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### **RESEARCH ARTICLE**

# **Criminal Investigation & Identification System (CI2S)**

**Saurabh Zadikar<sup>1</sup>, Jaan Momin<sup>2</sup>, Datta Mule<sup>3</sup>, Avinash Chavan<sup>4</sup>**

Final Year, Computer Engineering, S.V.I.T. Nashik, Pune University, India

<sup>1</sup> [saurabhzadikar08@gmail.com](mailto:saurabhzadikar08@gmail.com)

<sup>2</sup> [Jaanwmomin786@gmail.com](mailto:Jaanwmomin786@gmail.com)

<sup>3</sup> [dmule30@gmail.com](mailto:dmule30@gmail.com)

<sup>4</sup> [avi31300@gmail.com](mailto:avi31300@gmail.com)

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**Abstract**— *Increasing criminals in society is major problem in today's scenario. This is our responsibility to reduce the crime happening in society. In general, the Indian police stations utilize paper based information storing system and government doesn't employ the computer for each employees. Due to this process punish the criminal and investigate the crime duration has been increased. Now a day's maximum people use smart phone. This paper highlights the android application developed for police as well as user, and windows application for image processing and for those peoples who doesn't has android smart phone.*

**Keywords**— *Criminal identification and investigation, Thumb recognition, Web portal, Mobile Computing*

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### **I. INTRODUCTION**

In today's era it is very difficult to find a crime free society. The criminals are used advanced technology to do the crimes and other side the use of smart phones is increased. It doesn't wrong that humans are addicted to use the android phones with various types of applications.

Concerning about India, the department of police is the major organization of preventing crimes[1]. The system of identification & investigation of crime as well as criminal are proceed on paper based system. Due to this the complexity of criminal identification and investigation is increased. These processes take long duration and maximum human resources to analysed and finding existence information and identify the suspects for crime incidents[1].

In general, peoples in society also responsible for the crimes happening around them. Now a days maximum peoples use android operating system phones in keeping with this we are develop the android application for police as well as for peoples. If in case someone has not smart phones we develop web portal for them. By synchronizing police side and public side android application they get easy way to reduce the crime in society and this system definitely help them to make a crime free society. The most incredible risk for the police department is investigating crimes with the current technologies, because they still use conventional instruction manual processes to handle crimes that are doing with the use of advanced technologies[2].

The CI2S help police to identify the criminal by accessing the database of criminal from anywhere; by recognizing his/her thumb impression. Also police broadcast the news if something happened wrong in the particular area and they want people's cooperation to handle the situation.

The CI2S also help public to register their complaints by using app running on their phones. They also post there suggestion. Get updated with crime news posted by the police. Even if they are not satisfied with investigation status of case they are filed they directly contact to the head officer.

## II. PROPOSED IMPLEMENTATION OF THE SYSTEM

Criminal Investigation & Identification System (CI2S) can be divided into two platforms. The proposed system is based on windows system plus mobile computing. Fig. shows the windows based system developed for biometric thumb identification of criminal and those citizens who don't have smart phone they used web portal and Fig. shows the mobile based system developed for police officers and citizens. The CI2S is developed on two different system but they are interconnected with each other by using internet.

Android system divided into following components in order to describe the system clearly:



Fig. 1 Proposed system for mobile computing

- I. Mobile Computing
- II. Android Operating System
  - i. Police Side System
  - ii. Public Side System

Windows system divided into following components in order to describe the system clearly:

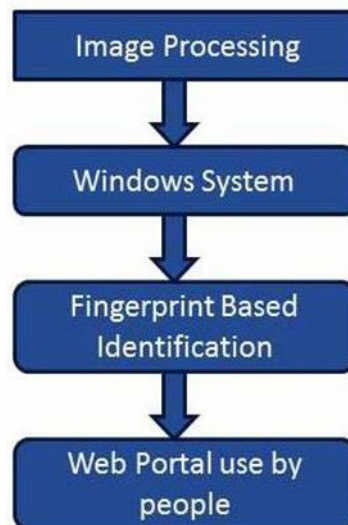


Fig. 2 Proposed system for windows system

- I. Image processing
- II. Windows System
- III. Fingerprint Based Identification
- IV. Web portal

### III.WORKING

The Criminal Identification and Investigation System (CI2S) works on two different platforms are as follows:

- 1) **Windows System-** Windows system for CI2S is specially developed for implementation of image processing. Thumb recognition of criminal is important task in investigation and identification of crime. The general overview of fingerprint identification is as shown in Fig. 3.

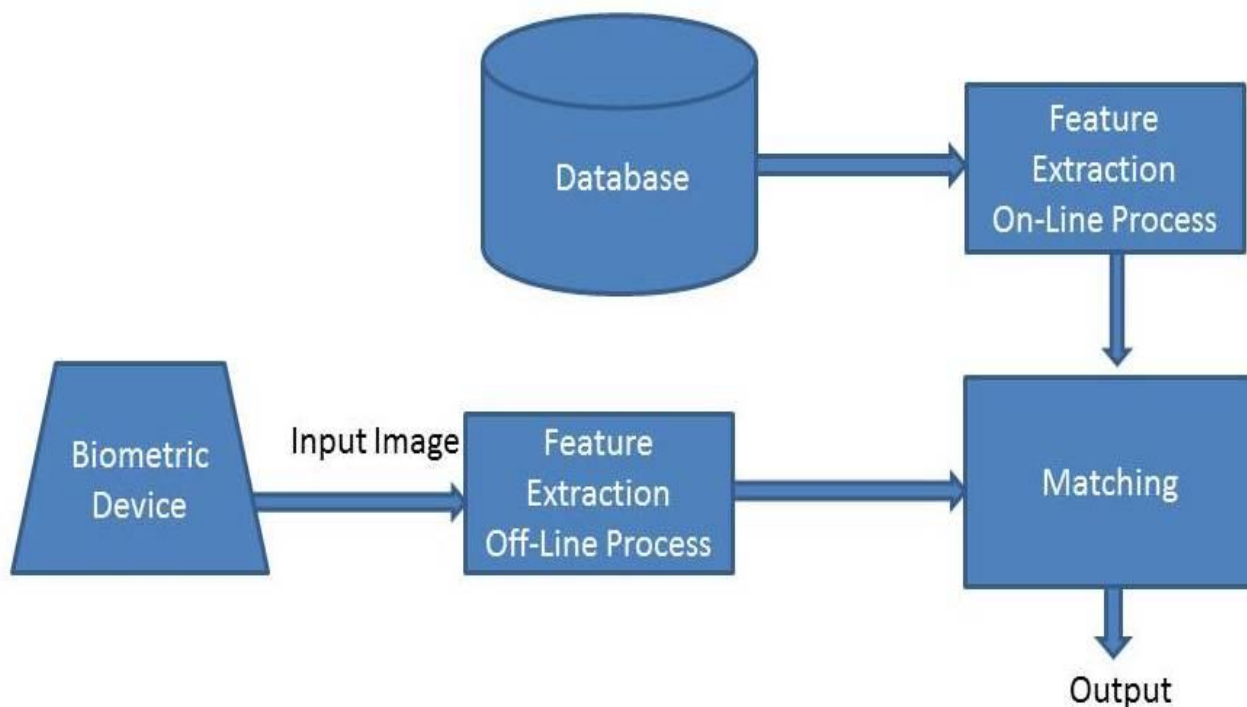


Fig. 3 Fingerprint Identification System

The database is use for storing the information of criminal and thumb image for recognition. This process is done online. Input image of thumb can be taken by using biometric device. And finally both stored image and device image features are extracted and matched with each other and result will be displayed. The system maintains details of criminal pattern once it is save in the database. The above Fig. 3. Shows overview of fingerprint identification system[3].

Windows system contains the web portal for those user who doesn't have android mobile phone.

- 2) **Android System-** Android system again divided into following components.

- I. **Public Side Application-** 'Public is user' they use CI2S android based application to register complaint online, to post suggestion, and see the news. The following Fig. 4. shows public side components and how they are interconnected within the system.

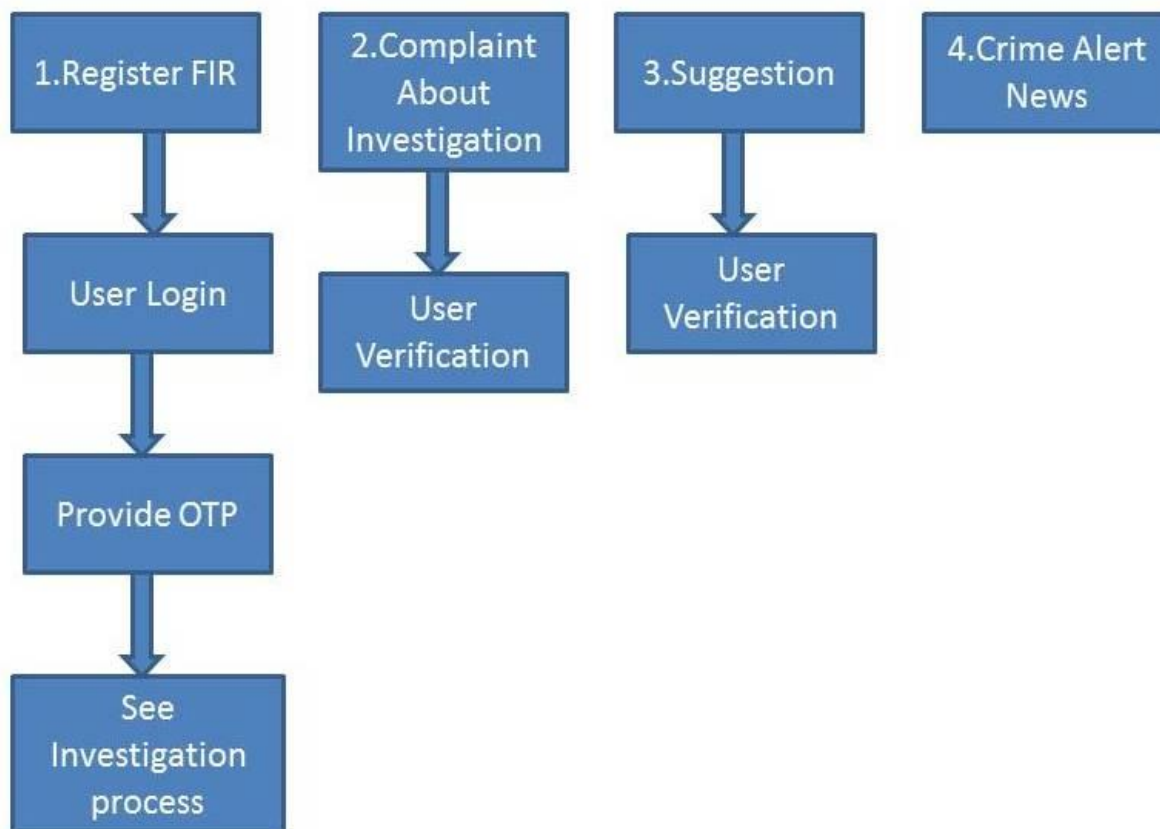


Fig. 4 Public Side Application Workflow

1. **Register FIR-** People can register complaint by using this option. First it verifies the user and provides the one time password (OTP) after getting OTP he/she unable to change the contents of FIR. By using OTP they see the investigation status related to registered complaint by them.
  2. **Complaint about Investigation-** If user is not satisfied with its investigation process he was able to contact to high authority.
  3. **Suggestion-** This option working is like suggestion box. If peoples are not satisfied with the police department work system they have right to suggest police.
  4. **Crime Alert News-** This feature provides the up to date news updated by police officers for people. It contains news like traffic jam in particular area etc.
  5. **View Forum-** Using this option user can see the nearest police station address and contact details.
  6. **Emergency Contacts-** Using this option user can get directly communicate with hospitals, ambulance, fire-brigades etc.
- II. **Police Side Application-** In this police officers uses CI2S android based application. Police officers use this application to catch criminal, to identify the criminal, to maintain the crime data and criminal related information. The following Fig. shows police side components and how they are interconnected within the system.



Fig. 5 Police Side Application Workflow

1. **Allocate Authority by Post-** In department of police there are post allocated to officers. This post has different authority. System has different interface for different authorized post.
2. **Login Identification-** To identify the authorized post officers can enter into the application by using user name and password.
3. **Check & Verify FIR-** Its officers' first duty to check the FIR complaint registered by user.
4. **Update Criminal Record by Administrator-** Administrator will get update the all criminal record include its name, address etc.
5. **Update Investigation Information and Alert news-** This is crime news report service which helps people to get updated with what happened in society.
6. **Broadcast Investigation Report-** By this service, every officer get updated with investigation report and it may help police officers between solved and unsolved complaint.
7. **Police to Police Chat Application-** This service is more important to get in touch with each other when officers are on duty.
8. **Crime Analysis-** It is used to get the different kinds of crime rate happened in society. It analyzed the crime annually.

#### IV. APPLICATIONS

CI2S has wide range of applications, in those some of the applications are as follows:

- i. To identify crime of criminal arise in particular area.
- ii. To watch on prisoner through camera.
- iii. To maintain all details of criminal related to its crime.
- iv. To identify criminal by recognizing his thumb impression.
- v. Easily broadcast criminal record to each and every police.
- vi. Locate criminal place via GPS.
- vii. Citizens should easily submit complaint by using android phone.

## V. ADVANTAGES

- i. CI2S reduces the paper based information storing system.
- ii. CI2S helps police to reduce the investigation and identification time.
- iii. CI2S helps to provide information to formulate strategies for crime prevention and reduction.
- iv. With the help of CI2S police can easily detect the criminal pattern.
- v. CI2S easily maintain all details of criminal once it is save in the database.
- vi. CI2S helps police to reduce the increasing crime rate.
- vii. CI2S also helps to the citizens to registered online FIR quickly and see the current status of complaint.
- viii. CI2S biometric system helps police to detect the pattern of criminal thumbs to identify criminal.

## VI. CONCLUSIONS

In today's computer and mobile enabled era many techniques are available for crime prevention and criminal identification. This paper presents a different and new way to reduce the overall crime rate by developing extra android application for public and police it may help to reduce the identification time, investigation time, and human resource to catch the crime.

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