Project Team #: 20CSM_B04

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Project Name:

Develop an IT enabled framework/mechanism through which a person can give tip-off about any suspicious activity/ crime to the authorities.

Abstract:

The existing process of reporting crimes often deters individuals due to concerns about their identity being revealed or the inconvenience of traditional reporting channels. To address these challenges, our project introduces an innovative IT-enabled framework designed to facilitate anonymous tip-offs about suspicious activities or crimes to authorities, fostering a safer and more secure community.

It offers a user-friendly web platform where individuals can submit tips about crimes/suspicious activities without revealing their identity.

Furthermore, the framework employs blockchain technology to guarantee data integrity and security. By recording tip-related information on a decentralized and tamper-proof blockchain, the system prevents manipulation and unauthorized access, while also ensuring the immutability of reported data.

Machine learning models and Natural Language Processing (NLP) are integrated to filter and categorize incoming tips. This enables efficient prioritization of reports and enhances the accuracy of information provided to law enforcement agencies. False alarms are minimized, enabling authorities to focus on legitimate cases.The proposed solution enhances transparency and trust by enabling individuals to contribute to community safety without fear of retaliation. The framework empowers citizens to provide crucial information that can aid in crime prevention and investigation, ultimately leading to safer neighborhoods.

In conclusion, this IT-enabled framework revolutionizes crime reporting by creating an environment where individuals can contribute information about suspicious activities or crimes without compromising their anonymity. By leveraging advanced technologies such as encryption, blockchain, and machine learning, this solution promotes trust, and collaboration between the public and law enforcement agencies, contributing to the overall safety and security of society.

Title	Anonymous Crime Reporting System
Clients	National Intelligence Grid(NATGRID), Ministry of Home Affairs(MHA)
Objective	1. Privacy First: Ensure that people can give information without revealing who they are. This makes them feel safe and more likely to share important details. 2. Easy Reporting: Make it really easy for anyone to quickly share what they've seen. This saves time and helps the important information get to the right people faster. 3. Trustworthy Reports: Use past information to figure out which reports are likely to be true. This helps make sure that real issues are taken seriously. 4. Score for Trust: Give scores to people who provide good information, without showing their identity. This way, authorities can trust reliable sources without knowing who they are. 5. Location Insights: Use history to predict where similar incidents might happen. This helps police plan better and respond faster. 6. Understand People's View: Ask simple questions to understand what people think about the situation they're reporting. This helps get a clearer picture of what's going on. 7. Keep Data Safe: Use special methods to protect people's information and keep everything secure. 8. Stop Misuse: Make sure people don't lie on purpose. Have strong consequences for fake reports and watch for patterns to catch any misuse. 9. Stronger Community: Help everyone work together – the public and law enforcement – make neighborhoods safer by sharing important information.
Users	1. General Public 2. Anti-Crime Organizations 3. Law Enforcement Agencies
Functional Requirements	**F1:** Anonymous Reporting This feature uses the Blockchain technology.This allows users to submit reports without requiring them to create an account or disclose personal information. **F2**: GPS Integration Use GPS technology to automatically detect the user's location when submitting a report, ensuring accurate incident tracking .This can be done using Geolocation API. **F3**: False Alarm Detection Implement machine learning algorithms to analyze submitted reports and identify potential false alarms to reduce unnecessary alerts for law enforcement. **F4**: Multi-media upload functionality

	A multimedia upload feature to allow users to provide additional evidence or context when reporting drug trafficking incidents. This feature enhances the reporting process and enables users to share images, videos, or audio recordings related to the incidents. **F5**: User Feedback and Support Incorporate a feedback mechanism to gather user suggestions and improve the app continually. Provide a support system to address user queries or issues. **F6**: Report categorisation and public Awareness Report categorization is a vital feature in the "Anonymous crime Reporting" web platform that allows users to classify their submitted reports based on different categories or types of drug trafficking incidents. Implementing public awareness strategies can increase user engagement, encourage reporting, and create a safer environment. **F7**: User Registration and Authorities login For user login, generate random and unique IDs to ensure user security and anonymity.Implement a separate login system for authorities (e.g., law enforcement agencies) with appropriate credentials provided by the relevant organizations.
Non-Functional Requirements	**NF1**:Security Implement strong encryption algorithms (e.g., AES) for securing data transmission and storage. Use HTTPS for secure communication between the app and the server. Employ OAuth or JWT for user authentication. **NF2**:Reliability Use cloud-based hosting services (e.g., AWS, Azure) with auto-scaling capabilities to ensure high availability. Implement redundancy and failover mechanisms to handle potential server failures. **NF3**:Accessibility Follow WCAG (Web Content Accessibility Guidelines) standards to design an inclusive use interface that accommodates users with disabilities. Use responsive web design to adapt various screen sizes. **NF4**:Response Time Employ a lightweight and efficient backend infrastructure to process user reports quickly. Optimize database queries and use caching mechanisms (e.g., Redis) to reduce response times.

	NF5:Data Integrity Use database management systems with built-in data integrity features. Apply cryptographic hashes to sensitive data to ensure data tampering detection. **NF6**:Offline Functionality Implement local data storage on the web platform(e.g.,Ethereum) to allow users to compose reports offline. Use background synchronization when an internet connection is available to send reports to the server. **NF7**:Concurrent Usage Utilize load balancers to distribute incoming requests across multiple servers, ensuring even distribution of traffic and preventing bottlenecks. **NF8**:Accuracy of Machine Learning Model: Train and deploy machine learning models using frameworks like TensorFlow or PyTorch. Continuously update and refine the model based on feedback and real-world data. **NF9**:Anonymity Assurance Use cryptographic techniques to generate unique identifiers for users to maintain their anonymity. Implement strict access controls to prevent unauthorized access to user information. **NF10**:Minimal Bandwidth Usage Compress images and media files before uploading them to reduce data consumption. Utilize data compression algorithms (e.g., Gzip) for efficient data transfer.
Software and Hardware Requirements	**Software Requirements**: 1.Frontend : Html,Css,Javascript,react,Node-js 2.Blockchain Framework : Ethereum 3. API (for GPS) : Geolocation API 4. Frameworks : TensorFlow or PyTorch 5. Library : Scikit-learn 6.Version control system : Git 7.Testing Framework : Selenium 8.Lang Support Feature : react-i18next 9.User Interface Design Tools : Figma **Hardware Requirements:** 1.OS : Win 10x / Win 11x 2.RAM : 4 GB or more. 3.Storage : 256 GB SSD/500 GB HDD