BUILD WITH INDIA 2025

Idea / Track Title: **Data-Driven Crime Prediction and Analytics for Safer Cities**

Theme: **Artificial Intelligence , Machine Learning And Data Analysis**

PS Category: **Software**

Team Name: **Merkava**

Team Members: **Akshay Thakur ,Aayush Bisht ,Nayan Ghate ,Shivanshu Barapatre ,Pranjal Raghuvanshi**

Data-Driven Crime Prediction and Analytics for Safer Cities

Proposed Solution:

A **machine learning-based system** to predict **crime hotspots** and provide **real-time safety alerts** to citizens while helping law enforcement deploy resources efficiently.

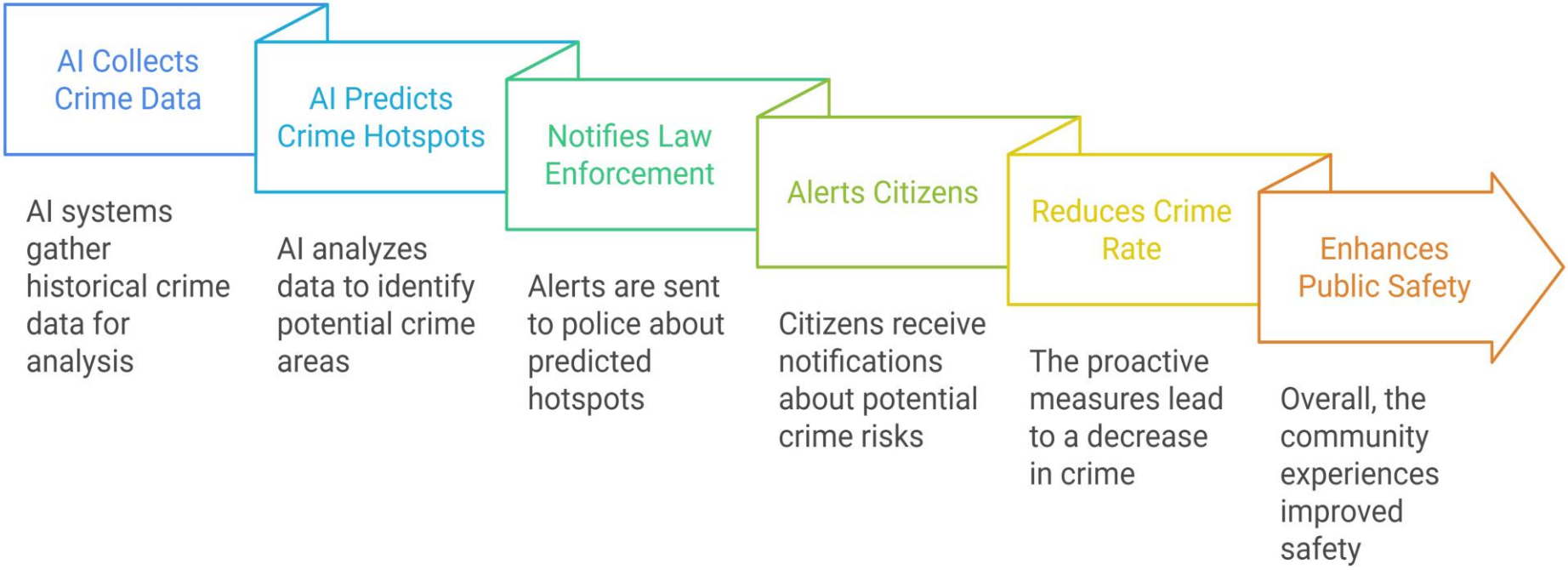
How It Works:

Predictive Policing Dashboard – AI-driven patrol planning.
Live Crime Heatmaps – Interactive map of high-risk zones.
Geofencing Alerts – Warns users when entering unsafe areas.
Crowdsourced Crime Reporting – Anonymous user crime reports.
Social Media Crime Tracking – Monitors Twitter & Reddit for trends.
Smart City Integration – Connects with CCTV & traffic systems.

Innovation & Uniqueness:

AI **predicts** crime-prone areas before incidents happen.
Blockchain ensures secure, tamper-proof crime records.
Adaptive AI customizes models for different cities.

AI-Powered Crime Prediction Process



Technical Implementation

Technology Stack

📌 Data Science & Machine Learning

Crime Pattern Prediction: LSTM, Random Forest	**Heatmaps & Geospatial Analysis:** DBSCAN clustering, Google Maps API	**Crime Severity Score Calculation:** XGBoost Classification Model	**Sentiment Analysis on Crime Reports:** NLP (Natural Language Processing)

📌 Development Tools & Frameworks

Frontend: React.js + Tailwind CSS	**Backend:** Flask/Django (FastAPI for real-time processing)	**Database:** PostgreSQL (with GIS extension for crime mapping)	**Real-time Alerts & Notifications:** Firebase + Geofencing API	**Visualization:** Power BI / Tableau for interactive dashboards

✓ **Scalable Cloud-Based Infrastructure:** Deployed on **AWS/GCP** for city-wide expansion.

FEASIBILITY AND VIABILITY

📊 Feasibility Analysis:

✓ **Technically Feasible** – Uses existing AI & cloud technologies.
✓ **Cost-Effective** – Cloud-based, scalable, API-driven.
✓ **User-Friendly** – Simple mobile app & dashboard.

📢 Challenges & Solutions:

🚀 **"Predict, Prevent, and Protect! Let's use AI & Data Science to make cities safer."**

- Data Accuracy Issues → Blockchain prevents tampering.
- Privacy Concerns → Uses anonymized data.
- Adoption by Authorities → Partnerships with law enforcement.

User Journey

01

🟢 **Step 1: Download & Setup**

📌 Install the app & create an account.

📌 Allow location access for personalized alerts.

📌 AI customizes safety recommendations.

✅ **Benefit:** Tailored crime alerts based on user preferences.

02

🟦 **Step 2: Check Crime Risk Before Travel**

📌 Enter your destination in the app.

📌 View crime risk rating for your selected route.

📌 Get safer alternative routes if needed.

✅ **Benefit:** Avoids high-risk areas before starting the journey.

03

🟠 **Step 3: Real-Time Alerts While Traveling**

📌 App warns users when entering a crime hotspot.

📌 Geofencing alerts suggest safer routes.

📌 Emergency SOS & live location sharing for quick help.

✅ **Benefit:** Proactive safety measures for immediate protection.

04

🔴 **Step 4: Post-Travel Feedback & Reports**

📌 Users can rate safety levels of visited places.

📌 Report crime incidents anonymously to improve predictions.

📌 AI continuously updates risk levels based on new data.

✅ **Benefit:** Community-driven data makes predictions smarter & more accurate.

05

🟦 **Step 5: Law Enforcement & Smart City Integration**

📌 Police get crime hotspot predictions for better patrolling.

📌 Authorities use AI crime data for urban safety planning.

📌 Integration with smart city cameras.

✅ **Benefit:** Safer cities through AI-driven crime prevention & strategic policing.

IMPACTS AND BENEFITS

Impact on Users & Law Enforcement:

Citizens – Alerts & safer route suggestions.

Police – Efficient resource allocation.

Smart Cities – Data-driven crime prevention.

System Component

Key Benefits:

Social: Safer communities with real-time alerts.

Economic: Reduces law enforcement costs.

Technological: AI-powered crime prevention at scale.