A Survey on Police Preventive Action Tracking System Using AI

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ABSTRACT

Police preventive action tracking system (PPATS) is a proposed framework that aims to enhance the efficiency and effectiveness of police operations by using artificial intelligence (AI) techniques. PPATS consists of four main components: data collection, data analysis, decision support, and action execution. Decision support involves the use of predictive policing and data analytics tools to generate recommendations and alerts for police officers, based on the data analysis results. Action execution involves the use of automated systems like Ai to assist police officers in performing preventive actions, such as surveillance, patrol, intervention, and arrest. PPATS aims to improve public safety and security by enabling police to prevent crime before it happens, while respecting privacy and human rights. PPATS also faces several challenges and limitations, such as data quality, bias, transparency, accountability, and ethical issues.

Keywords: Artificial intelligence (AI), Data collection, Data analysis, Decision support, Action execution, Predictive policing, Public safety and Security, Privacy and Human rights.

I. INTRODUCTION

A police preventive action tracking system using AI is a system that aims to prevent crimes by using artificial intelligence techniques to analyze data, identify patterns, and provide insights for the police [1]. Such a system could help the police to take proactive measures to deter potential offenders, protect potential victims, and reduce crime rates [2]. The area of application of such a system is mainly in urban security and public safety. By using various sources of data, crime reports, and sensors, the system can monitor the activities and behaviours of people and objects in the city, and detect anomalies, threats, and risks [3]. The system can also provide decision support and recommendations for the police based on the data analysis results, such as identifying suspects, predicting crime hotspots, detecting and generating alerts [4].
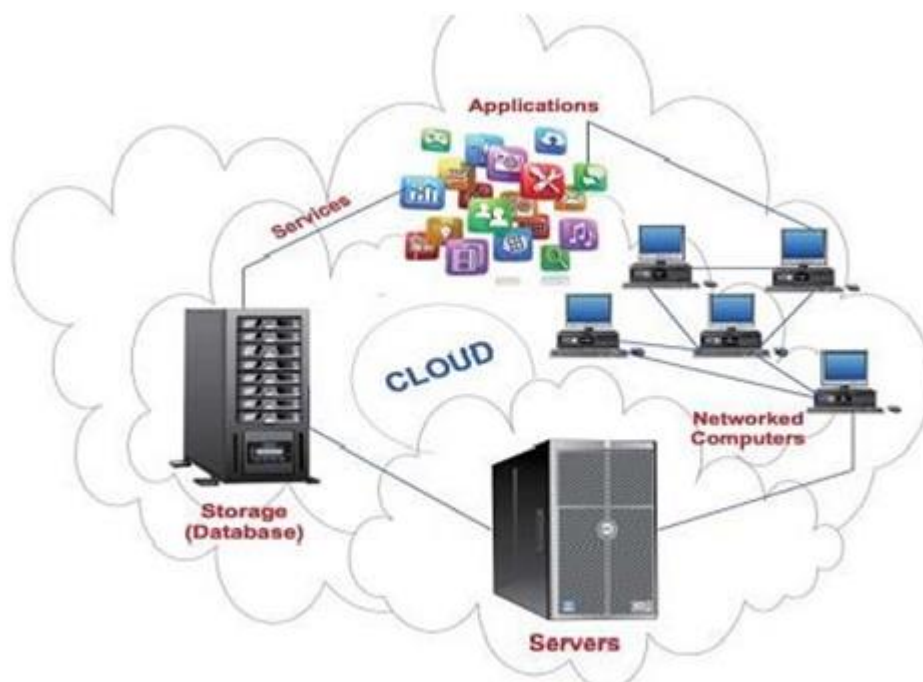
Fig 1. Computer and Communications [5]

The work going on in this field is diverse and dynamic, as different countries, cities, and police forces are experimenting with different AI technologies and approaches for crime prevention. Some examples of the work going on are: In the US, some police departments are using predictive policing tools that use machine learning algorithms to forecast where and when crimes are likely to occur based on historical data. However, these tools have been criticized for being biased and inaccurate. In India, the police in some cities are using AI tools such as facial recognition, license plate readers, video analysis, and crowd sourcing to enhance public safety and security. The tools are used for tasks such as identifying missing persons, finding stolen vehicles, managing crowds, and solving crimes. In the UK, the London Metropolitan Police has been testing live facial recognition technology that can scan faces in public places and compare them with a watch list of suspects. The technology has been controversial due to concerns about privacy, accuracy, and legality. These are just some examples of how AI is being used for crime prevention and detection by the police around the world [6].

II. LITERATURE SURVEY

1. Authors has written about how to use 5G technology to enhance the efficiency and effectiveness of mobile police applications in different scenarios, such as large-scale event security and urban space management. The purpose of the experiment was to understand and predict the crimes. Future Scope project is Machine learning based regression methods For crime prediction, Crime prediction using machine learning regression techniques, Crime prediction using machine learning classification techniques .

2. Problem Statement in this work provides a hybrid based approach that combines Decision Tree and Logistic Regression, as well as a False Negative threshold. Technique used is Enhancing the efficiency and effectiveness of mobile police applications using 5G technology is a software platform that integrates 5G technology, big-data analysis, artificial intelligence, and intelligent monitoring. Future Scope of the

paper is that research can be extended to include more scenarios and applications of 5G technology for public safety and security, such as disaster relief, emergency response, crime prevention, and law enforcement .

3. How to use Machine learning technology to predict the type and risk level of a criminal case based on a text based summary is mentioned in this paper. The technique used to solve the problem of predicting the type and risk level of a criminal case based on a text based summary is a machine learning approach that combines natural language processing (NLP). Future Scope is the technique can be extended to include more types of crimes and more factors that affect the crime risk level, such as the location, time, weather, and social context of the criminal case.

4. How to use Machine learning technology to predict the type and risk level of a criminal case based on a text based summary. Technique used is The increasing popularity of social networks and growth and development of their related tools and technologies has led to share the users' multimodal content and opinions in a hybrid form of different media, including texts, images, videos, audio and emojis. Future Scope project is The system can be expanded to cover more regions and countries, and to support more languages and cultures.

5. Problem Statement is Data mining techniques to analyze and predict crime patterns and trends from various sources of data, such as crime reports, demographic data, geographic data, and social media data. The techniques used in this paper for crime analysis and prediction using data mining are various methods and algorithms that belong to different categories of data mining. Future Scope is the research can be improved by using more recent and diverse data sources, such as social media, online news, and crowd sourcing platforms, to capture the dynamic and complex nature of crime phenomena.

6. This Paper Design and implement a new police drone intelligent surveillance and reconnaissance mode that can improve the detection efficiency and effectiveness of police drones in large-scale and dynamic scenes. The paper introduces the grid concept, fixed-point monitoring mode, and multi-machine collaboration technology, which can enable real-time and dynamic monitoring of large scenes and areas using multiple drones. Future Scope is the project can be improved by using more advanced and robust algorithms for grid division, fixed point monitoring, and multi-machine collaboration, which can handle complex and dynamic scenarios and environments.

7. Problem Statement is to provide police officers with information for responding to the incident scenes by analyzing the degree of danger in the incident scenes and by searching for the law, guidelines, and precedents of incident scenes. The technique can analyze the text based description of an incident scene and predict its degree of danger index, which measures the level of risk and urgency of the incident. The system can be integrated with other systems and platforms, such as geographic information systems, emergency medical services, or crime data bases to provide more comprehensive and accurate information for responding to the incident scenes.

8. Online platform that can be used by the police forces to perform real time face recognition and criminal identification from a live camera feed. The paper aims to extend the existing work of facial recognition. The technique used in this project is to use and extend the Haar Cascade algorithm for real-time face recognition and criminal identification. The Haar Cascade algorithm is a machine learning technique that can detect objects in images based on the features of the object, such as edges, corners, and lines. Future Scope is the system can be improved by using more advanced and robust facial recognition

algorithms, such as deep learning that can handle variation in face pose, expression, illumination, occlusion, and aging.

9. The problem solved in this paper is how to design and develop an procurement system for the police department that can make the process of purchasing goods and services more transparent and efficient. The paper explains the workflow of the police procurement system from creating the purchase request until the initiation of the billing process. A web-based interface that allows the police department staff to access the procurement system from any device and location. The interface may include features such as user authentication, role-based access control, dashboard, search function, catalog management, requisition creation and approval, order tracking, and reporting. To evaluate the performance and user satisfaction of the procurement system for the police department using various metrics and feedback mechanism.

10. An intelligent policing system that can automatically detect and report weapon-related crimes and vehicle accidents in public areas using CCTV cameras and machine learning models. The project aims to improve the public safety and the efficiency of the police response by providing real time notifications and evidence collection for the incidents. Technique used is an intelligent policing system that can automatically detect and report weapon-related crimes and vehicle accidents in public areas using CCTV cameras and machine learning models. The project aims to improve the public safety and the efficiency of the police response by providing real time notifications and evidence collection for the incidents. Future Scope of is to evaluate the effectiveness and ethical implications of using AI and ML models for surveillance and predictive policing.

III.LIMITATIONS OF EXISTING SYSTEM

• The existing system may not be able to collect and analyze all the relevant data from various sources, such as CCTV cameras, social media, and sensors, due to technical, legal, or ethical constraints. This may affect the accuracy and completeness of the information and insights provided by the system.

• The existing system may rely on outdated or biased data or algorithms that may lead to erroneous or unfair predictions and decisions. For example, some predictive policing tools that use machine learning to forecast where and when crimes are likely to occur based on historical data have been criticized for being biased and inaccurate.

• The existing system may not be transparent or accountable for the data and the AI techniques used, making it difficult to understand how they work, why they produce certain results, and how to correct or improve them. This may raise ethical and legal issues related to privacy, consent, ownership, liability, and oversight of the data and the AI techniques used.

• The existing system may not be accepted or trusted by the public or the police, affecting its legitimacy and effectiveness. For example, some people may oppose or resist the use of facial recognition cameras or drones by the police for surveillance and tracking purposes. Some police officers may also lack the skills or confidence to use the AI tools properly or appropriately.

IV.CONCLUSION

AI is a powerful and promising technology that can help the police to prevent and detect crime by analyzing data, identifying patterns, and providing insights. A police preventive action tracking system using AI is a system that integrates AI techniques with police operations to enable preventive actions against crime. Such a system could have several benefits, such as enhancing situational awareness, improving efficiency and effectiveness, reducing costs and risks, and increasing trust and satisfaction. However, such a system also faces several challenges and limitations, such as data quality and availability, technology and infrastructure, ethical and legal issues, and social and cultural barriers.

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