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E-COP: An E-Governance Based Computerized Information System to Increases the Professional Efficiency for the Government Police Administration

Rahul Pant[1], Ram Modwel[2], Saurabh Agrawal[3]

Abstract

E-COP system is an E-government related service and it makes the communication process a possibility, a great success for modern era which increases the professional efficiency for the government police administration. E-COP is intended to provide total computerized information system support for the work of the police. This system registers the complaints from people through online and is helpful to the police department for further process. The aim of this project is to develop an E-police reporting and management system which is easily accessible to the public, police department and the administrative department.

E-COP would also help provide division heads and senior officers with management information about crime control, and about administration and support services such as accounting and personnel management. This helps to higher authorities of police to have an overview about the progress of the investigation; feature is made available to public for interaction with police indirectly.

Keywords: E- COP, E- Governance, Computerized Information System, Government Police Administration, RTI

Introduction

The objectives of E-COP are free access of the citizens for their queries and complaints, establishing database for citizens and police personnel. The normal public in India are afraid to give a complaint in police station because they are filled with a false fear about the police department. An online complaint registering system will solve the fears of public and will also help the police department in catching criminals. An online solution is very useful as the solution is inherently distributive.

E-COP helps the public to report about the crimes to the police without any fear in correct time. This is helpful to police in solving the cases .This is also helpful for higher authorities of police to have an overview about the progress of the investigation. E-COPS is an online reporting service to which the internet user can report crimes committed on or through the Internet. The impact of IT and communications is traversing at a fast pace. As information for the department is crucial, an enterprise IT tool for enhancing the performance of the police officials became necessary called E-COPS or E-Computerized Operations for Police Services, the main purpose is to maintain information, monitor and enhance the performance of the department.

E-COP is intended to provide total computerized information system support for the work of the police. Its primary activities are not transparency-related, but help provide police officers with information on criminal cases and on criminals.

The person who registered the case could also get access to case details and progress at any point, either by going to any police station and requesting an officer to access their case on E-COP, or by accessing their case details online via the application using an FIR code number that is issued at the time of registration. Available case details would include the FIR, actions taken, actions pending, other crime details, etc. The victim could lodge a complaint if they see from

E-mail Id: hiabhi2@gmail.com
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accessing case details that the case has not been registered properly, or that there has been no progress made on the case since it was last accessed.

Finally, senior officers in the police service could also use E-COP to monitor case details and progress. All of this affects the transparency of case handling and the accountability of police officers

The focus of E-COPS is to computerize the activities of controlling crime, administration and support services across the state in an integrated fashion so as to enable the division heads and senior officers to obtain the relevant information. Besides, it is also envisaged to reduce dependence on paper and help in automatic maintenance of registers and generation of reports, data analysis, better planning and coordination, speedy detection of crimes and monitoring the prosecutions.

Requirement Specification and Analysis

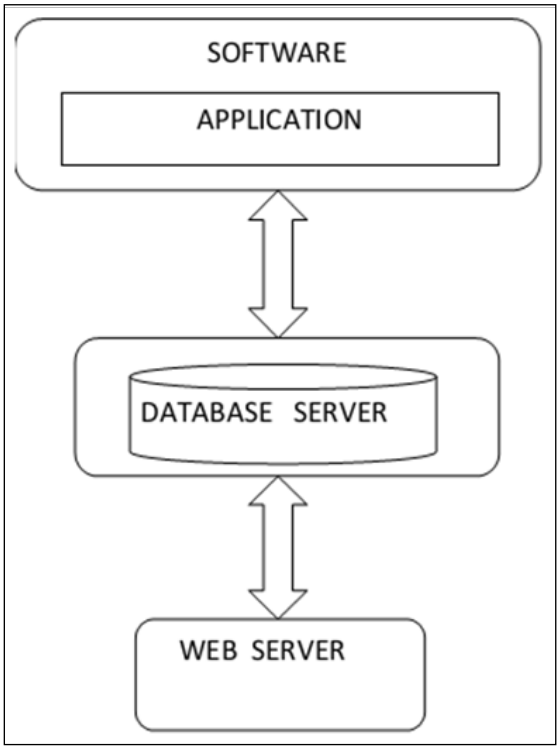
The main purpose behind the E-COPS is to improve the effectiveness of policy performance; to improve the efficiency of police procedures; for example, by eliminating redundant processes in the registration of criminal cases; and to improve the quality of management information provided for senior policy decision-making, particularly through integration of previously separate information systems.

For the police, initiatives such as ECOPS are designed to improve their long-term relations with the citizens due to effective feedback and faster exchange of critical information between various departments and police stations.

Table 1.Police to People Ratio of Some Countries

Serial No	Country	Police -People Ratio
1	India	1:728
2	Philippines	1:665
3	Pakistan	1:625
4	Japan	1:563
5	New Zealand	1:416
6	Singapore	1:295
7	Malaysia	1:249
8	Thailand	1:228
9	Hong Kong	1:220

Since this is a data-centric product it will need somewhere to store the data. For that, a database will be used. The web application will communicate with the database.



The web application will use the database to get data.

Hardware Interface: Since the web application does not have any designated hardware. The hardware connection to the database server is managed by the underlying operating system on the mobile phone and the web server.

Software Interface: The communication between the database and the web portal consists of operation concerning both reading and modifying the data, while the communication between the database and the web application consists of only reading operations.

Communication Interface: The communication between the different parts of the system is important since they depend on each other. However, in what way the communication is achieved is not important for the system and is therefore handled by the underlying operating systems for both the mobile application and the web portal.

Design & Implementation of E-COP

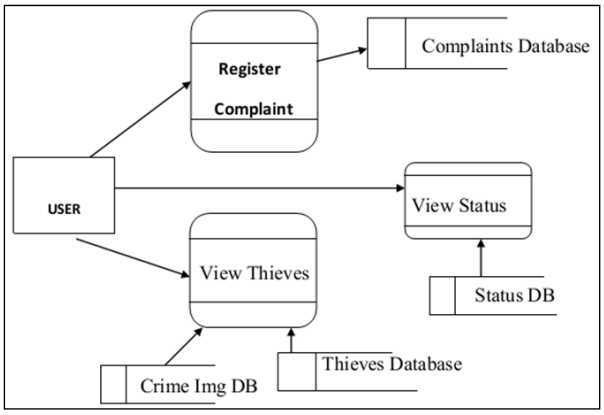
The front end is an interface between the user and the back end. In computer science, the front end is responsible for collecting input in various forms from the user and processing it to confirm to a specification the back end can use. The front is an abstraction, simplifying the underlying component by providing a user-friendly interface. The front end design of the project is entirely done with the help of HTML and CSS without using any specified web tools like Dreamweaver or FrontPage.

Data Flow Diagram

There are total three main parts included in user system

first is user then police department ant last is admin.

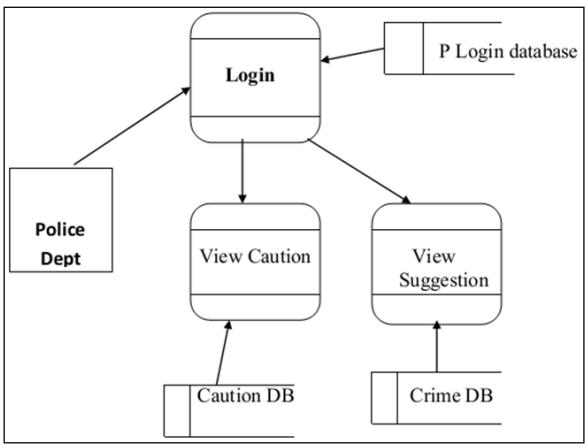
Level 1. Architecture for User Area



User login process is the Level-1 DFD shown in figure. Here user has to enter into the registering complaint area. Any one register the complaint so there is user id and password for it. After entering the complaint and pressing submit it will be send to the complaint database. If his complaint has been successfully entered in to the database he is allotted with a self-generated no which is used for the further purposes.

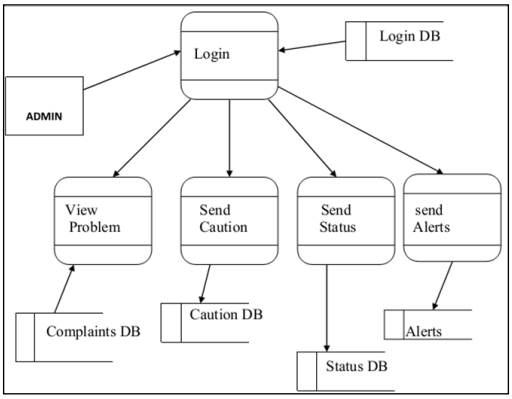
The user can view the status of his compliant in the status menu by entering the self-generated no given by the system and the details of the thieves present in the various locations to make himself cautious. By just selecting the location and the thieves' id he can view the details of the thieves with his photo and reward announced on him by the police.

Level 2. Architecture for Police Department



Police login is Level-2 DFD as shown in figure. In this level, different police officers of different locations were provided with their particular user id and password using which they have to login in. The entered user id and password were validated and if correct they were made to login. Here they can view the alert message given by the administrator and also the caution by the administrator to the particular complaint. Police officers can see the complaints belonging to their locality only.

Level 3. Architecture for Administrator



Level-3 DFD diagram is for administrator .Here he consists of login page. Where he has to login using user id and password provided to him. After entering user id and password they are validated and if correct they made to enter into the page. Here he has two tasks they are sending alert messages and caution for the particular complaint to the police.

In the caution first he has to select the location and then the complaint id and then he has to send the status and caution to the particular complaint. The entered alert, status and caution were sent to the respective databases.

Website Layout for E-COP

Here are few screenshots to show the front end website layout of the web project "E-COPS".

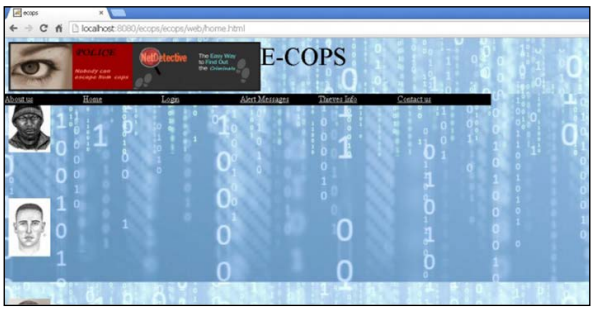
The screenshot shown below is the front end layout of the homepage of the "E-Cops" project:

Screen 1-This is the home page we get when we run the project. This page links us to about us, home and login, alert messages, thieves info and contact us. Login is used by the people, police department and administrator.

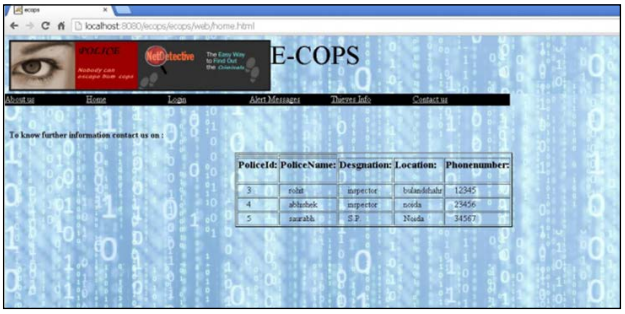
Alert messages is the one in which we have the messages given by police and administrator to the people. People can view the information about the thieves in the thieves info and about the police in contact us. When we click on

thieves info we get screen2 and when we click on contact us we get screen3, when we click login we get screen4.

Screen 2-This screen is about thieves information. When we click on particular photo we get the details of that thief. The people and the police department can get the information from this page.



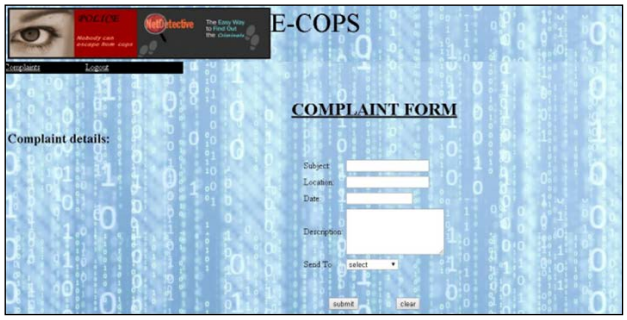
Screen 3-This screen gives the information about the police department. Here we have police id, name, designation, location and their phone numbers. The people can contact the police with help of this information.



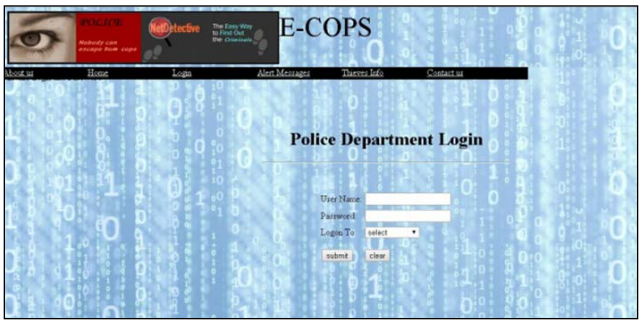
Screen 4-This screen appears when we click people login. If they are new users then they have to click on 'NEW USER REGISTER' to register their accounts which links to screen6. If the user is already registered then there is no need of registering, they can directly login.

Screen 5-When the user wants to register a new account then they have to fill these fields for registering. This registration form contains the fields like name, password, age, gender, address, telephone number and email. Once they get registered then they can forward any type of complaints to specified station.

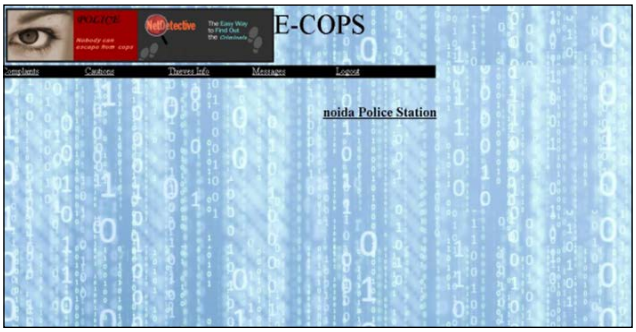
Screen 6-User can give a complaint to the police department after login. When they click on give complaint then we get this screen as complaint form. Complaint form has to be filled up by the users and to be send to particular station. The user has to fill the fields such as subject, location, date, description and has to submit the form.



Screen 7-This screen is about the police department login. They have their own username and password with their specified location. And then they can view the complaints given to them. The complaints are shown to the police with their ids. The police then updates the status of the complaint based on the progress of the investigation. When they login to specified location they get screen8 with various fields



Screen 8-When police login to their particular location they get various options like complaints, alert messages, cautions, thieves info, messages and logout. Police can view the complaints and also can send the status back to the user. Alert messages can be viewed by the police that are sent by the admin and also different police stations. Cautions are mainly given by the administrators to the police department.



Screen 9-This screen is used by the police to post the status of the complaint to the user. The status of the complaint is based on the progress of the investigation

Screen 10-This screen shows administrator login. They have their own username and password to login. When they login screen11 appears. Administrators are the people who view the complaints of the people and also verifies about the police who are taking up the case and the status of the complaints. They can login to verify the cases which have been registered and their investigation.

Screen 11-When administrator login they have various options like complaints, alert messages, cautions. Administrators are the higher authorities. Admin can view the complaints universally unlike police. They can give alert messages to the police and also for public. They give cautions to the police regarding the complaints they received.

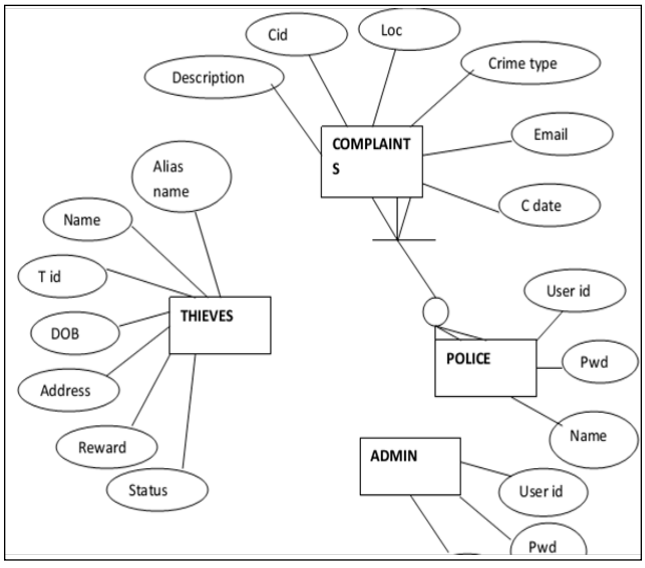
Back-End Design of E-COP Implementation

The server-side (or "back end") code resides on the server. A "back-end" application or program serves indirectly in support of the front-end services, usually by being closer to the required resource or having the capability to communicate with the required resource. The back-end application may interact directly with the front-end or, perhaps more typically, is a program called from an intermediate program that mediates front-end and back-end activities.

E-R Diagram

ER Diagrams represent the relationship between the entities. An ER diagram is composed of

- Entity is shown by rectangle.
- Attribute is shown by oval.
- Relationships with rhombus.
- Optional is shown by circle.
- Compulsory with dash.
- Primary key with underscore.



This database table gives the details of the complaints and describes its various fields.

Table 2.Complaints

S. No	Column Name	Data type	Description	Remarks
1	cid	Number(20)	Complaint Identification Number	Primary Key
2	Loc	Varchar2(20)	Location of Crime	
3	Description	Varchar2(1000)	Complaint	
4	Crime type	Varchar2(20)	Type of Crime	
5	Email	Varchar2(30)	Email ID of user	
6	C date	date	Date of complaint When recorded	

Table 3.Thieves

S. No	Column name	Data type	Description	Remarks
1	T id	Number(20)	Thief ID	Primary Key
2	Name	Varchar2(20)	Name of the criminal	
3	Alias name	Varchar2(30)	Other name of the criminal	
4	DOB	date	Date of birth of the criminal	
5	Address	Varchar2(40)	Address of the criminal	
6	Reward	Number(20)	Prize money announced by police on the criminal	
7	Status	Varchar2(30)`	Status of the criminal given by the police	

This database table gives the thieves information and explains its various fields.

Table 4.Alert

S. No	Column name	Data type	Description	Remarks
1	Alert	Varchar2(60)	Alert message given By the Administrator	

This database table has the field for alert message.

Table 5.Crimeimg

S. No	Column name	Data type	Description	Remarks
1	T id	Number(20)	Thief identification Number	
2	Photo	Varchar2(30)	Path of the photo stored	

This database table has the fields for the thief identification.

Table 6.Caution

S. No	Column name	Data type	Description	Remarks
1	cid	Number(20)	Complaint Identification Number	
2	Admin Caution	Varchar2(30)	Caution given by the Administrator to the given complaint	

This database table has the fields for the caution given by the administrator.

Table 7.Login

S. No	Column name	Data type	Description	Remarks
1	User id	Number(20)	Administrator Identification Number	Primary Key
2	Pwd	Varchar2(30)	Password given to the Administrator	
3	P name	Varchar2(30)	Name of the administrator	

This database table has the fields for the user to login.

Table 8.P login

S. No	Column name	Data type	Description	Remarks
1	User id	Number(20)	Police Identification Number	Primary Key
2	Pwd	Varchar2(30)	Password given to the Police	
3	P name	Varchar2(30)	Name of the police	

This database table has the fields for the police to login.

Table 9.Status

S. No	Column name	Data type	Description	Remarks
1	cid	Number(20)	Complaint Identification Number	
2	Status	Varchar2(20)	Status of the complaint Given by the police	

This database table has the fields to view the status

Table 10.Crimedb

S. No	Column name	Data type	Description	Remarks
1	Crime Type	Varchar2(30)	Type of crime such as robbery, and any cases can be registered	
2	Suggestion	Varchar2(300)	Suggestion given to the Police dept for particular crime	

This database table has the fields to give suggestion to the police.

Conclusion

The technological benefits of E-COPS are to maintain information monitor and enhance the performance of the department to take a critical look at the existing system, processes and procedures of the department so as to identify and remove the redundancy.

The case registered at one police station can be tracked at any police station. This reduces the discretionary dependence of police. Once the case is registered the investigation and follow up activities relating to the case cannot be delayed.

All these factors have contributed to a higher moral of the police officials at all the levels in police department. This project result in great improvement in the organization's functioning by reducing the effort spent by the general people

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