GEOGAUARD MAP SHIELD USING GOOGLE MAP SYSTEM

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Table of Contents

ABSTRACT

Crime Statistics of Pakistan shows that there is a rapid increase in the number of crime reported over time unlike other developing countries of the world. According to Pakistan Bureau of Statistics the number of incidents has increased from **642,762 in 2010 to 876,430 in 2020**, indicating a concerning trend over the past decade. This data illustrates the growing challenge of managing and controlling these incidents, with hazards becoming more prevalent over time. It could be due to various reasons. These criminals strategically position themselves in specific streets, monitoring the movements of potential victims. Consequently, when individuals traverse these areas, they fall prey to robbery murder, rape, gang rape, sexual abuse of a minor, kidnapping, armed robbery, burglary and carjacking.. This issue can be effectively addressed through heightened awareness among the populace regarding the routes they traverse. By equipping people with knowledge about safe pathways, they can avoid falling victim to such criminal activities, thus contributing to the mitigation of this societal menace. In addition, fostering community partnerships and implementing targeted law enforcement strategies can further enhance neighborhood safety. Moreover, investing in social programs aimed at addressing root causes of crime, such as poverty and lack of opportunity, can play a crucial role in reducing criminal activity. Furthermore, promoting a culture of vigilance and encouraging citizens to report suspicious behavior can bolster overall crime prevention efforts.

INTRODUCTION

In the last decade, there has been a **34.3% increase** in the number of total crimes reported in Pakistan – Public Safety (Types and Numbers of Reported Crimes) – Social Indicators of Pakistan 2021, Pakistan Bureau of Statistics , Islamabad, October 18, 2023 .

According to current crime index of pakistan **43 individuals out of every 100000** are involved in or have been associated with criminal activities.

In 2018, Pakistan experienced a robbery rate of 7 cases per 100,000 population, indicating a significant concern for public safety. This figure, however, only scratches the surface of a complex issue that has plagued communities across the nation. The incidence of robbery varies across different provinces and cities, highlighting the need for targeted solutions to address this pervasive problem. One of the primary contributing factors to these alarming statistics is the lack of awareness among the populace regarding high-risk areas and individuals susceptible to criminal activity. As a result, innocent citizens often fall victim to the predatory actions of robbers, leading to personal harm and property loss.

Recognizing the urgent need for proactive measures to mitigate the impact of robbery and enhance public safety, we propose the development of a comprehensive system designed to empower individuals with vital information about their surroundings. This innovative solution aims to bridge the gap in knowledge and provide real-time insights into the safety status of streets, villages, and the inhabitants therein. Through the utilization of cutting-edge technology and community engagement, our proposed system will offer users a robust platform to access detailed profiles of areas prone to criminal activity, along with timely alerts and danger indicators to navigate potential threats effectively.

The core objective of our initiative is to foster a culture of vigilance and preparedness among citizens, enabling them to make informed decisions and take proactive steps to safeguard themselves and their communities from the scourge of robbery. By harnessing the power of data-driven insights and collaborative efforts, we seek to empower individuals with the tools and resources necessary to navigate their surroundings safely and confidently.

In the following sections, we will delve deeper into the features and functionalities of our proposed system, outlining its potential impact on reducing robbery rates and fostering a safer, more secure environment for all residents of Pakistan.

Study Of Existing System

Existing systems rely on traditional methods of data collection and analysis. The analysis is usually performed using statistical methods to identify trends and patterns in crime activity and property values over time. However, these systems may lack real-time capabilities and may not provide users with immediate alerts or updates regarding crime incidents or changes in property values. Additionally, the integration of geographical information systems (GIS) and advanced data analytics techniques may be limited in existing systems, making it challenging to visualize and interpret the data effectively. Therefore, there is a need for innovative approaches like mine,which leverage technologies such as Google Maps integration and real-time threat alerts and community engagements to enhance the effectiveness and efficiency of crime monitoring and property valuation.

In addition, Pakistan lacks systems where individuals are well-informed about their communities and feel safe moving around. Currently, only police officials have access to such data, highlighting the need to disseminate this information to the public to increase trust and confidence in their surroundings. Moreover, existing systems do not feature a map-based alarm system, leaving individuals unsure and hesitant about their safety in different areas.

Furthermore, current systems often lack innovation, speed, user-friendliness, and ease of understanding. Some crime-related applications or websites are designed for lower versions of Android, failing to keep pace with technological advancements and not supporting higher Android versions. Additionally, these systems primarily cater to the needs of law enforcement officials, neglecting the interests and interactions of the general public. Without meaningful engagement with the community, societal change is unlikely to occur.

Proposed System

My system is an innovation beneficiary to aspects like :

i. Helps **businesses** avoid areas associated with political uncertainty and mafias when setting up ventures.

ii. For **tourists and visitors** it provides information about safe routes and areas to explore.

iii. Crime data and safety measures can help **schools and universities** implement security protocols and ensure the safety of students, faculty, and staff.

iv. Enables **NGOs** to develop targeted interventions and support initiatives aimed at improving public safety and well-being.

v. Facilitates data sharing and collaboration among different **government departments**, enabling more coordinated efforts in addressing crime and community safety issues.

vi. Access to comprehensive crime and safety data supports urban planning decisions, fostering safer neighborhoods and attracting **residents, investors, and real estate developers.**

vii. Enhanced crime monitoring capabilities and access to real-time data for more effective law enforcement and crime prevention efforts.

viii. Detailed information on property rates, ownership details, and occupancy status, facilitating informed decision-making and reducing the need for physical visits to properties.

ix. Real-time updates and alerts about crime incidents and safety measures, enabling prompt action and precautionary measures to ensure personal safety and well-being.

x. Personalized alerts for tailored safety information.

xi. Integration with emergency services ensures timely assistance during crises.

xii. Feedback mechanism for continuous system improvement.

xiii. Cross-platform compatibility ensures accessibility for all users.

xiv. User-friendly interface for easy navigation.

xv. Clear and concise information presentation for better understanding.

xvi. 8. Real-time updates and alerts for prompt action and decision-making.

xvii. Raises awareness and encourages proactive involvement in addressing social issues.

xviii. Integration of geographical information systems (GIS) and advanced data analytics techniques.

xix. Strong data privacy measures protect user information.

Website Content Pages

i.Home Page: Overview and navigation.

ii. Sign Up: Register for an account.

iii. Login: Access account with username and password.

iv. Check-In/Check-Out: Provide status updates or safety check-ins.

v.Admin Dashboard: Manage website backend, user activities, and reported incidents

vi. Police Dashboard: Advanced features for law enforcement.

vii. Local People's Dashboard: Community-specific safety information.

viii. Crime Maps: Interactive crime data visualization.

ix. Safety Tips: Guidelines for personal safety.

x.Emergency/Instant Help Page: Assistance during emergencies.

xi. Community Forum: Discussion platform for safety concerns.

xii. Report a Crime: Submit crime reports online.

xiii. View Reported Crimes: See submitted crime reports.

xiv. View Approved Incidents: See approved crime incidents.

xv. Resources: Library of educational materials.

xvi. Contact Us: For inquiries and feedback.

Scope

The scope of this project transcends local boundaries, with the aim of initially addressing safety and security concerns within a specific area and subsequently expanding to cover the entirety of our nation. While starting with a focus on a particular region, the platform is designed to be scalable and adaptable, allowing for seamless expansion across different communities and regions within the country, including neighborhoods and streets. By leveraging advanced technologies and data analytics, the platform seeks to provide valuable insights and resources to users nationwide. This approach underscores the project's commitment to fostering safety, security, and community empowerment on a broader scale within our country.

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Methodology

I am adopting Agile methodology.

The agile methodology is a SCRUM-based iterative, incremental approach to web design or software development that prioritizes continuous delivery over linear, step-based milestones, and rigid objectives.

Following are the reasons why:

i.Agility in Action: Prioritizing adaptability for seamless adjustments to evolving requirements and priorities.

ii. Incremental Delivery: Facilitating software delivery in small, iterative releases for prompt feedback and enhancements.

iii. Collaborative Customer Engagement: Fostering continuous collaboration with customers and stakeholders to ensure alignment with their needs.

iv. Accelerated Time-to-Market: Expediting software delivery to gain a competitive edge by swiftly launching products.

v.Quality Assurance Excellence: Ensuring higher software quality through continuous testing and integration practices.

vi. Transparency and Trust: Providing visibility into project progress for enhanced trust and early issue identification.

vii. Empowering Team Dynamics: Encouraging team self-organization and collaborative decision-making for increased ownership and accountability.

viii. Proactive Risk Management: Mitigating project risks by delivering value early and addressing issues proactively.

ix. Cultivating Continuous Improvement: Instilling a culture of continuous improvement through regular reflection and adjustment.

x.Embracing Change: Equipping teams to adapt effectively to new requirements and priorities.

Technologies

I am employing following technologies for my proposed system:

Frontend Development:

- HTML5, CSS3, JavaScript: These languages form the foundation, style elements, and introduce interactive functionalities.

- Bootstrap: Incorporating frameworks like Bootstrap streamlines design across various devices and accelerates development.

Backend Development:

- Employing the MVC5 framework of ASP.NET for backend management, traffic direction, and database interactions.

- Integration of Google APIs for real-time location tracking on maps.

Database Management:

- Leveraging ASP.NET's MVC5 framework for backend development, which simplifies debugging and allows writing backend code directly within the frontend.

- This seamless integration enhances development efficiency, ensuring optimal performance and user experience.

Encryption Tools:

- Implementing robust encryption techniques such as database injections and obfuscation to enhance security and prevent unauthorized access during transactions.

Statistical Analysis:

- R or Python with libraries such as Pandas and NumPy: For analyzing historical crime trends and socio-economic factors.

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Tools

I will use following tools for given purposes:

Development:

- Visual Studio Code: Code editor for website development.

Design:

- Adobe Illustrator and Adobe Photoshop: Design tools for creating website graphics.

Version Control:

- GitHub: System for managing code changes and collaboration.

Testing:

- Selenium WebDriver: Tool for automated web application testing.

Deployment & Hosting:

- Firebase Hosting: Platform for fast website deployment and hosting.

Analytics:

- Google Analytics: Tool for tracking website traffic and user behavior.

Content Management*:

- WordPress or Bootstrap: CMS for managing website content and layouts.

SEO & Security:

- Google Search Console: Tool for monitoring website performance and improving visibility.

- Let's Encrypt: Provides SSL certificates for website security.

Mapping Services:

- Google Maps API: Integration for adding location-based features to the website.

Statistical Analysis:

- R or Python with libraries such as Pandas and NumPy: For analyzing historical crime trends and socio-economic factors.

Project Proposal Evaluation Form

Name of Students:

_____

Project Title:

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1. **Project Supervisor's Remarks and Recommendations**

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Name: _____ Signature: _____Date: _____

2. **Chairmen's Remarks and Recommendations**

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Name: _____ Signature: _____ Date: _____

3. **Project Evaluation Committee's Remarks and Recommendations**

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a) Name: _____ Signature: _____

b) Name: _____ Signature: _____

c) Name: _____ Signature: _____