Criminal Investigation Tracker with Suspect Prediction

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Abstract-
Whenever a case against the crime is filed the investigation always starts from the scratch right away from the evidences found at the crime location and the eye witnesses present at the crime location. On the basis of the statement given by the eye witnesses about the crime and the criminal who committed that crime. The process of the investigations starts. As to reduce the stress of the police officers we implemented a system as criminal investigation tracker with suspect prediction that will help the officers to speed up the process of investigation and track status of ongoing case by predicting out the primary suspects on the basis of the records which consists of compendium of the people associated to the case, former criminal background proofs recovered from crime location, etc. This digitized system makes the work easy for an officer to check the status of the case online and even allows him to add up the new important information related to the case as it's when needed. The proposed system consists of suspect prediction algorithm to predict and suggest the suspects in the logical order.

Keywords: Criminal Investigation;Suspect Predicton;Prediction Algorithm.

I. INTRODUCTION

Whenever a case against the crime is filed the investigation always starts from the scratch right away from the evidences found at the crime location and the eye witnesses present at the crime location. On the basis of the statement given by the eye witnesses about the crime and the criminal who committed that crime. The process of the investigations starts. As to reduce the stress of the police officers we implemented a system as criminal investigation tracker with suspect prediction that will help the officers to speed up the process of investigation and track status of ongoing case by predicting out the primary suspects on the basis of the records which consists of compendium of the people associated to the case, former criminal background proofs recovered from crime location, etc. This digitized system makes the work easy for an officer to check the status of the case online and even allows him to add up the new important information related to the case as it's when needed. The proposed system consists of suspect prediction algorithm to predict and suggest the suspects in the logical order.

II. LITERATURE REVIEW

The following research articles are selected for review, keeping in mind the traditional and conventional approaches of criminal investigation and suspect prediction:

Bogomolov, Andrey and Lepri, Bruno and Staiano, Jacopo and Oliver, Nuria and Pianesi, Fabio and Pentland, Alex.2014. Once upon a crime: Towards crime prediction from demographics and mobile data, Proceedings of the 16th International Conference on Multimodal Interaction.[1]

Yu, Chung-Hsien and Ward, Max W and Morabito, Melissa and Ding, Wei.2011. Crime forecasting using data mining techniques, pages 779-786, IEEE 11th International Conference on Data Mining Workshops (ICDMW).[2]

Kianmehr, Keivan and Alhajj, Reda. 2008. Effectiveness of support vector machine for crime hot-spots prediction, pages 433-458, Applied Artificial Intelligence, volume 22, number 5.[3]

Toole, Jameson L and Eagle, Nathan and Plotkin, Joshua B. 2011 (TIST), volume 2, number 4, pages 38, ACM Transactions on Intelligent Systems and Technology.[4]

Wang, Tong and Rudin, Cynthia and Wagner, Daniel and Sevieri, Rich. 2013. pages 515530, Machine Learning and Knowledge Discovery in Databases.[5]

Friedman, Jerome H. "Stochastic gradient boosting." Computational Statistics and Data Analysis 38.4 (2002): 367-378.sts [7]Leo Breiman, Random Forests, Machine Learning, 2001,Volume 45, Number 1, Page 5 .[6]

Ying-Lung Lin, Tenge –Yang Chen,Liang-ChihYu et al this paper proposes a data driven method based on "broken Windows" theory and spatial analysis to analyse crime data using machine mining algorithms and thus predict emerging crime hotspots for additional police attention.[7].

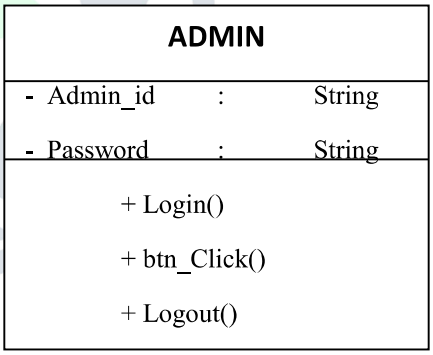
Dr. J. Kiran , Kaishveen. K , in these research work the technique of crime prediction is proposed which is based on the Naïve Bayesian Classifier.
The naïve bayes is compared with the existing KNN classifier.[8]

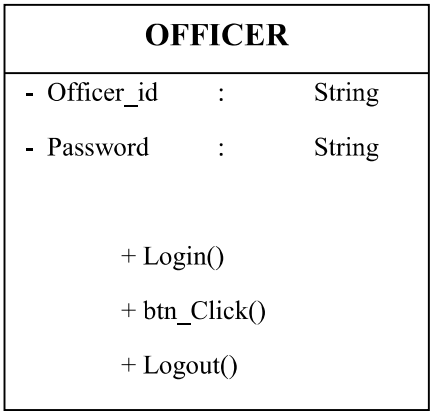
Chhaya Chauhan, Smriti Sehgal, in this paper present a review of algorithms and techniques used for identify the criminals. The reviewed algorithm are advanced ID3 algorithm, hidden link algorithm, Apriori algorithm .[9]

Nelson Baloian, Col. Enrique Bassaletti, Mario Fernandez, Lt. Col.Oscar Figueroa, Pablo Fuentes
Raul Manasevich, Marcos Orchard, Sergio penafiel, jose A.Pino, Mario Vergara, This paper present a 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.[10]

III. PROPOSED SYSTEM

We here propose a criminal investigation tracker system that tracks the investigation status of criminal cases with logs and also predicts primary suspects. The system is proposed to help agencies like CBI, CID and other such bureau's to speed up their investigation process and track status of multiple cases at a time. The system keeps logs of a case which includes case summary, people involved, disputes, past criminal history of those involved, Items recovered on scene and other details. The system realizes the type of case, allows admin to update the status of investigation, upload more images of crime and items found on scene etc. The system allows authorized officers to check the case status and look into its status online and also update any important info as and when needed. The system also consists of a suspect prediction algorithm. Based on type of case, property, land, love or other entities involved from which system studies past cases, criminal records of those involved and based on this data it provides probability of suspected persons in a logical order. The system is designed to aid investigation teams to work collectively on cases, coordinate and also speed up the process by suggesting logical suspects based on the data which has been provided by the officer.





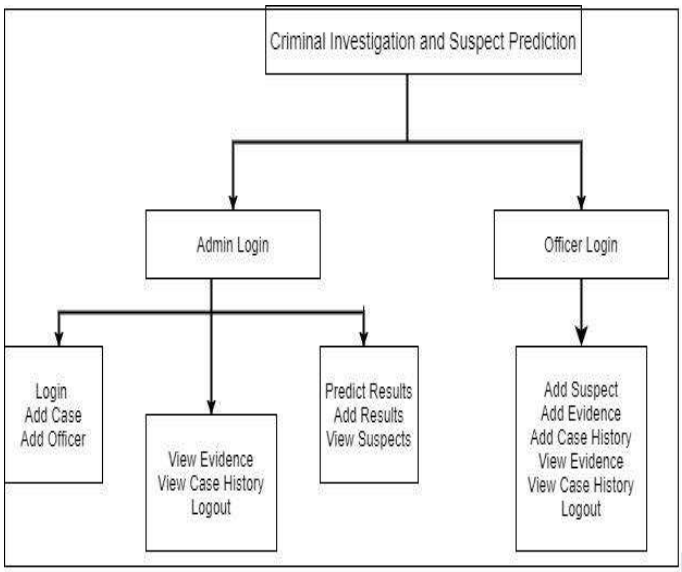
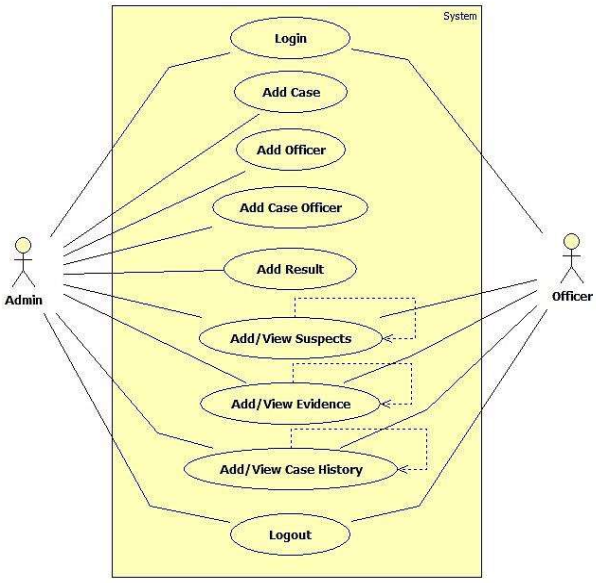


Figure 1. System Architecture

b) Use Case Diagram



a) Activity Diagram

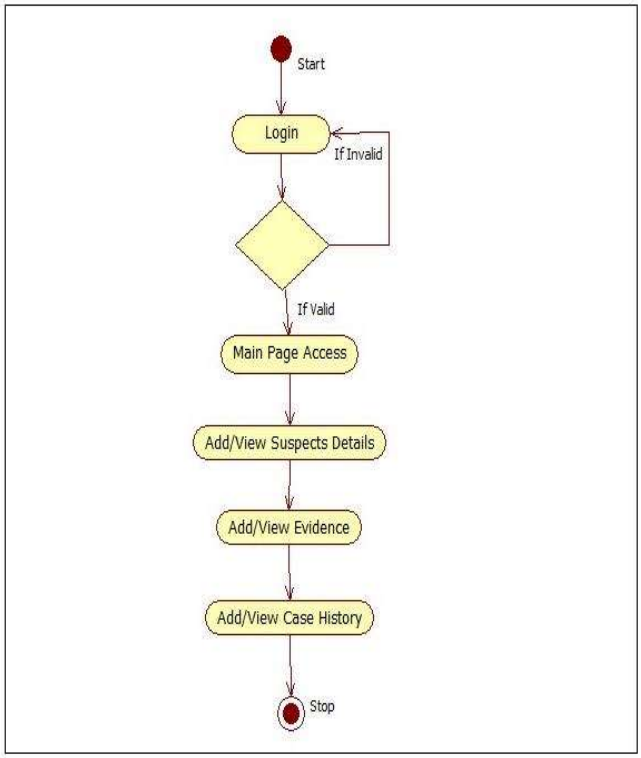


Figure 2. Activity diagram of officer

Figure 3. Use Case Diagram

The benefits of the proposed system are as follows:

1. Interstation communication in real time
2. Centralized data handling
3. Reduced time consumption
4. Computerized record keeping with manpower
5. Cost reduction
6. Operational efficiency

IV.RESULTS AND DISCUSSION

The Project is loaded in Visual Studio 2010.We used Visual Studio for Design And coding of project . Created and maintained all databases into SQL Server 2008, in that we create tables ,write query for store data or record of project.

Following are the screenshots in an orderly manner:

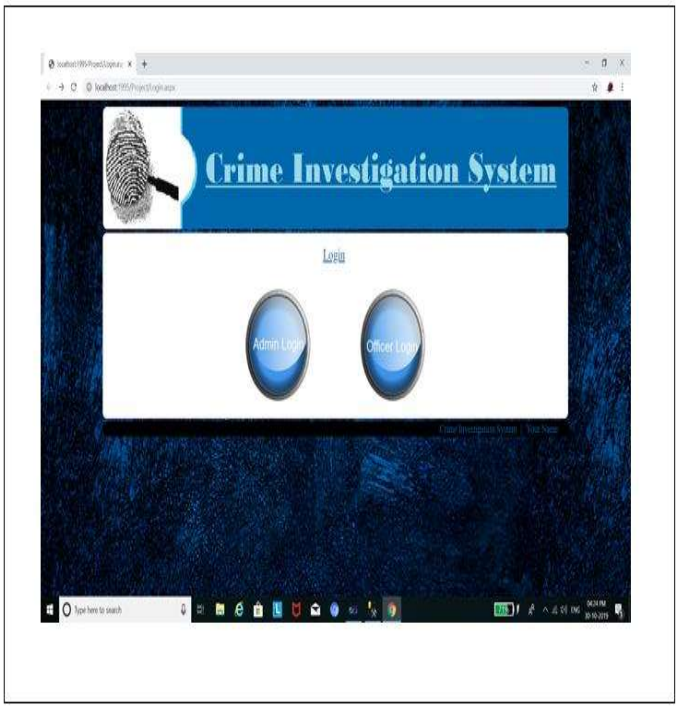


Figure 4. Initial module

Administrator is responsible to carry out the whole process of registration of different police departments, updating the existed police departments, registering the criminal information along with photo uploading, updating the criminal information.
Displaying all available criminal information and police department details.

Figure 5. Officer module

In this module, each department officer will login into this module to check the cases logged into the system..Updates the criminal information and updates the complaint status. Viewing the all-criminal information category wise. Changing the login details.

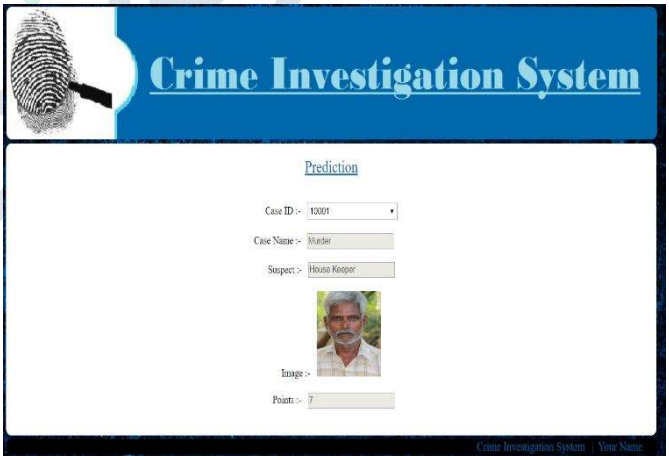


Figure 6. Prediction module

- **Website is:**

1) Load Balancing:
Since the system will be available only the admin logs in the amount of load on server will be limited to time period of admin access.

2) Easy Accessibility:
Records can be easily accessed and store and other information respectively.

3) User Friendly:
The Website will be giving a very user friendly approach for all user.

4) Efficient and reliable:
Maintaining the all secured and database on the server which will be accessible according the user requirement without any maintenance cost will be a very efficient as compared to storing all the customer data on the spreadsheet or in physically in the record books.

5) Easy maintenance:
Criminal Investigation Tracker Website is design as easy way. So maintenance is also easy.

V. CONCLUSION

The need for a computerized platform for crime record management cannot be overemphasized. The criminal investigation tracker enchances proper and efficient management of criminal records,thereby helping in making informed decisions and improving reliability thus improving law enforcement operation. This results in lower crime rate in the country thereby increasing national security.

REFERENCES

[1] Bogomolov, Andrey and Lepri, Bruno and Staiano, Jacopo and Oliver, Nuria and Pianesi, Fabio and Pentland, Alex.2014. Once upon a crime: Towards crime prediction from demographics and mobile data, Proceedings of the 16th International Conference on Multimodal Interaction.

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