



Grid Based Authentication for Online Crime Reporting System

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Abstract— OCRS applies to all the Police Stations across the Pune city. Its main goal is to make a crime reporting procedure easy for citizens and to implement a software application for the police department to maintain their data more efficiently and improve work efficiency of the department. In existing system police department uses manual methods for storing data and processing criminal information which is time consuming process. In this system data is maintained in the form of records which will cause the chances of lose of information. In order to overcome this problem we implement an online web application where data is stored into database and provide a more secured and fast processing method.

This application is an online application which is developed in six modules. The modules are citizen Module, Station Module, Administrator Module, DGP Module, Detective Module and Magistrate Module. A citizen can sign up on the website to register a complaint. Initially different stations should register with the application and get a unique username and password. The station module can enter entire details into the system. Basically there are two basic problems during authentication which are key stroke logging and shoulder surfing. We are going to propose a system which will provide a solution for shoulder surfing and key stroke logging. We will provide security to citizen module using GRID based authentication which is discussed in this paper.

Keywords— Duplicate Login Pages, Grid Based Authentication System, OCRS, Keystroke logging and Shoulder Surfing

I. INTRODUCTION

OCRS (Online Crime Reporting System) is an E - Police Station which can maintain the records of crime like FIR, criminals' details and police department administration.

To develop an online comprehensive crime reporting system to engage public, police and detective agencies to be more quick and responsive to fight with crime and criminals. Maintain information about citizens and provide some basic services. Citizen can make complaint; check the status of passport & complaint and below listed licenses.

- Lodge
- Gym
- Mass Meeting
- Loud Speaker

The proposed "Grid Based Authentication" system provides the solution to the problems like Shoulder Surfing, Duplicate login pages and Keystroke logging. It enhances the security of the web based system and makes it difficult for the attackers to decipher the keyword of the user. Use Grid Based Authentication System to provide security to Online Crime Management System.

II. EXISTING SYSTEM

In the existing crime management system most of the operations are done manually like taking action against the crimes, sending complaints, viewing status etc. if anybody wants to complain against the crimes he must go to the police station. If we are doing the system physically, so many minor errors will occur. Detection in the previous entries made and data cross verification is another important function. This process would take more time.

III. PROPOSED SYSTEM

In this paper we have proposed 2 systems 1. OCRS and 2. Grid based Authentication System to protect authentications from attacks like shoulder surfing and key loggers.

1. OCRS

Employee logs on to his account, to view FIR files and complaints which is sent by citizens. Management of lower designation officers by higher designation officers. This feature allows admin user to create the required amount of employees, transfer employee and promotion. Maintains history of the employee's right from the date of joining to his retirement. Also the retired employee record is also maintained. Database and Server backup would be maintained. Track all the employees, citizens and their contact details. Confirmation link is sent to the new user and employee when signing up. Chat facility is available for working officers. FAQ section is also included for users benefit. Data Security is provided by MD5 Encryption Algorithm.

USER CLASSES AND CHARACTERISTICS:

A. Citizen

In order to apply for various certificates such as birth, community, income and ration card, and citizen must sign up by filling the sign up form and get it approved by admin. After getting the username and password, citizen can log on to their account and can access the website. Citizen can open their profile which contains the personal details which he/she provided during sign up. Citizen who signed in can request for various licenses such as arms, loud speaker, browsing centre, lodge, video, meetings and gymnasium. After filling the mandatory and other details, citizen submits the form.

B. Constables

First the constables must login to his/her account to start his work. The officer who has logged in can view the new citizen registration in his locality. The constable can accept the new registration depending upon the details enclosed by the end user.

He can also decline if the details enclosed are illegal or not correct. Constable can view the License application and can verify. Depending upon the attachment, the request is accepted and the license is delivered. In case of any errors in attachment, the request is disallowed.

C. Station In-charge Officer

First the Station In-charge Officer has to login to his account to start his work. He investigates grave crimes and other complaints. He arrests the criminals who are involved in the crime and produces to the magistrate and the arrested criminal details are added to the criminal directory. If the case involves property appropriation, he can grasp the property and can keep in securing place. He writes the investigation details in the case diary including arrested criminals, property seizure, and final report and appeal results of the case.

D. Detectives

In order to enter the additional crime details, the detective has to sign up. Detective can log on to their account and can access the website after receiving the username and password. The detectives provide additional crime details to police investigation and help in resolving the crime.

E. Director General of Police

DGP has to first sign into the client to use the service. He can view the criminal details, crime details, types of crime dedicated in a particular year and other statistical data. He can also view all the Police officers details and the work done by them and he can award promotions depending On the work by online.

F. Administrator

Admin authenticates all the citizens and employees by checking their username and password. After getting the sign up details from the citizen, Admin provides the username and password to the citizen that should be kept for future login and also admin checks for uniqueness. Admin maintains the entire database and he is the only authorized person to add/remove/edit employee records and citizen records provided he has to get the order from the highest designation officer.

2. Grid Based Authentication System

GRID is array of characters with size of 6 rows and 6 columns .So the characters will be arranged in a random manner in to the grid. Every time the user sees the grid with different character mapping. He has to click the matrix element corresponding to a particular row and column.

Let’s say the private keyword has 6 letters. So the user will click the matrix element corresponding to the row in which the 1st letter exists and the column in which the 2nd letter exists. Similar steps will be followed for the corresponding letters. If the keyword has odd letters then last letter which will have partner to group with, will be clicked as it in the matrix.

Let’s assume that user keyword is “NATURE” then his password will be of 3 characters. And password will be ‘QUK’.

W	2	F	3	H	8
C	N	Q	E	G	B
Z	T	U	o	1	O
6	D	A	P	J	9
M	X	R	K	S	Y
I	L	5	4	V	7

Next time during password input he will get different grid. So the keyword will be same but password will be different. Now for the same keyword 'NATURE' password will be NUE.

Z	T	U	K	1	A
3	B	O	5	2	N
8	C	S	V	Q	W
X	J	9	6	I	D
Y	F	L	H	G	7
P	4	M	R	E	o

IV. OBSERVATION

This system is to engage public, police, and detective agencies to be more quick, proactive and responsive to fight with crime and criminals. Citizens can complaint and also can check the status of complaints and passports. Addition of grid would ensure that the user will have a secured login as each time user would end up entering different passwords. The chances of password being watched or cracked by another person are minimum using such GRID.

V. RESULT



Fig. 1 Home Page of OCRS

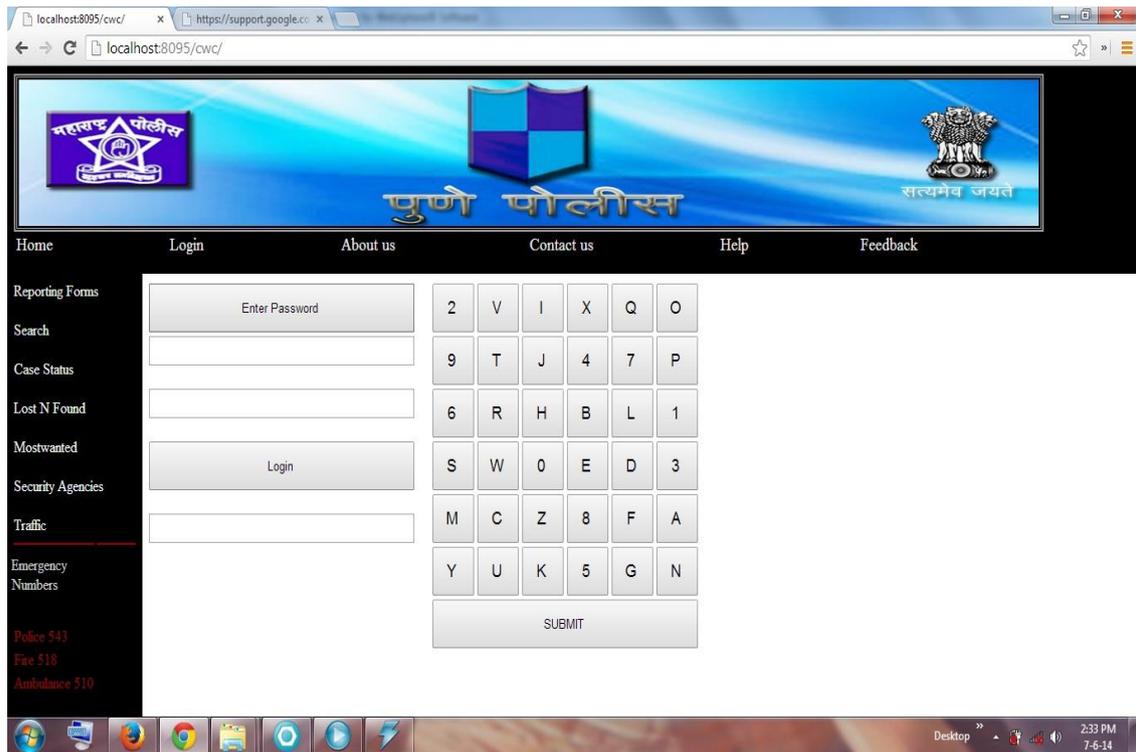


Fig. 2 Login using Grid



Fig. 3 Criminal Search

महाराष्ट्र पोलीस
पुणे पोलीस
सत्यमेव जयते

Home Login About us Contact us Help Feedback

Reporting Forms
Search
Case Status
Lost N Found
Mostwanted
Crime Statistics
Security Agencies
Traffic
Emergency Numbers
Police 543
Fax 518

ON LINE CRIME REPORT FORM

CRIME INFORMATION FORM

Reporter's Information

TYPE OF CRIME--(SELECT TYPE OF REPORTED CRIME ▾)

Victim's Full Name:

Your Physical Address:

Your Mailing Address:

Your Zip Code:

Your Home Phone Number:

Your Mobile Number:

Your Ration card or Election no : (NECESSARY)

Fig. 4 Crime Reporting Form

VI. CONCLUSION

Hence we conclude that Online Crime Reporting System can be used to engage public, police and detective works to be more quick, pre-emptive and reactive to fight with crime and criminals. The proposed “Grid Based Authentication” system provides the solution to the problems like Duplicate login pages”, “Shoulder Surfing”, “and “Keystroke logging”. It recover the security of the web based system and makes it difficult for the attackers to decipher the keyword of the user. Addition of grid would ensure that the user will have a secured login as each time user would end up entering different passwords. The chances of password being watched or cracked by another person are minimum using such GRID.

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