily find and select the appropriate incident category or type in the report form?	Pass	5
Report Status and Report Receipt	Users can monitor their reports that falls into three categories such as latest reports, under investigation, and resolved reports.		
	Is it easy to find and access the status of your submitted reports?	Pass	5
	Is the display of report status clear and understandable?	Pass	5
	Are there different status categories, and do they provide meaningful information?	Pass	5
	Can users easily share or export a summary of their submitted report for personal records or follow-up?	Pass	5
	Is there a receipt provided to users after submitting an incident report?	Pass	5
	Can users opt for receiving real-time email notifications on the status changes of their submitted reports? (From latest reports, under investigation reports, resolved reports.)	Pass	5
Interactive Map	Dynamic and user-engaging digital representation of geographic information.		
	Did the map display shows accurate information?	Pass	5
	Does the "Get User Location" feature signify the successful identification of your current position on the map?	Pass	5
	Did the “Get Directions” feature provide correct and precise results?	Pass	5
	Is the zooming and panning functionality smooth and responsive?	Pass	5

	Can you quickly search for specific locations or addresses on the map?	Pass	5
	Are there customization options for adjusting the appearance of the map to suit your preferences?	Pass	5
Markers	Visual indicators placed on a map to highlight specific points of interest, selected barangays, police station, and fire station.		
	How noticeable and distinguishable are the dynamic markers on the map?	Pass	5
	Can you easily understand the meaning or significance of each dynamic marker? (ex. Barangay hall, police station, and fire station)	Pass	5
Heatmaps	How noticeable and distinguishable are the dynamic heatmaps on the map?	pass	5
	Does the info content for heatmaps provides useful information for awareness?	pass	5
Did you find the overall activity challenging?	The overall activity was not particularly difficult.	Pass	5
How would you rate the user-friendliness of Crime Awareness Hub? Can you share your feedback on the intuitiveness of the user interface?	The Crime Awareness Hub's usability is excellent in my opinion. The user interface is simple and easy to use, making it simple to navigate and access necessary features in the system.	Pass	5
How straightforward is the process of reporting incidents and concerns?	The procedure for reporting incidents and concerns is simple. It allows users to submit relevant information quickly and easily.	Pass	5
Can you quickly find information about locating the nearest safety stations?	Yes, locating the nearest safety stations is simple.	Pass	5

How secure and private does the interface feel when accessing safety resources?	When navigating to safety resources, the interface feels secure.	Pass	5
Which feature in the system do you find beneficial?	The mapping functionality stands out as the most useful feature of the system for me. It accurately pinpoints my current location and provides directions to destinations of my choice.	Pass	5
Which feature in the system do you find least beneficial?	None.	Pass	5
Is there anything in the system that seemed more complicated than necessary?	None.	Pass	5

Tester Name: Taha, Asbir			
Module	Description & Functions	Pass/Fail	Usability (1 to 5)
Login	Sign in into existing account	Pass	5
Registration	Create new account for new user	Pass	5
Authentication and Authorization	Account verification, forgot password, and recover password.		
	Were the instructions and requirements for creating a new account clear and easy?	Pass	5
	Is the "Forgot Password" link easily visible on the login page?	Pass	5
	Is the login page secure and user-friendly during the verification process?	Pass	5
Email validation	User email verification from Gmail.		
	Did you receive a verification email after registering the account?	Pass	5

Home page	This highlights the key features, content, and purpose of the system.		
	Is the navigation on the home page intuitive and easy to use?	Pass	5
	Did you find the information presented on the home page clear and easily understandable?	Pass	5
	Is the page responsive and quick to load?	Pass	5
Inquiries	Basic information details (full name, contact number, and address), inquiry subject, inquiry message.	Pass	5
	How easy is it for you to find the "Inquiries" section in the user interface?	Pass	5
Report Form	Basic information details (full name, contact number, and address), date and time of the incident, Evidences of the incident, Input witness(Optional), crime level, safety concerns, and preferred language.		
	Is the process of filling out the report form intuitive and easy to understand?	Pass	5
	Did you encounter any difficulties in selecting or inputting information into the form?	Pass	5
	Are the instructions provided clear and concise within the report form?	Pass	5
	Does it indicate the status of a user's report from the report status section after they've submitted an incident report?	Pass	5
	Can users easily find and select the appropriate incident category or type in the report form?	Pass	5
Report Status and Report Receipt	Users can monitor their reports that falls into three categories such as latest reports, under investigation, and resolved reports.		

	Is it easy to find and access the status of your submitted reports?	Pass	5
	Is the display of report status clear and understandable?	Pass	5
	Are there different status categories, and do they provide meaningful information?	Pass	5
	Can users easily share or export a summary of their submitted report for personal records or follow-up?	Pass	5
	Is there a receipt provided to users after submitting an incident report?	Pass	5
	Can users opt for receiving real-time email notifications on the status changes of their submitted reports? (From latest reports, under investigation reports, resolved reports.)	Pass	5
Interactive Map	Dynamic and user-engaging digital representation of geographic information.		
	Did the map display shows accurate information?	Pass	5
	Does the "Get User Location" feature signify the successful identification of your current position on the map?	Pass	5
	Did the "Get Directions" feature provide correct and precise results?	Pass	5
	Is the zooming and panning functionality smooth and responsive?	Pass	5
	Can you quickly search for specific locations or addresses on the map?	Pass	5
	Are there customization options for adjusting the appearance of the map to suit your preferences?	Pass	5
Markers	Visual indicators placed on a map to highlight specific points of interest, selected barangays, police station, and		

	fire station.		
	How noticeable and distinguishable are the dynamic markers on the map?	Pass	5
	Can you easily understand the meaning or significance of each dynamic marker? (ex. Barangay Hall, police station, and fire station)	Pass	5
Heatmaps	How noticeable and distinguishable are the dynamic heatmaps on the map?	pass	5
	Does the info content for heatmaps provides useful information for awareness?	pass	5
Did you find the overall activity challenging?	No, the overall activity was not difficult.	Pass	5
How would you rate the user-friendliness of Crime Awareness Hub? Can you share your feedback on the intuitiveness of the user interface?	I would give the Crime Awareness Hub a high rating for user-friendliness. The accessibility of features in the system is easy and simple to use.	Pass	5
How straightforward is the process of reporting incidents and concerns?	The procedure for reporting incidents and concerns is very straightforward.	Pass	5
Can you quickly find information about locating the nearest safety stations?	Finding information about nearby safety stations is simple and smooth. From my current location, I can clearly see the nearest to farthest stations for barangay, police station, and fire station.	Pass	5
How secure and private does the interface feel when accessing safety resources?	I appreciate the strong security measures placed by the researchers to protect user data while accessing critical safety information.	Pass	5
Which feature in the system do you find beneficial?	The reporting system, in my opinion, is the beneficial feature of the system. When I want to submit a complaint	Pass	5

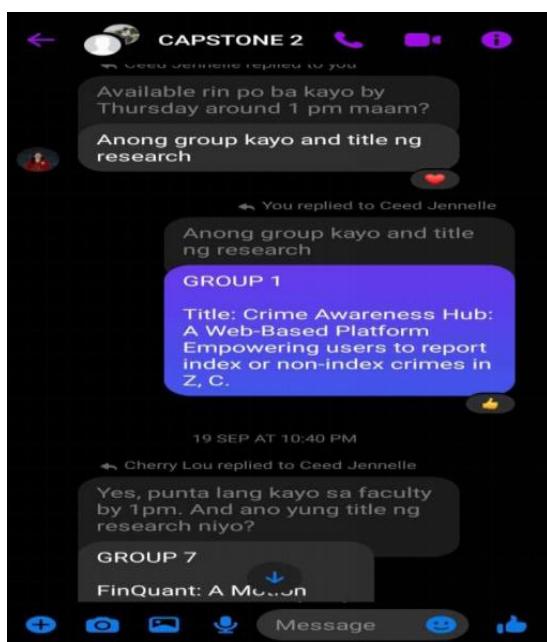
	about a specific incident, reporting it online as a citizen makes the process faster and more convenient for local authorities to address my concerns.		
Which feature in the system do you find least beneficial?	None at all.	Pass	5
Is there anything in the system that seemed more complicated than necessary?	None so far.	Pass	5

Photo and Video Documentation

- Consultation Meetings

- Photo

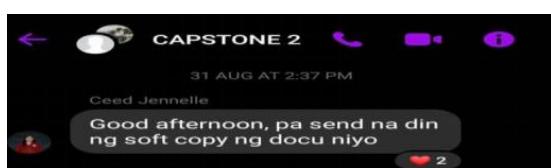
- September 19, 2023



- Consultation Meetings

- Photo

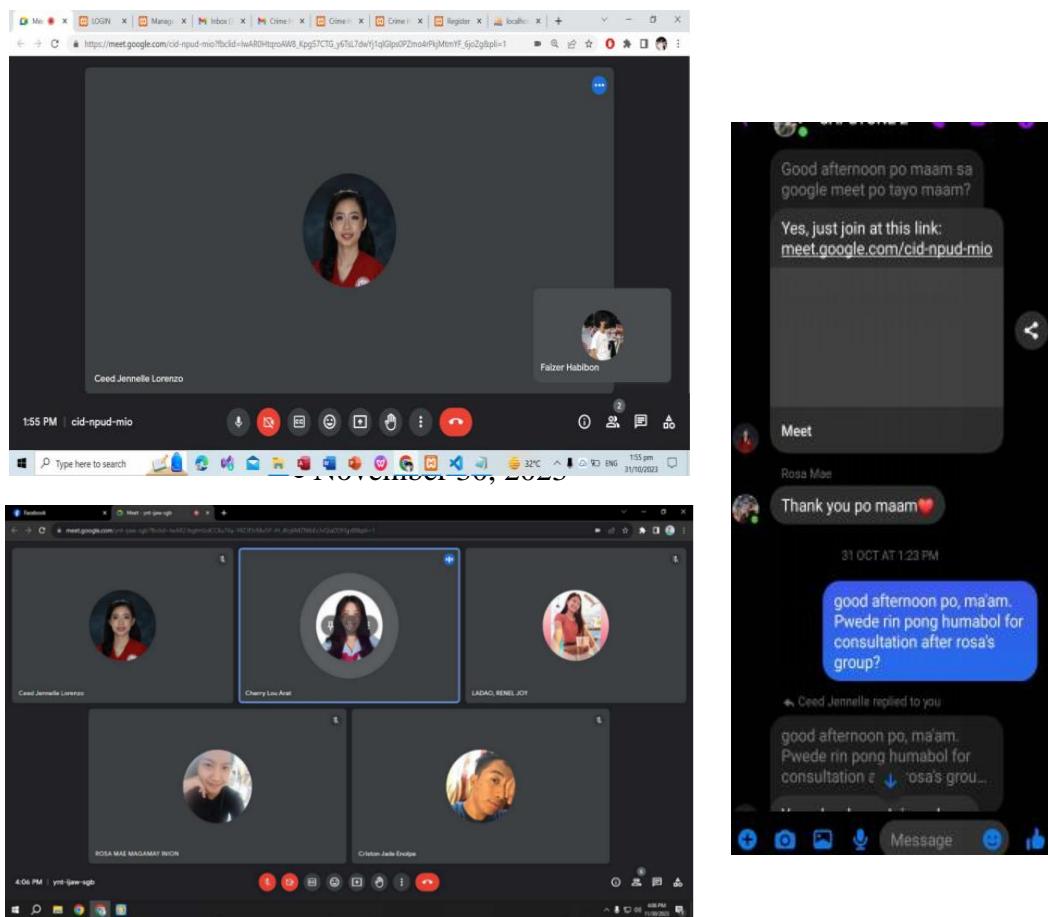
- August 31, 2023



- Consultation Meetings

- Photo

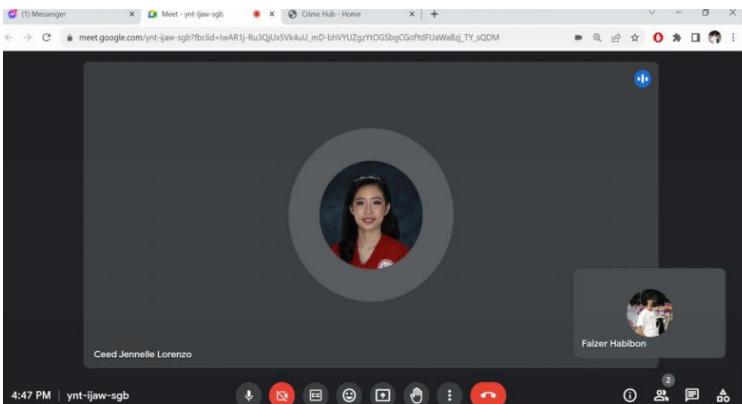
- October 31, 2023



- Consultation Meetings

- Photo

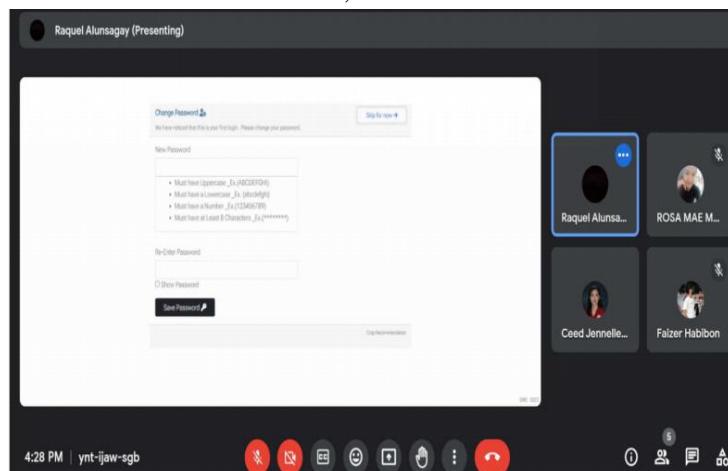
- November 30, 2023



- Consultation Meetings

- Photo

- November 30, 2023



- Beta Testing with the Client

- Photo

- November 22, 2023



- Beta Testing with the Client

- Photo

- November 22, 2023



- Beta Testing with the Client

- Photo

- November 22, 2023



- Beta Testing with the Client

- Photo

- November 22, 2023



- Beta Testing with the Client

- Photo

- November 22, 2023



APPENDIX D

EVALUATION FORM

Tester Name: Dianes, Kenneth			
Module	Description & Functions	Pass/Fail	Usability (1 to 5)
Login	Sign in into existing account	Pass	5
Registration	Create new account for new user	Pass	5
Authentication and Authorization	Account verification, forgot password, and recover password.		
	Were the instructions and requirements for creating a new account clear and easy?	Pass	5
	Is the "Forgot Password" link easily visible on the login page?	Pass	5
	Is the login page secure and user-friendly during the verification process?	Pass	5
Email	User email verification from Gmail.		

validation			
	Did you receive a verification email after registering the account?	Pass	5
Home page	This highlights the key features, content, and purpose of the system.		
	Is the navigation on the home page intuitive and easy to use?	Pass	5
	Did you find the information presented on the home page clear and easily understandable?	Pass	5
	Is the page responsive and quick to load?	Pass	5
Inquiries	Basic information details (full name, contact number, and address), inquiry subject, inquiry message.		5
	How easy is it for you to find the "Inquiries" section in the user interface?	Pass	5
Report Form	Basic information details (full name, contact number, and address), date and time of the incident, Evidences of the incident, Input witness(Optional), crime level, safety concerns, and preferred language.		
	Is the process of filling out the report form intuitive and easy to understand?	Pass	5
	Did you encounter any difficulties in selecting or inputting information into the form?	Pass	5
	Are the instructions provided clear and concise within the report form?	Pass	5
	Does it indicate the status of a user's report from the report status section after they've submitted an incident report?	Pass	5
	Can users easily find and select the appropriate incident category or type in the report form?	Pass	5
Report Status and Report	Users can monitor their reports that falls into three categories such as latest reports, under investigation, and resolved		

Receipt	reports.		
	Is it easy to find and access the status of your submitted reports?	Pass	5
	Is the display of report status clear and understandable?	Pass	5
	Are there different status categories, and do they provide meaningful information?	Pass	5
	Can users easily share or export a summary of their submitted report for personal records or follow-up?	Pass	5
	Is there a receipt provided to users after submitting an incident report?	Pass	5
	Can users opt for receiving real-time email notifications on the status changes of their submitted reports? (From latest reports, under investigation reports, resolved reports.)	Pass	5
Interactive Map	Dynamic and user-engaging digital representation of geographic information.		
	Did the map display shows accurate information?	Pass	5
	Does the "Get User Location" feature signify the successful identification of your current position on the map?	Pass	5
	Did the "Get Directions" feature provide correct and precise results?	Pass	5
	Is the zooming and panning functionality smooth and responsive?	Pass	5
	Can you quickly search for specific locations or addresses on the map?	Pass	5
	Are there customization options for adjusting the appearance of the map to suit your preferences?	Pass	5
Markers	Visual indicators placed on a map to highlight specific points of interest, selected barangays, police station, and fire station.		

	How noticeable and distinguishable are the dynamic markers on the map?	Pass	5
	Can you easily understand the meaning or significance of each dynamic marker? (ex. Barangay hall, police station, and fire station)	Pass	5
Heatmaps	How noticeable and distinguishable are the dynamic heatmaps on the map?	pass	5
	Does the info content for heatmaps provides useful information for awareness?	pass	5
Did you find the overall activity challenging?	The overall activity was not particularly difficult.	Pass	5
How would you rate the user-friendliness of Crime Awareness Hub? Can you share your feedback on the intuitiveness of the user interface?	The Crime Awareness Hub's usability is excellent in my opinion. The user interface is simple and easy to use, making it simple to navigate and access necessary features in the system.	Pass	5
How straightforward is the process of reporting incidents and concerns?	The procedure for reporting incidents and concerns is simple. It allows users to submit relevant information quickly and easily.	Pass	5
Can you quickly find information about locating the nearest safety stations?	Yes, locating the nearest safety stations is simple.	Pass	5

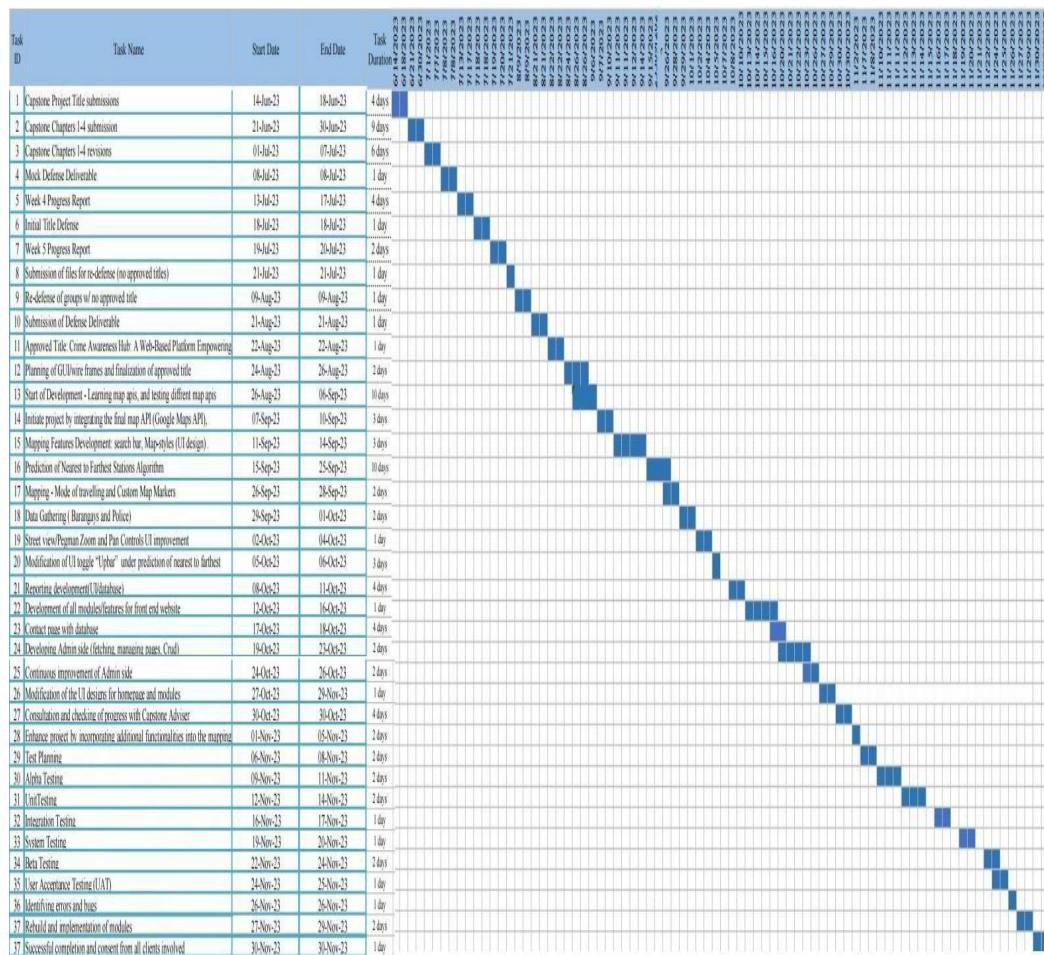
How secure and private does the interface feel when accessing safety resources?	When navigating to safety resources, the interface feels secure.	Pass	5
Which feature in the system do you find beneficial?	The mapping functionality stands out as the most useful feature of the system for me. It accurately pinpoints my current location and provides directions to destinations of my choice.	Pass	5
Which feature in the system do you find least beneficial?	None.	Pass	5
Is there anything in the system that seemed more complicated than necessary?	None.	Pass	5

APPENDIX E

GANTT CHART

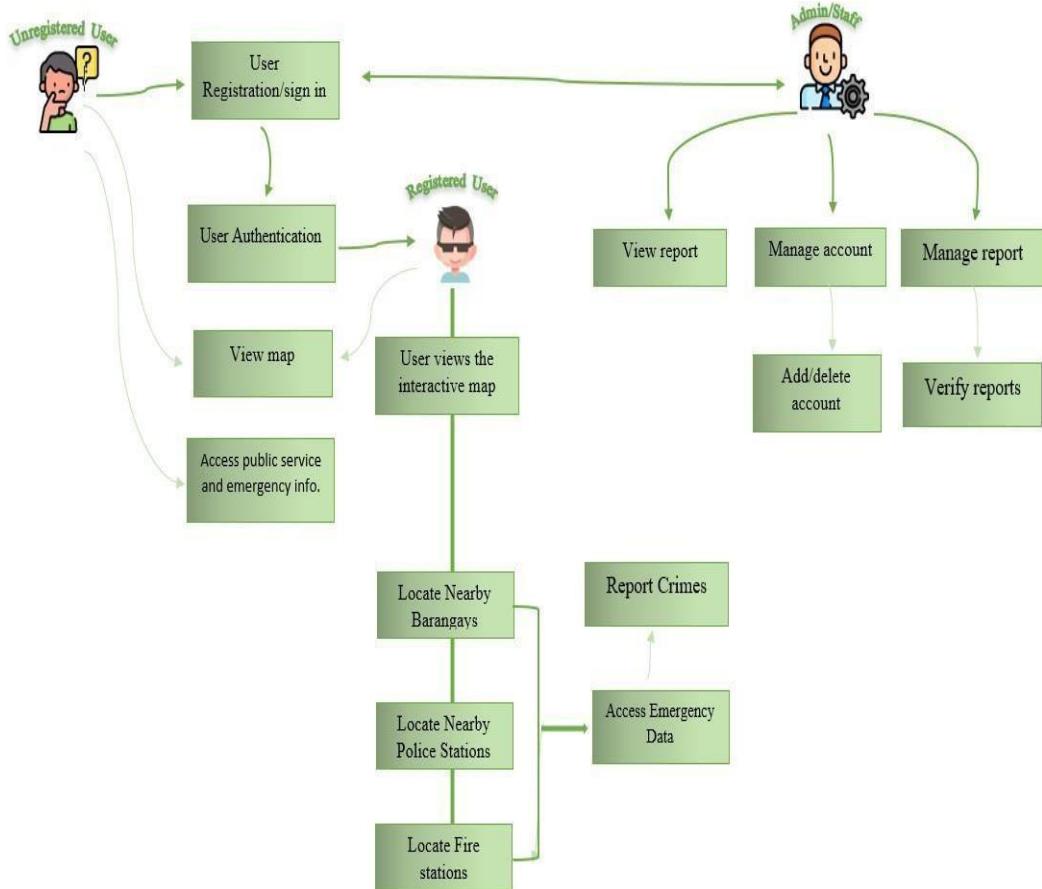
Task ID	Task Description	Task Duration	Start Date	End Date
1	Capstone Project Title submissions	4 days	June 14, 2023	June 18, 2023
2	Capstone Chapters 1-4 submission	9 days	June 21, 2023	June 30, 2023
3	Capstone Chapters 1-4 revisions	6 days	July 1, 2023	July 7, 2023
4	Mock Defense Deliverable	1 day	July 8, 2023	July 8, 2023
5	Week 4 Progress Report	4 days	July 13, 2023	July 17, 2023
6	Initial Title Defense	1 hour	July 18, 2023	July 18, 2023
7	Week 5 Progress Report	2 days	July 19, 2023	July 20, 2023
8	Submission of files for re-defense (no approved titles)	1 hour	July 21, 2023	July 21, 2023
9	Re-defense of groups w/ no approved title	1 hour	August 9, 2023	August 9, 2023
10	Submission of Defense Deliverable	10 mins	August 21, 2023	August 21, 2023
11	Approved Title: Crime Awareness Hub: A Web-Based Platform Empowering Users to Report Index or Non-Index Crimes in Zamboanga City.	1 day	August 22, 2023	August 22, 2023
12	Planning of GUI/wire frames and finalization of approved title	2 days	August 24, 2023	August 26, 2023
13	Start of Development - Learning map apis, and testing different map apis	10 days	August 26, 2023	September 6, 2023
14	Initiate project by integrating the final map API (Google Maps API),	3 days	September 7, 2023	September 10, 2023
15	Mapping Features Development: search bar, Map-styles (UI design).	3 days	September 11, 2023	September 14, 2023
16	Prediction of Nearest to Farthest Stations Algorithm	10 days	September 15, 2023	September 25, 2023
17	Mapping - Mode of travelling and Custom Map Markers	2 days	September 26, 2023	September 28, 2023
18	Data Gathering (Barangays and Police)	2 days	September 29, 2023	October 1, 2023
19	Street view/Pegman Zoom and Pan Controls UI improvement	2 days	October 2, 2023	October 4, 2023
20	Modification of UI toggle "Upbar" under prediction of nearest to farthest stations	1 day	October 5, 2023	October 6, 2023

21	Reporting development (UI/database)	3 days	October 8, 2023	October 11, 2023
22	Development of all modules/features for front end website	4 days	October 12, 2023	October 16, 2023
23	Contact page with database	1 day	October 17, 2023	October 18, 2023
24	Developing Admin side (fetching, managing pages, Crud)	4 days	October 19, 2023	October 23, 2023
25	Continuous improvement of Admin side	2 days	October 24, 2023	October 26, 2023
26	Modification of the UI designs for homepage and modules	2 days	October 27, 2023	November 29, 2023
27	Consultation and checking of progress with Capstone Adviser	1 day	October 30, 2023	October 30, 2023
28	Enhance project by incorporating additional functionalities into the mapping and reporting feature based on specific project requirements and own preferences	4 days	November 1, 2023	November 5, 2023
29	Test Planning	2 days	November 6, 2023	November 8, 2023
30	Alpha Testing	2 days	November 9, 2023	November 11, 2023
31	Unit Testing	2 days	November 12, 2023	November 14, 2023
32	Integration Testing	1 day	November 16, 2023	November 17, 2023
33	System Testing	1 day	November 19, 2023	November 20, 2023
34	Beta Testing	2 days	November 22, 2023	November 24, 2023
35	User Acceptance Testing (UAT)	1 day	November 24, 2023	November 25, 2023
36	Identifying errors and bugs	1 day	November 26, 2023	November 26, 2023
37	Rebuild and implementation of modules	2 days	November 27, 2023	November 29, 2023
38	Successful completion and consent from all clients involved	1 day	November 30, 2023	November 30, 2023



APPENDIX F

USE CASES



The diagram shows that an unregistered user must register and verify their email in the system. On the other hand, a registered user is granted access to the user interactive map page upon entering their credentials, while the barangay is directed to the admin homepage after entering admin credentials. Users can view the interactive map, access emergency data, and report crimes occurring in their location, once the report is made the user may receive a report receipt and will be directed to the report status which they can monitor their report progress that falls to latest report, under investigation report, and resolve report. Admin and staff members have the capability to view, verify and manage reports submitted by users on the admin dashboard. Admin statistics on the dashboard include the total number of reports, total in-progress reports, total validated reports, total admin users, and total registered users. Furthermore, admin and staff can make report announcements that is up to date keeping the users informed about their reports through Gmail.

APPENDIX G

CLIENT ACCEPTANCE FORM



Republic of the Philippines
 Western Mindanao State University
COLLEGE OF COMPUTING STUDIES
Department of Information Technology
 Normal Road, Baliwasan, Zamboanga City



CLIENT ACCEPTANCE FORM

Project Title: Crime Awareness Hub: A Web-Based Platform Empowering Users to Report Index or Non-Index Crimes in Zamboanga City.

Date: November 30, 2023 (Thursday)

This document, the Capstone Project Client Acceptance Form, is an integral requirement for Course IT 141, Capstone Project and Research 2, a critical component of the distinguished Bachelor of Science in Information Technology (BSIT) program at Western Mindanao State University. The students, Faizer A. Habibon and Markdrey C. Bernardo, present this submission.

The client's approval below shows their understanding and agreement that the project not only meets but surpasses the specified business requirements. By signing this document, the signatory explicitly acknowledges and accepts the project system titled "Crime Awareness Hub: A Web-Based Platform Empowering Users to Report Index or Non-Index Crimes in Zamboanga City." The purpose of this innovative web application is to empower users to conscientiously report crimes, whether Index or Non-Index, within Zamboanga City, fostering a safer and more connected community.

Approved by:


Asbir J. Taha

Client Name
 [Signature over printed name]



Republic of the Philippines
 Western Mindanao State University
COLLEGE OF COMPUTING STUDIES
Department of Information Technology
 Normal Road, Baliwasan, Zamboanga City



CLIENT ACCEPTANCE FORM

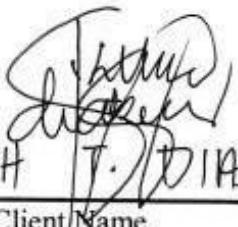
Project Title: Crime Awareness Hub: A Web-Based Platform Empowering Users to Report Index or Non-Index Crimes in Zamboanga City.

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Approved by:

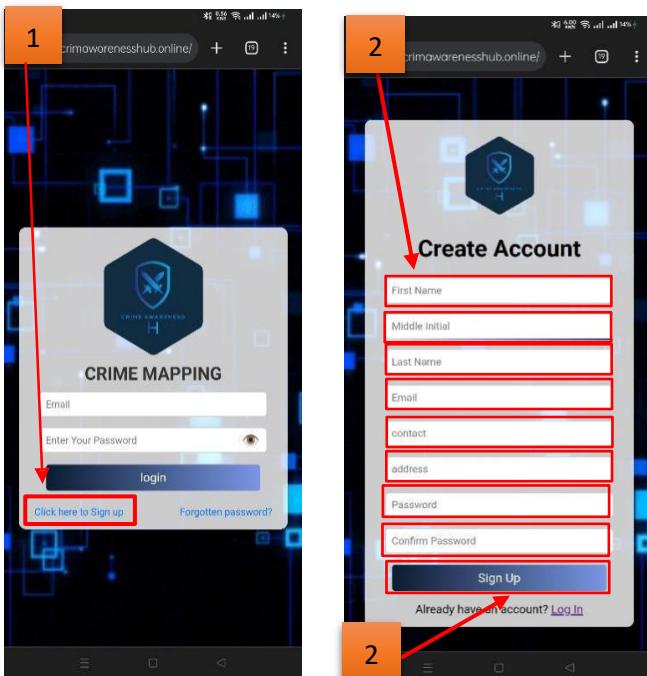

KENNETH T. DIAGNES
 Client Name
 [Signature over printed name]

APPENDIX H

USER GUIDE

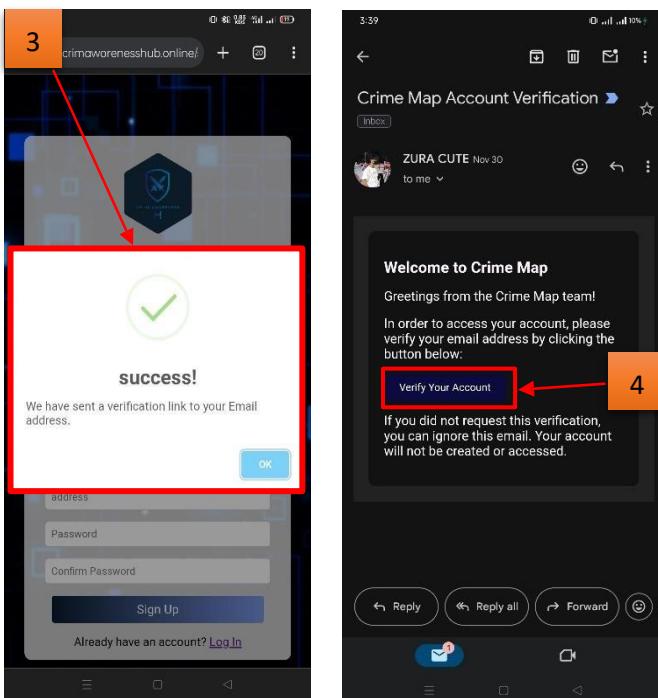
Crime Awareness Hub User UI

1. The system allows the user to create an account.



1. The login form is visible on the user's screen. To start the registration process, the user must click on the "Sign up" option to create an account.

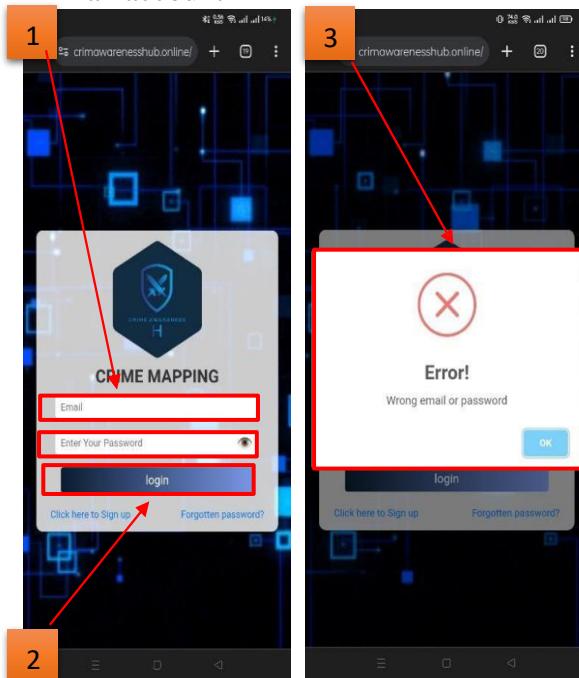
2. The user must fill up the required information in all fields and Click "Sign Up" to complete the account creation process, user account will be automatically saved in the system.



3. A notification will pop up "Success! We have sent a verification link to your email address.

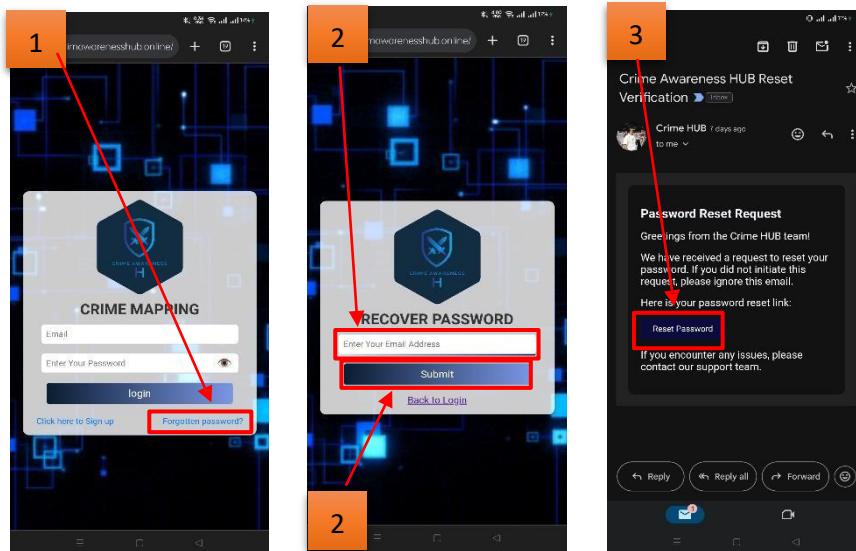
4. To verify the account, the user should check their email inbox from Crime Awareness Hub. Open the email and click on the "Verify Your Account" link. Once the account is verified, the user will be directed to the login form.

1. The system allows the user to create an account

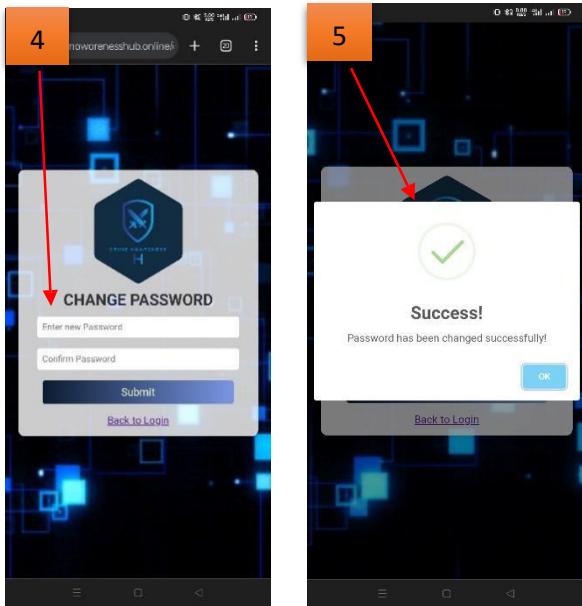


1. All user will log in using their valid email and password.
2. Click the "Login" button to continue. The system will validate all the information entered.
3. If the user's login credentials are incorrect, an error notification message will appear, informing the user that the email and password entered are not correct.

2. The system allows the user to recover their account.



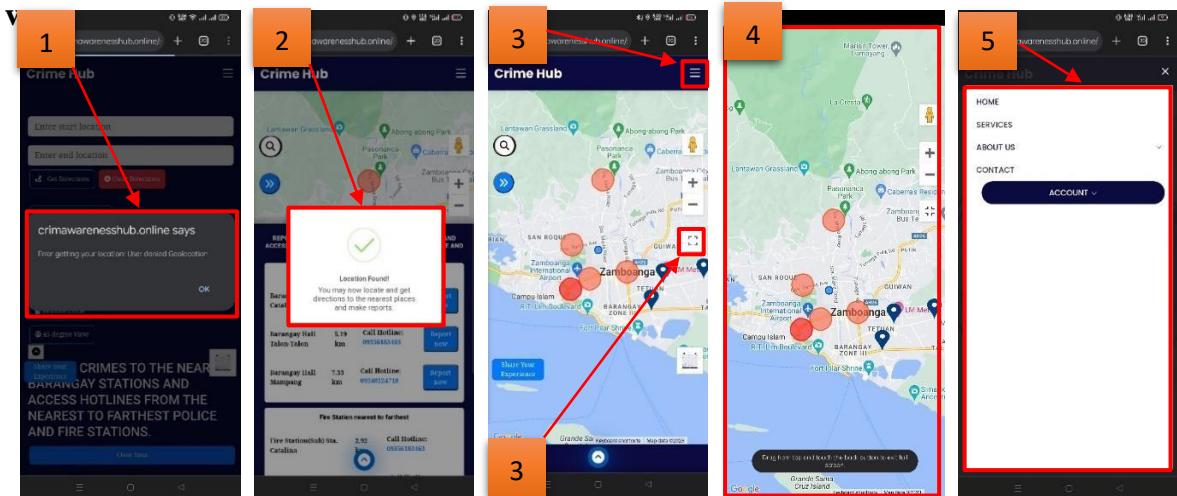
1. Click the "Forgotten password" to proceed the process of recovering account. After clicking "Forgotten password," the user will be redirected to the password recovery page.
2. The user needs to input their email address and click on the "Submit" button. After submitting, the system will send an email containing a password reset request to process the changing of user's password.
3. User checks their inbox and check the mail sent by Crime Awareness Hub. Click "Reset Password" and the user will be redirected to the change password page.



4. The user needs to enter a new password and confirm it by matching it in the confirm password. After filling the new password click "Submit" button to proceed the changing the user password.

5. A notification message will pop up "Success! Password has been changed successfully."

4. The system allows the user to access Crime Awareness Hub Interactive Map page.



1. If the GPS is turned off after logging in, the user will encounter the following error message.

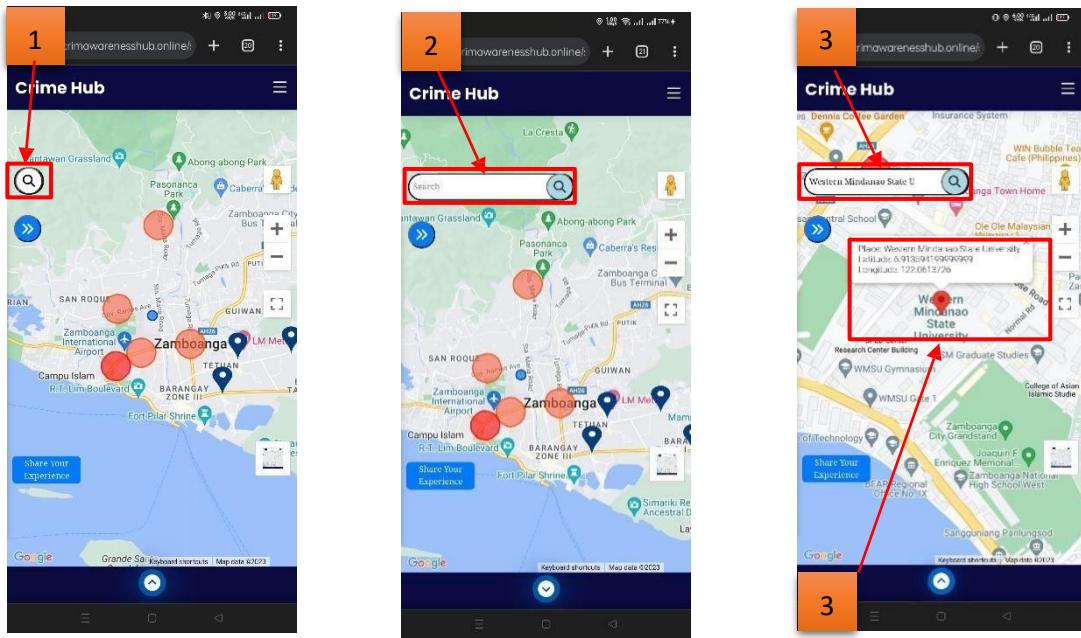
2. If the GPS is turned on after logging in, the user will receive a notification with a message like "Location Found" through a SweetAlert message.

3. After logging in and receiving the SweetAlert message, the user can see the entire interactive map along with its features and functionalities. Users can access the slide bar on the navigation bar, and by clicking the full-screen button, the map screen will expand to occupy the entire screen.

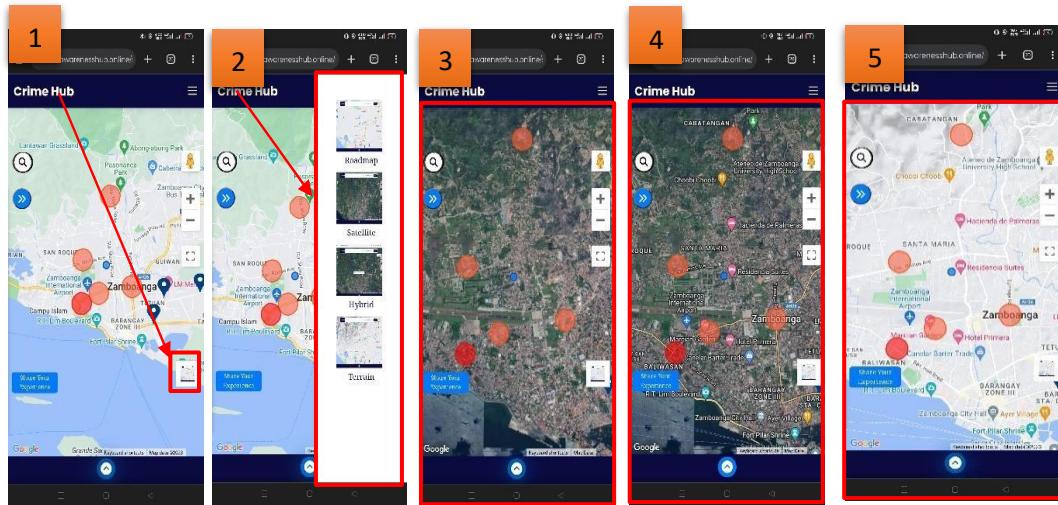
4. After clicking the full screen button, the user can see the map is occupied the entire screen. This feature enhances the user experience by providing a larger and more detailed view of the map.

5. The content inside the slide bar visible to the user and the content contains the Home, Services, About Us, Contact, and Account.

5. The system enables users to access the toggle search bar within the interactive map.



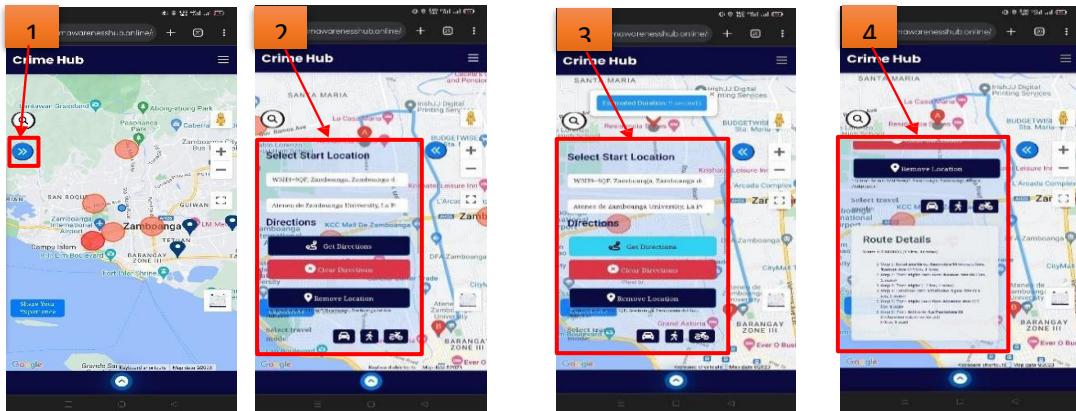
1. The user must click the search bar to toggle it.
 2. The search bar is toggled the user can enter the location they wish to search for.
 3. Once the user enters the desired location, a marker will identify the specific inputted location, and relevant information will be presented.
6. The system permits users to switch between various map styles within the interactive map.



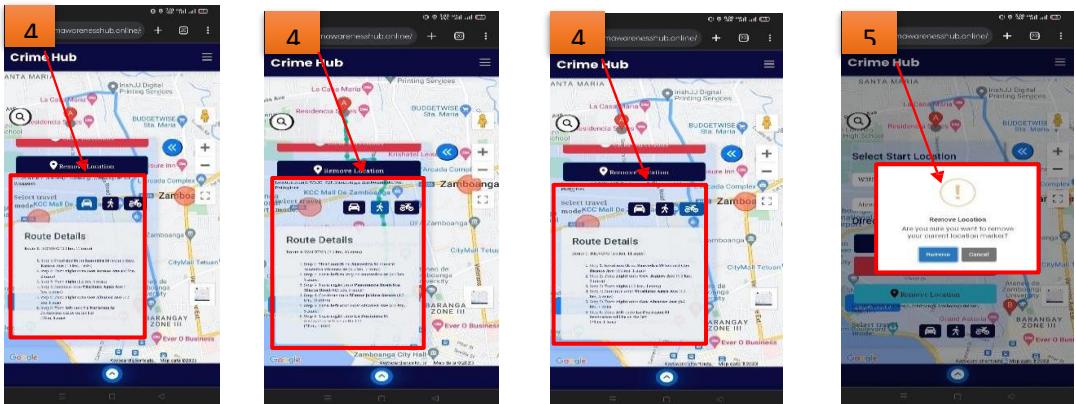
1. To change the map style, the user needs to click on the map tile feature.
2. Users have the flexibility to choose their preferred map style from the options available, including roadmap, satellite, hybrid, and terrain.
3. Satellite Map shows an accurate depiction of the Earth's surface.
4. Hybrid Map is similar to the satellite map but includes labels.

5. Terrain Map highlights elevation changes, landforms, and natural features.

7. The system allows the user to access the side bar (get directions, routing details, and remove location) in the interactive map.



1. To access the "Get Directions" feature and view route details for road guidance, click on the sidebar. This action will enable the user to explore directions and obtain detailed information



for navigating the roads.

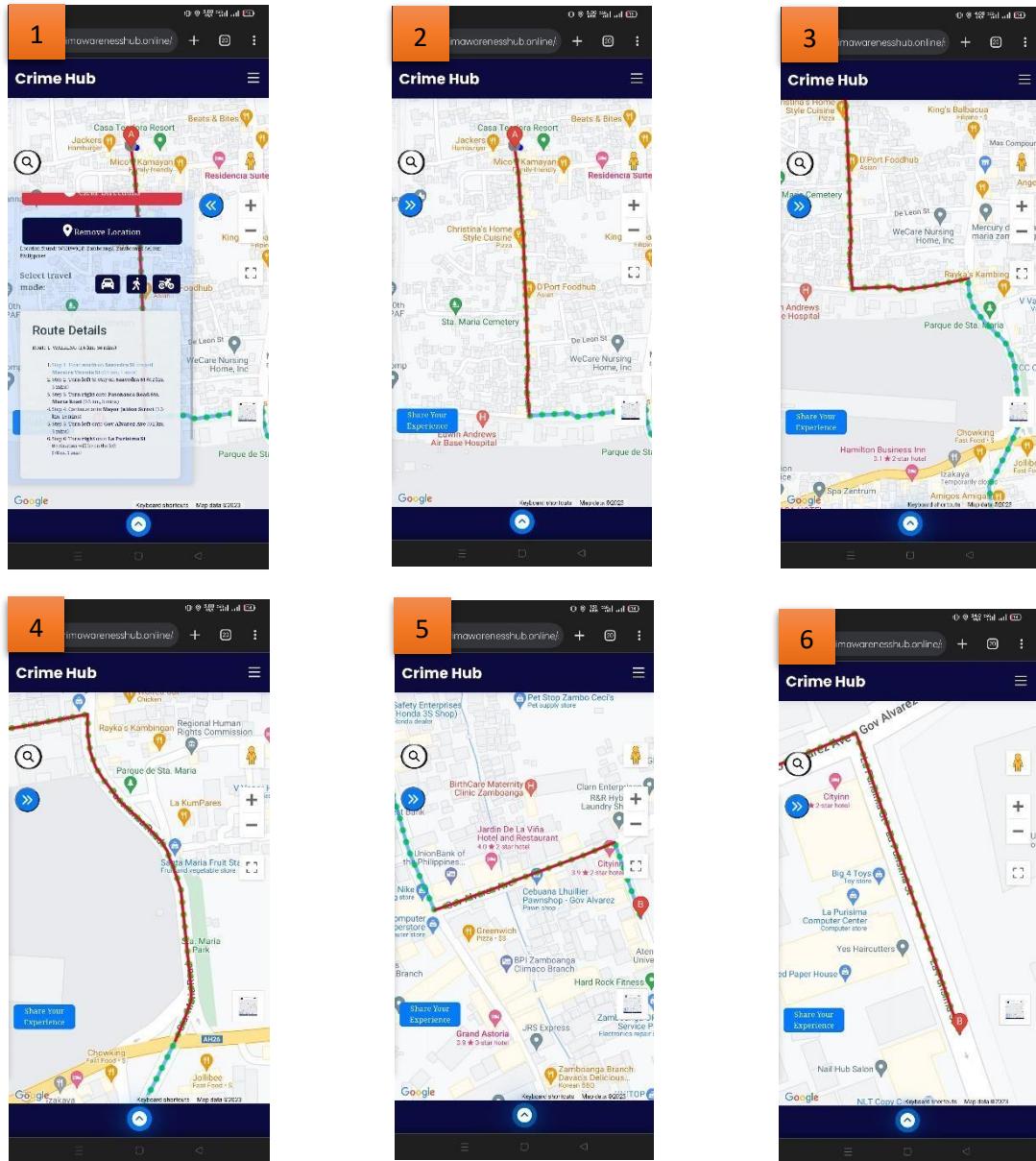
2. Enter the desired location the user wants to obtain directions to.

3. Clicking "Get Directions," the input provided will prompt the system to generate specific route details and guidance for the user's selected destination.

4. By scrolling down, the user can view route details provided by the system, categorized into walking, driving a car, and driving on a motorcycle. This information includes different modes of transportation and the estimated time to reach the location, along with corresponding directions for the chosen route.

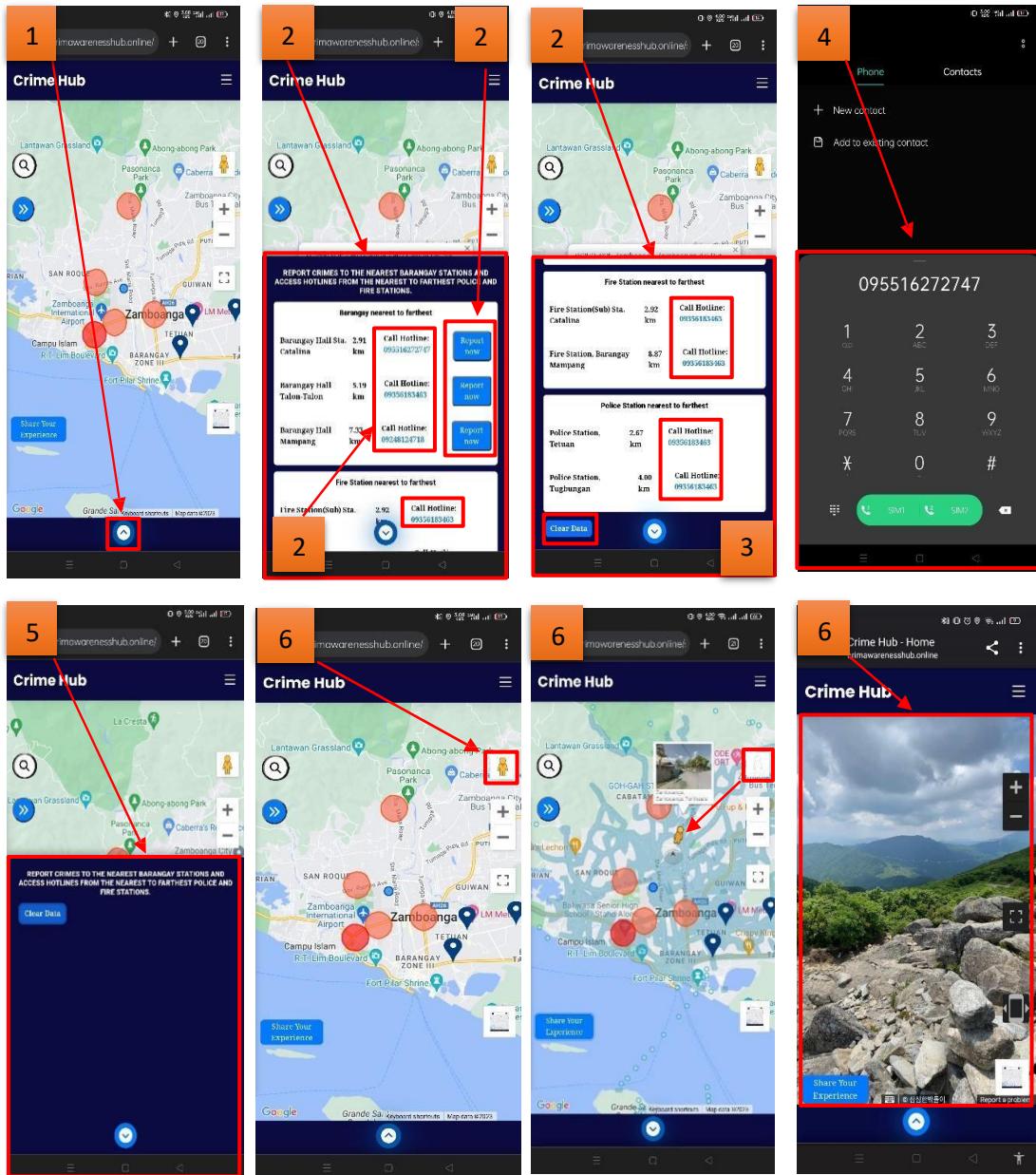
5. Clicking the "Remove Location" button will delete the current location of the user. This action removes the displayed location from the system or map interface.

6. The following are step-by-step routing details and route directions to guide the user from their current location to the destination they want to reach.



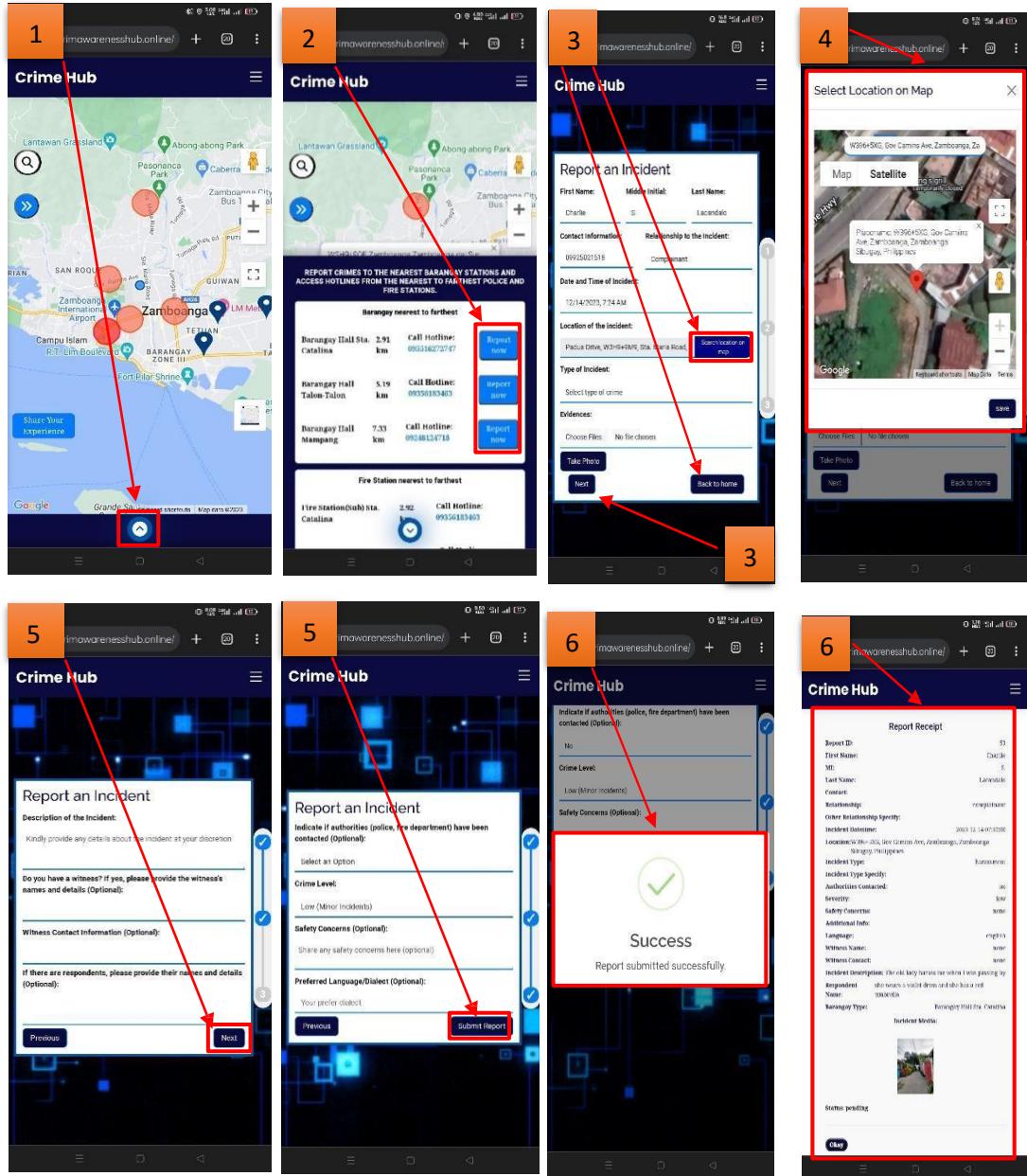
1. The user can view the route details on their screen, and they have the option to check each route step individually by clicking on each step. This feature allows for a more detailed examination of the navigation instructions and ensures a comprehensive understanding of the route.
2. This image represents the first route direction.
3. This image represents the second route direction.
4. This image represents the third route direction.
5. This image represents the forth route direction.
6. This image represents the fifth route direction.

8. Users can access safety stations and emergency hotlines through the upbar and



1. To access the upper bar panel, simply click the "Upbar" button.
2. After clicking the "upbar" button, the system will display information on the nearest to farthest barangay, police station, and fire station. Additionally, emergency hotlines corresponding to each barangay, police station, and fire station will be presented. Users have the option to report incidents by clicking the "Report Now" button and will be directed to the incident report form.
3. Clicking the "Clear Data" button will result in the deletion of information within the upper bar.
4. When the user click on the emergency hotline number, the system will automatically open the user's device calling contacts and connecting the user to the emergency hotline.
5. All the information are erase inside the upbar.

6. Click, drag, and release Pegman onto a road on the map, enabling users to explore and visual
9. The system allows users to submit a report by completing the incident report form.



1. Click the upbar icon to open the upbar panel.
2. The user have the option to choose a specific barangay to report to, and they can initiate the reporting process by clicking on the "Report Now" button to access the incident form.
3. The user can see the first section of the incident report form, the user can search the location of the incident by clicking the “Search Location on Map”.
4. By clicking on the map, the user can pinpoint the incident location, and a marker will indicate the name of the location.
5. After filling up the fields in the first section, the can click the "Next" button to proceed the second section until they reach the third section of the form. Once all details in the form are provided, the user can click the "Submit Report" button to send the incident report to the selected barangay.

6. The user receive a SweetAlert message indicating that the report submission is successfully, then the user will be redirected to the report receipt page.

10. The system allows the user to review the report receipt, check the status of the report, and receive notifications regarding the processing status from the respective barangay

Screenshot 1: Crime Hub - Your Latest Reports. Shows sections for Under Investigation Reports, Resolved Reports, and Archived Reports. A red box highlights the search bar and the 'Pending' status of the first report in the Under Investigation Reports section.

Screenshot 2: Crime Hub - Your Latest Reports. A modal window asks "Are you sure you want to cancel this report?" with 'Yes, cancel it!' and 'Cancel' buttons. A red arrow points from the 'Cancel' button to the next screen.

Screenshot 3: Crime Hub - Your Latest Reports. Shows the report status page with a pending report. A red box highlights the report details and the 'Pending' status. A red arrow points from the 'Pending' status to the next screen.

Screenshot 4: Crime Hub - Your Latest Reports. Shows the report receipt page with a pending status. A red box highlights the report details and the 'Pending' status. A red arrow points from the 'Pending' status to the next screen.

Screenshot 5: Crime Hub Report Status Update. An email from ZURA CUTE 6 days ago. The body of the email reads: "Dear Charlie Lacandalo, We hope this message finds you well. We are writing to provide you with an update on your recent report submitted to our Crime Mapping and Reporting system. Report Status: In Progress Thank you for using our platform for reporting and helping us create a safer community. If you have any further questions or require additional assistance, please do not hesitate to contact us." A red box highlights the email body. A red arrow points from the 'In Progress' status to the final report receipt page.

1. After clicking the "Okay" button on the report receipt page, the user will be automatically redirected to the report status page, where they can view the details and status of their most recent report. User can also cancel the report by clicking the “Cancel” button.

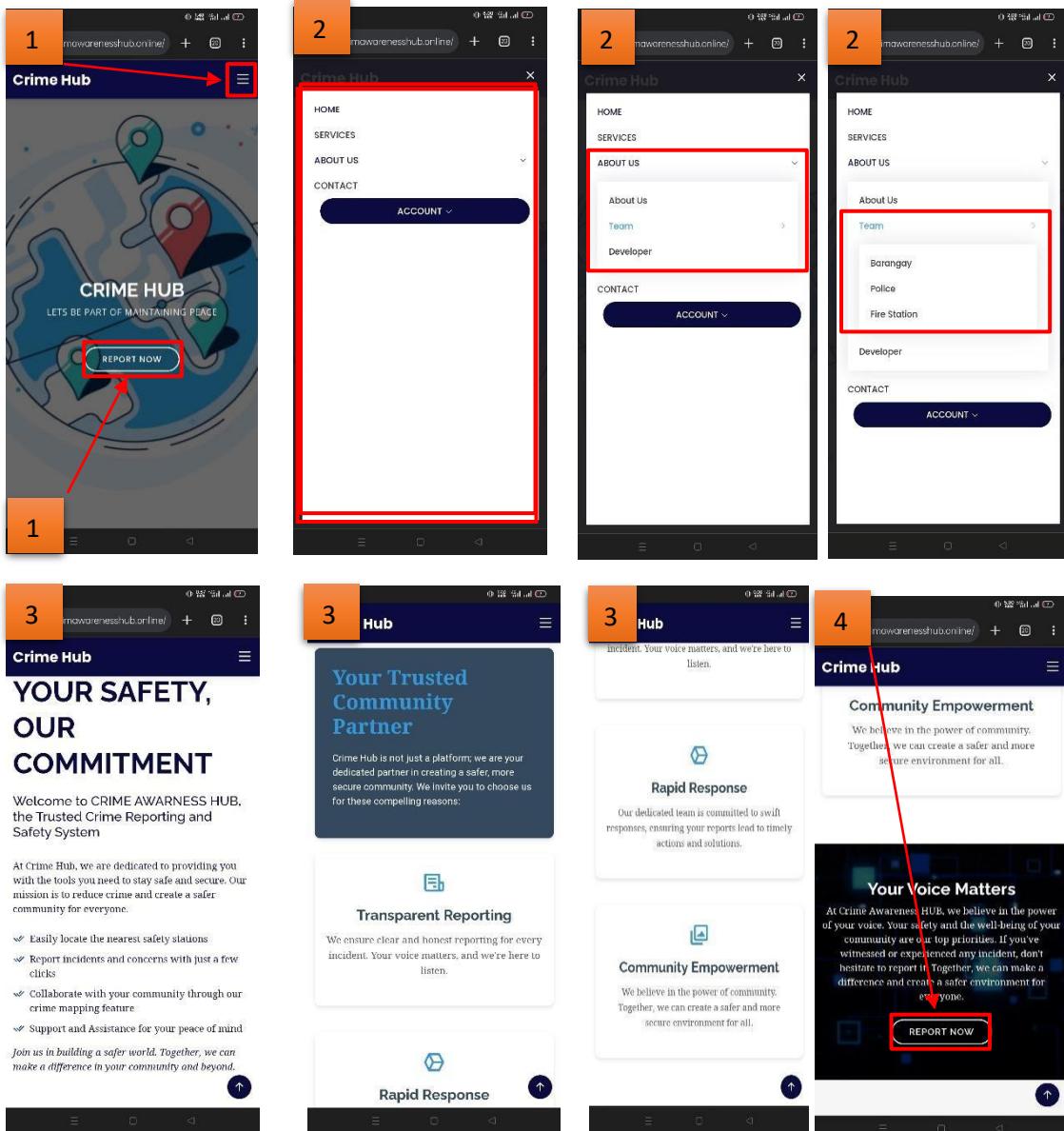
2. By clicking the “Cancel” button a modal pop up asking the user if they want to cancel it or abort the cancel request. If the report was cancelled it will be move to the archive report, if the user choose to restore the archive report it will go back to the latest report and the user will be having a 12 hours cool down before canceling the report again.

3. If the user opts to restore the archived report, they can see that the report reverts to the “pending” status.

4. After the report is validated by the barangay staffs, the report status will be updated to “In Progress,” and the user will receive an email notification indicating that their report is

now in progress. When the report incident is resolved, the barangay staffs will update the report status to "Completed/Resolved" and the user will receive a mail notification that their report is completed/resolved.

11. The system allows the user to access the homepage content, navigation bar and make inquiries for concerns.



5. The user can access the navigation bar by clicking the navigation slide bar, the user can go to the interactive map by clicking the "Report Now" button.

6. Inside the navigation slide bar, the user can find categorized content such as Home, Services, About Us, and Contact. The About Us section includes a dropdown feature allowing the user to access system information, team details, and developer information. Within the team section, there are subcategories for barangay, police station, and fire station.

7. This is what the user see inside the content of the system homepage.

8. Clicking "Report Now," the user will be automatically redirected to the map page to initiate a report.

These are the additional contents within the homepage.

1 Hub SERVICES

Explore the range of services we offer to enhance your experience.

- Mapping Locator**: Locate nearest places like barangays, fire stations, and police stations with ease.
- Crime Reporting**: Report crimes to the nearest located stations for a safer community.
- Nearby Stations**: Discover nearby stations based on your current location for added convenience.
- Route Directions**: Get detailed route directions from your current location to your destination with additional search capabilities.

2 Hub EXPLORE OUR ENTITIES

Welcome to our dedicated community, centered around our barangay halls, with collaborative support from fire stations and police stations. Get to know these essential parts of our community and the people behind them.

3 Hub DEVELOPERS

We are a team of dedicated developers from the Western Mindanao State University, specializing in Bachelor of Science in Information Technology at the Institute of Computer Studies. As fourth-year students, we are passionate about technology and eager to embark on our professional journeys. Our goal is to make a meaningful impact in the tech industry by applying our knowledge and skills to create innovative solutions. Get to know us better and explore.

4 Hub CONTACT US

Have a question or need assistance? Feel free to get in touch with us. We're here to help you. Whether it's a general inquiry, support request, or just to say hello, we'd love to hear from you.

5 Hub Crime Hub

Crime Hub
Baliwawan Rd.
1234590
Zamboanga
Phone: 143
Email: crimehub@gmail.com

Useful Links

- Home
- About us
- Services

Our Services

- Crime Reporting
- Mapping Locator
- Nearby Stations
- Route Directions

Our Social Links

1. The "Services" section informs the user about the features and functionalities that the system offers such as Mapping Locator, Crime Reporting, Nearby Stations, and Route Directions.
2. The "Explore Our Entities" section provides information about the team, which includes Barangays with collaborative support from the Police Station and Fire Station. The user can view the photos by clicking on the respective entities.
3. The "Developer" section showcases the creator of the system, who is an Information Technology fourth-year student from Western Mindanao State University.
4. The "Contact Us" section enables users to submit their inquiries or concerns, providing a platform for communication with the Barangay staff. After completing the relevant fields, the user can click the "Send Message" button, and the Barangay staff will receive the inquiries submitted by the user.
5. The homepage footer includes system information and links for social media integration, providing users with the option to view the system page on various social media platforms.

CURRICULUM VITAE



About Me

I am an enthusiastic professional with a passion for ensuring software quality. I am eager to learn and grow in my field, and contribute to the success of any team.



09659527554



marldreybernardo910@gmail.com



Sta. Maria Zamboanga City

LANGUAGES

- English
- Tagalog
- Chavacano

PROGRAMMING LANGUAGES

- HTML
- MySQL
- CSS
- JAVASCRIPT
- PYTHON
- PHP

SKILLS SUMMARY



EDUCATIONAL INFORMATION

- **Bachelor of Science in Information Technology (2020-2024)**
- **WESTERN MINDANAO STATE UNIVERSITY**
- **General Academic Strand (2018-2020)**
- **SAINT JOSEPH FOUNDATION INC.**
- **Primary Level (2013 - 2018)**
- **SAINT JOSEPH FOUNDATION INC.**

EXPERIENCES

Meticulously tests software applications to identify bugs, errors, or deviations from established requirements during software engineering.

Collaborated closely with team members to enhance the overall quality of the Car Rental System, resulting in a fast and smooth development lifecycle in app development.



FAIZER HABIBON

FULL STACK DEVELOPER

About Me

I am a dedicated professional with a passion for coding and a proven ability to solve complex problems. Known for my diligent work ethic, I prioritize efficiency -- and strive to work smart.



09356183463



habibonfaizer6@gmail.com



Talon-Talon Zamboanga City

LANGUAGES

- English
- Tausug
- Tagalog

PROGRAMMING LANGUAGES

- | | |
|--------------|----------------|
| • HTML | • NODE.JS |
| • CSS | • MYSQL |
| • JAVASCRIPT | • AJAX |
| • PHP | • RESTful APIs |
| • DJANGO | |

SKILLS SUMMARY

Design Process



Project Management



EDUCATIONAL INFORMATION

- Bachelor of Science in Information Technology 2020-2024
- WESTEN MINDANAO STATE UNIVERSITY
- Science Technology Engineering Mathematics 2018-2020
- TALON-TALON NATIONAL SCHOOL
- Lower Secondary Level 2013-2018
- TALON-TALON NATIONAL SCHOOL

EXPERIENCES

Contributed significantly to the creation of the Yakan Library Management System, a web application for efficient library management.

Played a key role in the software engineering process for the creation of the Serdac Content Management System.

Successfully developed a Gym Management System, streamlining operations for fitness facilities.

Gained valuable experience in architecture, rendering, and AutoCAD through immersive learning.