

Department of Computer Science & Engineering
FISAT

ICEFOSS 2024

Catalyze Innovation : Code, Collaborate, Create

HACKFIT 3.0

Problem Statements



Problem Statement #1

Citizen Alert System

In today's dynamic urban environments, ensuring public safety and convenience amidst various risks and disruptions is an important concern. The absence of a comprehensive Citizen Alert System in various localities poses risks to public safety and convenience due to the lack of timely notification regarding encounters with

dangerous animals, accidents related to road or construction works, and inconveniences like heavy traffic.

Question:

How can we implement a Citizen Alert System to promptly notify residents of dangers like encounters with dangerous animals, accidents from road/construction works, and inconveniences like heavy traffic, thus enhancing public safety and convenience?

Objectives:

1. Developing a Comprehensive Alert System

Design and develop a robust alert system capable of addressing various safety concerns including encounters with dangerous animals, road/construction accidents, and heavy traffic.

2. Integration of Real-Time Data Sources

Integrate real-time data sources such as traffic cameras, GPS tracking, and local wildlife reports to ensure timely and accurate alerts regarding potential dangers and inconveniences.

3. Customization and Personalization Features

Implement features that allow residents to customize their alert preferences based on their location, interests, and specific safety concerns, ensuring relevance and effectiveness of notifications.

4. Accessibility and Multi-Platform Support

Ensure accessibility of the Citizen Alert System across multiple platforms including mobile devices, desktop computers, and public announcement systems, catering to diverse user demographics and needs.

5. Community Engagement and Feedback Mechanisms

Establish mechanisms for community engagement and feedback to continuously improve the Citizen Alert System, fostering a collaborative approach towards enhancing public safety and convenience

Example Scenarios :

1. Encounter with Dangerous Animals : A resident is out for a jog in a local park when they encounter a bear. A school nearby would disperse shortly and school students would come to the park at any given time. How can the system alert nearby citizens, local authorities and the school in this emergency situation ?

2. Traffic Congestion due to Road Construction : During rush hour, a major road is congested due to emergency maintenance work. A vehicle is rushing to a hospital located on the other side of the road, from a few kilometers away and would reach this stretch shortly. How can the system help them to avoid the traffic ?

Problem Statement #2

Addressing AI Challenges in Education through Decentralization

In educational settings, the increasing integration of AI models presents dual challenges. Firstly, there's a concern that AI might hinder students' creativity and imagination. Secondly, there's an urgent need to use AI to combat dishonest practices and maintain academic integrity during assessments. Furthermore, integrating decentralization using blockchain technology can offer unique solutions.

Questions:

How can we effectively address the simultaneous challenges posed by AI models in education? Specifically, how can we foster innovative and creative thinking while implementing robust, decentralized measures using blockchain technology to detect and prevent dishonest practices, thereby safeguarding academic integrity?

Objectives:

Enhance Creative Thinking: Develop AI-driven tools and learning environments that stimulate creativity and innovation among students, fostering skills like problem-solving and critical thinking.

Promote Ethical AI Use: Educate educators and students about ethical considerations in AI usage, ensuring responsible implementation that enhances rather than restricts creativity.

Implement Transparent Assessments: Utilize blockchain to create transparent and immutable records of assessments, ensuring fairness and authenticity in grading and evaluation processes.

Prevent Academic Dishonesty: Integrate blockchain-powered solutions for plagiarism detection and prevention, ensuring academic integrity through verifiable data and decentralized verification.

Enable Secure Credentialing: Implement blockchain to securely store and verify academic credentials, providing a tamper-proof system for validating achievements and qualifications.

Facilitate Collaboration with AI: Promote collaborative projects where students work alongside AI systems to solve complex problems and explore innovative solutions, enhancing learning experiences.

Evaluate Impact and Adapt: Continuously assess the impact of AI and blockchain integration on educational outcomes, adjusting strategies based on feedback to optimize learning and integrity safeguards.

Example Scenarios :

1. Copying and Pasting Assignments using AI Tools :

A student, pressured by impending deadlines, decides to use an AI-powered language model to generate an assignment by copying and pasting content from online sources. How can this be prevented by the educational institution ?

2. Use of AI Tools for Placements :

During a placement assessment, a group of candidates attempts to gain an unfair advantage by using AI-powered tools to provide answers to an initial qualifier test in real-time. How can the assessment proctor intervene to ensure the integrity of the evaluation process and maintain fairness for all candidates ?
