

A Real-Time Crime Records Management System

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Abstract: *There is never any information gathered that could help solve as well as prevent crimes because the communication mechanisms obtainable to citizens as well as law enforcement people are not ideal. Detectives do not have enough time to interrogate victims along with witnesses of the incident. In fact, often victims besides witnesses are as well afraid or ashamed to investigate any accidents. We are developing a system of interviews that will help collect this knowledge. Here we focus on one part, the crime knowledge mining element, use natural language to retrieve offence details as of police force reports, daily articles, along with crime descriptions of victims as well as witnesses. Two forms of paper were used to evaluate our approach: police and victim narrative reporting. Our algorithms collect details pertaining to violence, including guns, cars, time, men, clothing, and places. We achieved MAE (82%), RMSE (80%), we establish that MAE along with RMSE enhanced slightly.*

Key words: victims, management system, crime records, error rate, dataset.

1. INTRODUCTION

Reliable detection of criminals is a significant problem in the field of crime investigation. Biometrics has not yet achieved its goal to completely demonstrate regular identification of offenders, particularly in a developing country like India, although it has successfully achieved in several niche markets. In the current system, only particular data on police services under our country can be collected, and the presented system has a larger workload meant for the approved citizen, however in the case of the program proposed, the customer should register on our platform and upload a crime and report about a specific town or individual.

Crime is an important component of human existence and society [1]. Therefore, no organization will pretend to be totally free of crime. However, criminal behavior is typical of the ways that a certain society has evolved socially and economically [2]. Consequently, it is not surprising that a low-development environment as well as, as Madden and Chiu (1998) described, unequal allocation of income [3] continues to knowledge an increase in the incidence of aggressive crimes such as ethnic and religious conflicts, the use of illegal weapons, politically motivated killings, armed robbery and the like. What is worrying, however, is that the phenomenon appears to overwhelm the police who are destined to be the solution to crime [4].

Computers can automatically record human-computer interaction events, allow the user to manipulate this information, and provide it back to the searcher through the user interface. In order to understand how this information can best support information seekers, the role of their internal and external memory processes was examined using qualitative research methods (observations, interviews, and participatory interface design sessions). The data collected was analyzed to identify potential task areas where search histories can support information seeking and use. The results show that many information-seeking tasks can take advantage of automatically and manually recorded history information, including mental model building of a topical area, the integration of searching for and using information, and

integrating these into larger tasks contexts. Results of the study from the legal user group presented evidence of the usefulness of search histories and history-based interface tools. These findings encourage the design of user interface tools building on search history information: direct search history displays, history-enabled scratchpad facilities, and organized results collection tools were proposed to support users in their information seeking.

DT monitoring is difficult if there is substantial camera movement unless a suitable image stabilization method is used [5] However, the video's temporal aspect allows for a temporary continuity restriction to be used in the classification approach [6]. Two of the main approaches for monitoring objectives in real-time video implementations are temporal distinction (TD) and corresponding prototype correlation [7]. Some were focused on anatomical features such as body parts lengths and their repetitive movement [8]. The status variable is ultimately determined by determining the mean or limit of all the samples.

This paper explores a new tool aimed at gaining insight addicted to the phenomenon of illegal careers: the illegal acts that a single person experiences during his or her life [10]. In the criminal investigation, law enforcement authorities include handling a huge quantity of criminal records as well as form away from their interaction [11]. For this reason, we initiate an original reserve calculate that is especially suitable for comparing investigations that are mostly different in terms of the cleverness available.

2. PROPOSED DESIGN

The goal of the proposed system is to build an improved facility to the network. The system proposed could transcend all of the current system's limitations. The system guarantees adequate protection and minimizes manual work. There are several drawbacks to the existing system and a variety of other issues. This assessment involved an investigation of how histories were used in searching; what elements of search sessions were important for the user to be saved; and what interface techniques were most appropriate to support effective use of histories and successful information seeking.

The system proposed seeks to remove these issues to some degree or to reduce them. The program introduced would help the customer reduce their workload and internal tension. The system proposed allows the customer to operate quickly and efficiently without any hesitation.

2.1 Visitors

This section can allow the visitor to monitor the newest trendy news that cybercrime experts will check. It contains the registered victim's section, Add Complaint: This section allows the victims to report complaints online. Add Crime Report: This app lets the consumer statement crimes electronically. It comprises the developing specification and procedures for data preparation and those steps are necessary to put transaction data in to a usable form for processing and it can be achieved by inspecting the computer to read data from a written or printed document or it can occur by having people keying the data directly into the system.

Input Design is the process of converting a user-oriented description of the input into a computer-based system. This design is important to avoid errors in the data input process and show the correct direction to the management for getting correct information from the computerized system. When the data is entered it will check for its validity. Appropriate messages are provided as when needed so that the user will not be in maize of instant.

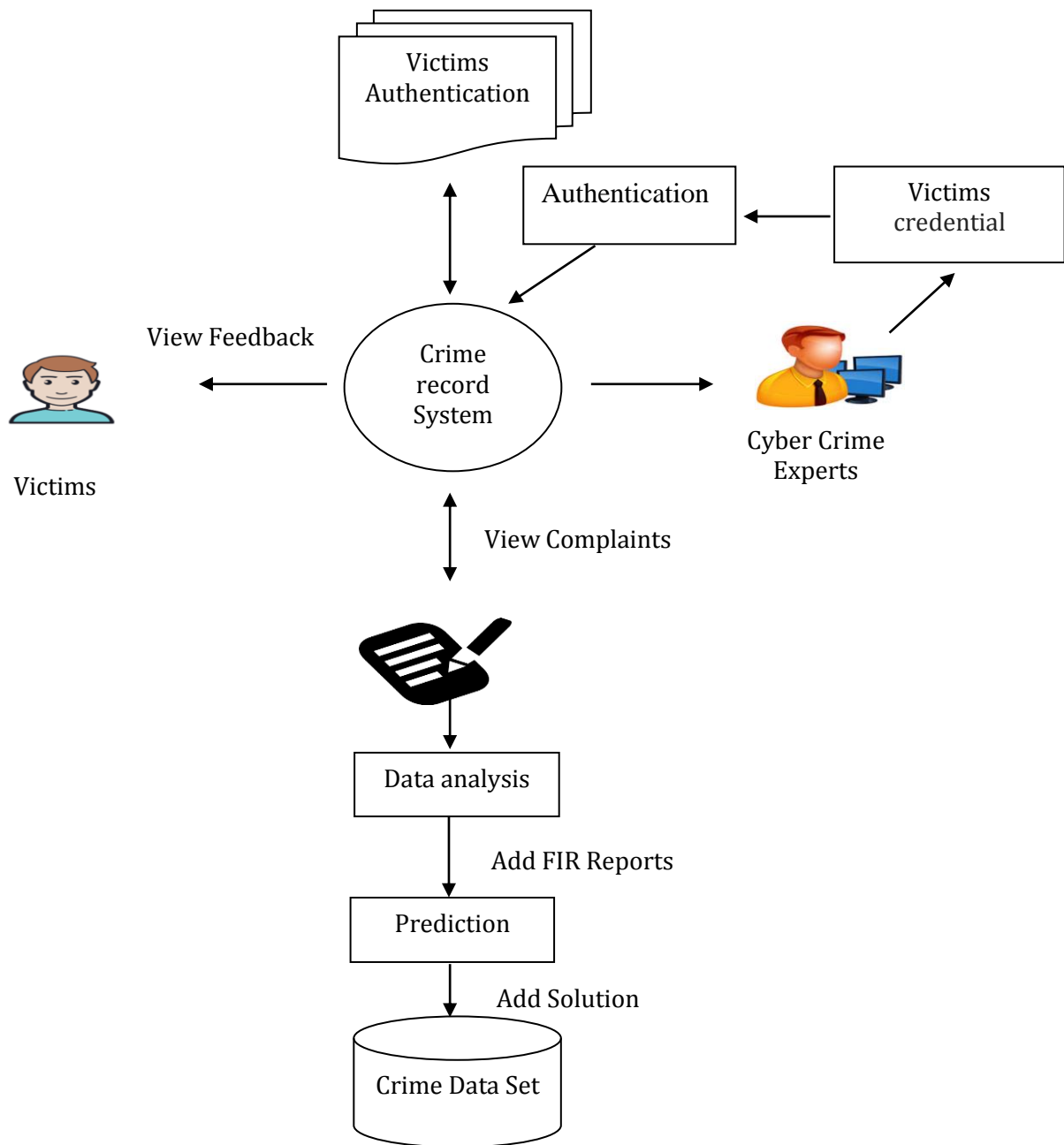


Figure 1. Architecture diagram Crime Management system

Add Missing complaints: This application lets the victim’s record reports about missing persons online, and we must add photos of missing Complaints using heterogeneous databases.

View Missing Complaints: This app lets the victims find the list of all lost Complaints. Access many people wanted: This app lets the consumer see all the many wanted individuals that the cybercrime exports will send. Complaint update: This function lets the consumer change the details of his Complaint. Account editing: This section helps the victims inform their report.

View Complaint Status: This particular section allows us to view the status of every Complaint you have previously sent. Check the offence record: This app helps us to check the history of all the offence you've previously sent.

Feedback Add along with View: This section lets the victims add and view feedbacks Chat: This section helps the consumer chat with the cybercrime experts or other registered victims Mail: this section helps the victims send Mail to the cybercrime experts.

2.2 Victims

Here, victims add Complaint: helps the victim's statement to complaint in the online. In this section, adding a Crime Report assists the victims report offences online. Attach missing person in this application to support the consumer record reports of missing persons online as well as uploading images of missing complaints using the various database. Search Missing People: This application allows the victims to search the information of all missing persons. In this section, showing most wanted persons lets the consumer see all the most wanted persons that the cybercrime experts may send. Case update: This function lets the consumer change the details of his case. Account editing: This section assists the victims to update their profile. Display complaint status: This function lets us view the status of a case you reported previously. Display the status of the crime: This app helps us view the list of all the crimes you've posted recently. Feedback Add and View: This section allows the victims to add and view feedbacks Chat: This section helps the victims chat with the cybercrime experts or other registered victims Email: this section helps the victims to send Mail to the cybercrime experts.

2.3 Cyber Crime Experts

This framework accesses the following information such as a customer feedback view and reaction: this section allows the consumer to monitor and respond to the particular problem that are specifics of the victims. View and Respond to victims' crimes: This study is significant in that it can help to create a conceptual framework for legal information behavior which is based upon empirical observation. There are few studies of legal information behavior which involve empirical observation. This app allows the cybercrime experts to view and reply to the details of the crimes committed by the consumer — new cybercrime experts: Used for adding new cybercrime experts section. Add and delete the latest hot news: This section helps add and delete the latest hot news to your cybercrime experts. View and delete victim's feedback: This section assists the cybercrime experts to add, delete and view victim's feedback. What people wanted: This section allows the cybercrime experts to attach, remove and view the victims what requested information Add, remove and show.

Missing persons: This section lets the victims connect, remove and display information of missing persons. Connect and view Criminal registry: This software helps add and display criminal identification to the victims. Add and view FIR: This application lets the cybercrime experts add and display information regarding Fir. Attach and update background sheet: This feature helps add and display history files to the cybercrime experts. View and delete all reaction of Complaint: This interface allows the cybercrime experts to display and remove reply of Complaint. Add and view prisoner report: This section lets the cybercrime experts add and offender files Update password: this section helps the cybercrime experts change his or her password Chat: this section helps the cybercrime experts chat with the cybercrime

exports or with other registered victims Mail: this section helps the manager send Mail to the server.

3. PROPOSED ALGORITHMS

This paper introduces an approach to Memetic Algorithm Feature Selection (MAFS) to improve the performance of crime documents used to classify crime reports and criminal news, as well as some test text datasets. To show the efficacy of the proposed MAFS process, four form algorithms were chosen. This paper introduces a technique of Memetic algorithm Feature Selection (MAFS) that incorporates a partition text clustering algorithm with the Memetic Algorithm used to execute Feature Selection to identify crime events from police records. Memetic Algorithm is built by Moscato to enhance the GA-generated solutions. The global search discovers the search space in the Memetic Algorithm while the local search targets the regions of interest. In the current MAFS system, the GA performs the global search while the local search is carried out by the filter process

4. RESULT AND DISCUSSION

4.1. Experimental Setup

This work is implemented with Intel Dual Core Processor with 4 GB RAMS running with windows10 ultimate. Here, the proposed approach is implemented in NetBeans 8.0.2 and MYSQL 5.0 along with JDK 1.8. To evaluate proposes algorithms with the existing approach, the Weka library is utilized.

4.1.1 Dataset

Crime Incidents

The next list is Crime Incidents that consists of assault, robbery, aggravated, violent offences and other data collected from the Philadelphia Police Department. Furthermore, the dataset includes gambling, criminal features, prostitution, reports of abuse.

Hate Crime Dataset

The Hate Crime Dataset was compiled from the Bloomington Police Department and comprised of various countries such as Asian, Indian, White, Pacific Island crime reports that are recorded based on their people's actions. For potential context, the data collected is analyzed using the offender identification process.

Table 1. Dataset details

Methods	Crime Incidents	Hate Crime Dataset
Genetic algorithm (GA)	538	518
Particle swarm optimization (PSO)	427	456
Fireflies algorithm (FA)	324	353

Fireflies –based fuzzy cognitive map neural networks (FFCM)	155	162
Memetic Algorithm Feature Selection (MAFS)	245	432

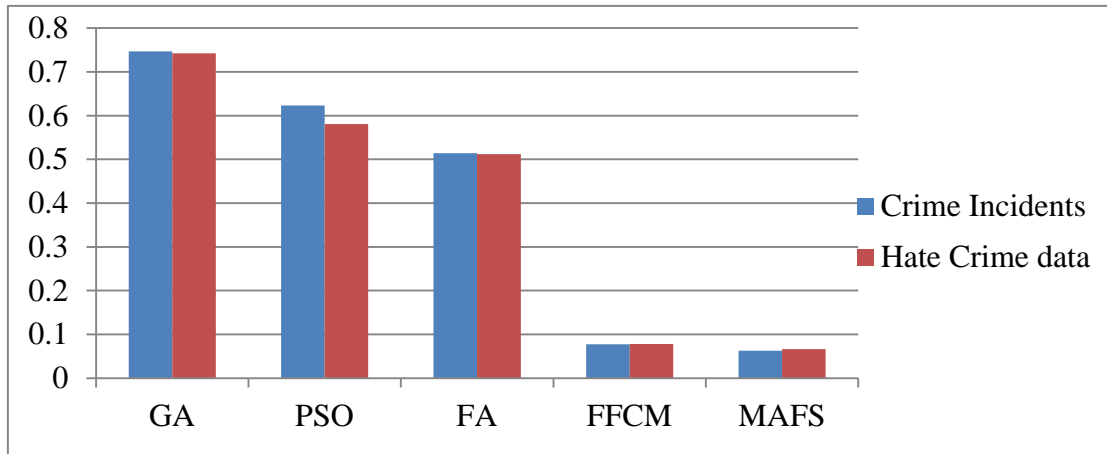


Figure 2. Mean Square Error for Crime Incidents and Hate Crime data

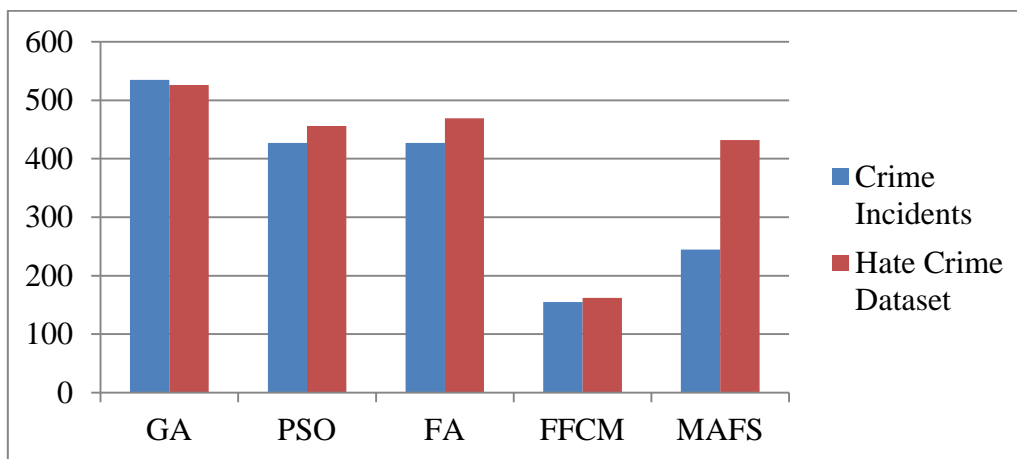


Figure 3. Dataset Description

4.2 Simulation Results

The performance of the proposed approach customized search engine is retrieved queries data which are going to evaluate on flowing respective parameters like Mean Absolute Error (MAE) and Root Mean Squared Error (RMSE). It displays the retrieved classification for given input query and their classification accuracy with their minimal classification error. Classification and regression trees (CART) are a non parametric decision tree learning technique that produces either classification or regression trees, depending on whether the dependent variable is categorical or numeric,

respectively. Rules based on variables' values are selected to get the best split to differentiate observations based on the dependent variable. The performance evaluation methods are defined below.

4.2.1 Mean Absolute Error (MAE)

In this section, the proposed approach explains the mathematical model in equation (1) to measure how close predictions are to the final outcomes. The Mean Absolute Error (MAE) is calculated as correctly classified malicious data with respect to overall data.

$$MAE = \frac{1}{N} \sum_{i=1}^n |f_i - y_i| \quad (1)$$

The mean absolute error is an average of the absolute errors where f_i is the prediction and y_i the true value. MAE is conceptually simpler and more interpretable than RMSE. MAE does not require the use of squares or square roots. Where a prediction model is to be fitted using a selected performance measure, in the sense that the least squares approach is related to the mean squared error, the equivalent for mean absolute error is least absolute deviations.

MAE is simply the average absolute vertical or horizontal distance between each point in a scatter plot and the $Y=X$ line. In other words, MAE is the average absolute difference between X and Y . MAE is fundamentally easier to understand than the square root of the average of the sum of squared deviations.

4.2.2 Root Mean Squared Error (RMSE)

The proposed method explains in this section was a mathematical model for measuring the variations between values that are expected by a process and the values actually obtained from the simulation context. Such variations are also called its residuals. The Root Mean Squared Error (RMSE) is calculated as:

$$RMSE = \sqrt{\frac{1}{n} \sum \left(\hat{y}_i - y_i \right)^2} \quad (2)$$

\hat{y} is a vector of the given "n" predictions, and y is the vector of observed values corresponding to the inputs to

the function which are generated according to the predictions. The effect of each error on RMSD is proportional to the size of the squared error thus, the larger errors have a disproportionately large effect on RMSD. Consequently, RMSD is sensitive to its outliers.

The implementation shows that the proposed method has achieved better result and goal of the work is achieved. The issues have been taken into consideration and overcome using the proposed approach. In existing methods treatment procedures were concentrated, and privacy issues are not concentrated.

The proposed used algorithm obtains better results in the parameters such as precision, recall, privacy and F1 measure. These are the parameters considered in order to say that the proposed method obtains a better quality of results. In obtaining privacy and effective retrieval of information CCART obtain confidentiality in the transaction by enabling two-step encryption transactions which ensue the security of medical datasets.

Table 2. Mean Square Error (MSE) and Root Means Square Error for Crime Incidents and Hate Crime Data

Methods	Mean square error (MSE)		Root Means square error (RMSE)	
	Crime Incidents	Hate Crime data	Crime Incidents	Hate Crime data
Genetic algorithm (GA)	0.747	0.7426	0.64954	0.721
Particle swarm optimization (PSO)	0.623	0.5842	0.5811	0.5781
Fireflies Algorithm (FA)	0.5139	0.5120	0.43	0.512
Fireflies- based fuzzy cognitive map neural networks (FFCM)	0.0772	0.079	0.078	0.0702
Memetic algorithm feature selection (MAFS)	0.0623	0.063	0.0652	0.0623

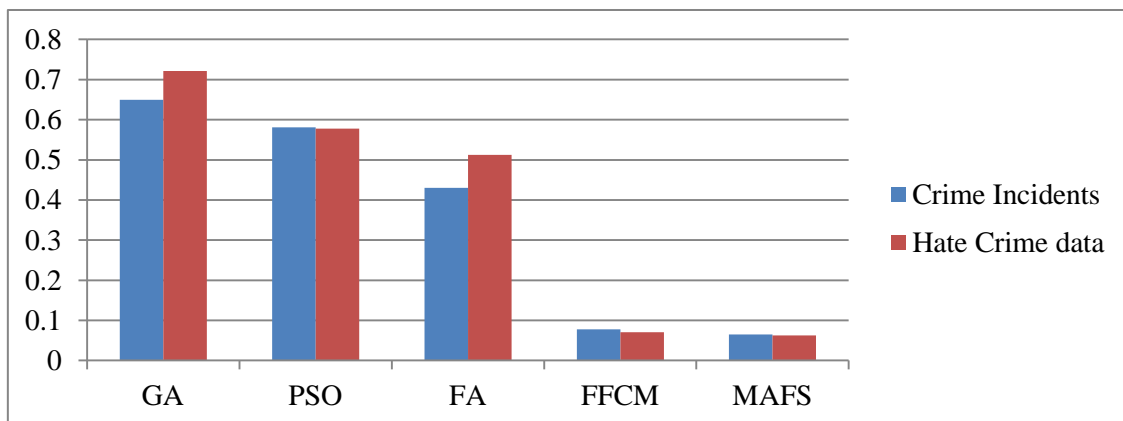


Figure 4. Root Mean Square Error for Crime Incidents and Hate Crime data

In machine learning, naive Bayes classifiers are a family of simple probabilistic classifiers based on applying the Bayes theorem with strong (naïve) independence assumptions between the features.

The proposed method is compared with existing available methods using various parameters, and the result is shown below. From the parameters, it is shown that the proposed method generates better results. The X-axis indicates the parameters and Y-axis indicates datasets range taken for processing. The results show the ratio of obtaining KNN, NB, and CCART algorithm.

In pattern recognition, the *k*-nearest neighbor's algorithm (*k*-NN) is a non-parametric method used for classification and regression. In both cases, the input consists of the *k* closest training examples in the feature space. This can be thought of as the training set for the algorithm, though no explicit training step is required. A peculiarity of the *k*-NN algorithm is that it is sensitive to the local structure of the data. A CART tree is a binary decision tree that is

constructed by splitting a node into two child nodes repeatedly, beginning with the root node that contains the whole learning sample. Here 'Y' is the dependent variable, or target variable.

The proposed method with respect to parameters in order to obtain the quality of service. Hence this alone is not enough to ensure the proposed system in providing the better results. Therefore, it is compared with the existing algorithms such as MAE, RMSE and proposed CCART algorithms. The objective of the proposed method is to enable security in transferring the data between its source and destination. However, when concentrated with medical data sets, this little security is not enough for this field.

5. CONCLUSION

The system is implemented in java web application. The proposed system provides both security and effective retrieval of data in the transaction between sources to destination. The focused parameters results are shown better results with respect to the proposed method. In the existing system it provides better result extraction from database which was also obtained in the proposed system. But security and confidentiality are less in factor; therefore, these parameters are fulfilled through a two-step verification method.

6. REFERENCES

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