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Criminal Investigation Tracker with Suspect Predictions

Authors - Aman Verma¹, Md. Kifayatullah², Palak Garg³, Shefali Raina⁴

B.Tech Student^{1,2,3}, Assistant Professor⁴

^{1,2,3,4}Department of Information Technology, Krishna Engineering College, Ghaziabad, India

Abstract:

After a case has been filed, the investigation starts immediately at the place crime took place with the evidence and the eye witness if there is any. As per eye witness statement, the police starts to investigate the crime. We are creating a criminal investigation tracker that will predict the primary suspect on the basis of police records which consists of previous criminal evidence recovered from crime location, a compendium of the people associated with the case, etc. It would help officers' to speed up the investigation.

This software makes the case tracking easy for an authorized officer to check the status of the case online and even allows the officer to add new information to the case. It will also predict and suggest the suspect.

Keywords: Criminal Investigation; Suspect Prediction; Prediction Algorithm.

Introduction:

Any person who does the wrong with someone against law, a crime, can be punished by police, judiciary, or government. Any person who has committed a crime is a criminal. Crimes cost our society a huge loss. It causes violence, hatred and breaks harmony among people. Especially crime against women is increasing rapidly. A minor group of people is responsible for most of the crimes. This software helps to identify the pattern in crime scenarios and criminals. The main purpose of this system is to predict the probable suspect for unsolved cases from the criminal records present in the database in the system. [1]

When a case is assigned to a police officer, Admin adds the officers to their particular cases. After getting the authorization to access the case details, officers can start adding more details to it. Officers will add all the data related to the

case like FIR details, evidence details, and eyewitnesses, etc. Then the system will predict the suspect in a logical order. [4, 5, 8]

Literature Review:

Crime is an uncertain incident. It is not restricted by time and space. It hangs on humans. There can be a lot of activities related to crime. From rapes to terror attacks, a lot of incidents performed by criminals develop a huge amount of information and this is present in a variety of formats [2]. This study of data about crimes and criminals is going to be a tough one. One method which is really helpful for extracting useful information from a huge amount of data is Data Mining. At present there are a lot of new technologies used by criminals to do the crime, also there is a poor use of technology in the prevention of crimes and criminals. A lot of data and a lot of queries which are really complex need to be processed, for the analysis of crime we need a powerful and solid system that can handle anything, for example: - CCIS (Crime Criminal Information System). [7]

This paper shows review of algorithms and techniques used for identify the criminals. The reviewed algorithm are advanced ID3 algorithm, hidden link algorithm, Apriori algorithm. The way of integrating the results would probably have to be changed to a majority vote function in order to keep the risk area small. [11] Usually, the crime analysis tasks can be a knotty process for the police or the investigation team to work with. The criminals when leaving the crime scene does leave some traces which can be used as a clue to identify the criminals. The crime sequence and the patterns which several criminals follow when committing a crime make it easy for analyzing the crime. This process includes several procedures to be followed in order to identify the criminals and getting more information based only on the clues or information given by the local people. The criminal can be analyzed based on the information from the crime scene which is tested against the previous

crime patterns and judging by the method which is implied to test and proceed with the information that can affect the prediction results. The prediction can be further made useful for detecting the crimes in advance or by adding more cops to the sensitive areas which are identified by the system. The police stations can put up special force when there are chances for crime ahead of time. This type of the system will ensure there are peace and prosperity among the citizens. [10, 11]

When the parameters are optimized, the classification accuracy of the Decision Tree is increased a bit further. This shows that although the Decision tree performs well, when it used with the Genetic Algorithm for optimization of the decision tree parameters, the results shown show significant improvement in the accuracy and further more the tools given below have the metric value, which is purely based on the dataset and the records and the performance values are taken as it is in the reference paper. The quantitative analysis produced results which show the increase in the accuracy level of classification because of using the GA to optimize the parameters. This occurs because of the ability of the GA to learn the optimal values and then it is applied to set the parameter to optimal value when performing calculation. Also, the Precision, Recall and F-value varies from the dataset and the system. This shows the SIIMCO performing well when defined in terms of the metrics. [7, 11]

The police stations and other similar criminal justice agencies hold many large databases of information which can be used to predict or analyze the criminal movements and criminal activity involvement in the society. The criminals can also be predicted based on the crime data. The main aim of this work is to perform a survey on the supervised learning and unsupervised learning techniques that has been applied towards criminal identification.[9]

PROPOSED SYSTEM:

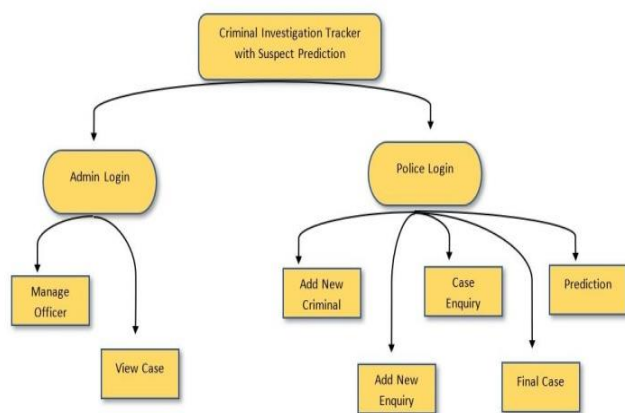


Fig. 1: Proposed System

In this, we have two login options. The first one is for Admin and another one is for a Police Officer in that case. Admin and officer both need credentials like user id and password to login into the system.

ADMIN LOGIN:

Admin will manage all the cases and have the access to view the case and details about it. Admin has the right to add the case officer to a particular case. The Attributes of Admin are as follows:

A.) **Manage Officer:** Here, the admin will add the police officer. The officer can edit the details of the other officers. The attributes of officers which admin will manage are:

Username, Password, Name, Address, Phone No, Location, Email Id, and Image [1].

B.) **View Case:** The admin can view all the details of the cases with the help of the view case.

POLICE LOGIN:

The officer has a huge role in the system. The officer will be the one who will add the cases and lodge the complaint about the criminal. The attributes of officer login are given below [1] :-

a.) **Add New Criminal :** In this, the officer adds the detail of criminals who are involved in that particular crime. He will add the following details:- Criminal name, address, age, gender, type of crime, location, evidence, crime month, crime year, time of day, suspect image.

b.) **Add FIR:** In this, the officer adds the details of the committed crime or case such as Case Name, Victim Name, Type of Crime, Location, evidence.

c.) **Case Enquiry:** We have only one attribute as select the case. If we select the case name, we will get all the details related to the crime.

d.) **Final Case:** In this, we have an attribute as selecting the case.

e.) **Prediction:** In this, we have attributes as Type of crime, location, and evidence. By selecting the type of crime, location, and evidence we will get the output of the case that who might be the suspect in that particular crime [1].

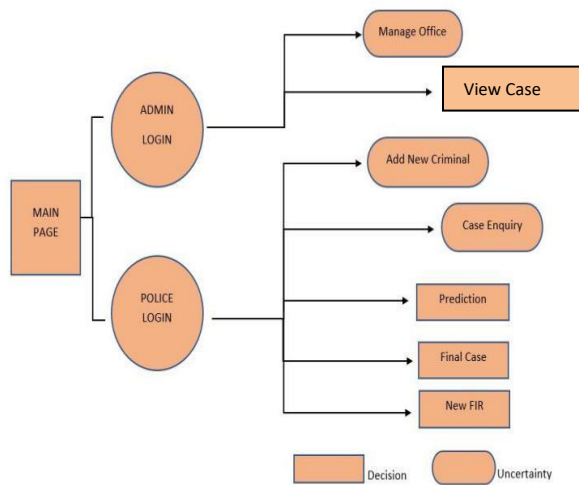
FLOW OF WORKING:

Fig.2: Flow of Working

In the criminal investigation tracker, we will see two login buttons (one is police login and the other is admin login). In admin login, there are various attributes like manager officer and view case.

The manager officer just adds the officer in the respective system whereas in the view case, their admin can view the present cases. In police login, we have 5 attributes where add a new criminal is supposed to add new cases of the crime in the respective dataset. Another is to add a new FIR, where police have the right to register a new FIR. Next is case inquiry, where police investigate the inquiries in different ways. And then we have predictions, where we can predict some cases according to the past record.[2,3,6]

RESULTS AND DECISION:

The system which we implemented will be useful in keeping over the patterns in different-different crime scenarios. Officers can easily use the details and can investigate on the right track with the help of the criminal records present in the database. This fully digitized system will make the work easiest for an officer to check the status and to study the case.[1]

CONCLUSION :

An attempt has been made in this paper to develop a tracker system framework that will be used to clarify the criminal so that we can improve the law enforcement activities. The perception of the eyewitnesses will be the main key to the precision and accuracy of this proposed system.

As we know that our country ranks higher in the field of crimes, this tracker system will definitely helps us to

finishes a lot of crimes and will keep our country safer than before. [2 , 3, 8].

This project will be widely used in the future by the police department, the common man, security agencies and even hospitals (for accident and assault victims). [1,10]

The greatest strength of this project is that it offers new features as well as retaining the original characteristics of the existing systems (for example: Criminal Database). [1]

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