

Police Information System for the Office of the Senior Superintendent of Police

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ABSTRACT

The Office of a Senior Superintendent of Police is the office of command of regional police divisions of Sri Lanka Police, governed under a senior gazetted officer rank of Senior Superintendent of Police (SSP). It coordinates the police stations under the divisional area. Focus of this writing and the project related is the routine data management of the Office of Sri Lanka Senior Superintendent of Police, Kuliyaipitiya. There are eight police stations in its division, each having four divisions. Current system that is used to record and analyze data in all the police stations is manual. This creates many limitations for the SSP and office in their routine work. It is also time consuming and less efficient to analyze the manually maintained data. This project has developed an electronic solution to eliminate many of the problems and weaknesses of the existing system. Moreover, the new system also provides the online access facilities, report generation facilities and graphical data representation facilities for analysis purposes. This system was developed as a web based system using PHP as the server side language and MySql as the database management system. The system was tested and found to have met the requirements with proper functionality.

KEYWORDS: Data Management, Office Automation

INTRODUCTION

Office automation and transaction processing has been increasingly adapted and successfully implemented by many organizations globally and locally. The amount of the increase in efficiency of work is remarkable. Office automation systems (OAS) are configurations of networked computer hardware and software. A variety of office automation systems are now applied to business and communication functions that were used to be performed manually or in multiple locations of a company, saving both time and money.

Introducing such automated solutions to environments with total manual systems is beneficial yet a difficult activity.

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An OAS with electronic publishing, electronic communication, electronic collaboration, image processing, and office management makes office work more efficient and increases productivity (Woratschek, Charles R, 2002).

The Office of Sri Lanka Senior Superintendent of Police, Kuliyaipitiya which is headed by a senior gazetted officer rank of Senior Superintendent of Police is responsible for maintaining law and peace within its division, the Kuliyaipitiya Police District. There are eight police stations commanded by the SSP office. Each police station has been divided into four divisions namely Grave Crime Division, Minor Offence Division, Traffic Division and Finance and Administration Division.

The existing system that is used for daily transaction processing of the regional division of SSP is a totally manual system. All the operations in the police stations are well documented, so the possibility for error is limited. Each division maintains specific books such as Offence Register, Case

Register, Finance Register, etc for different work carried out by their division. These books are updated regularly and kept up to date.

The limitations arise from the point of data entry through maintenance of large stacks of inefficiently kept data. To enhance the inefficiency, these data are being entered to and maintained in the system practically twice, at the Police Stations and at the Office of SSP. Problems arise when, with a very large number of documents the SSP wants to view information of polices stations by referring to those documents. This is time consuming and an inefficient task with the existing manual system. Each police station prepares an abstract report for each of the four divisions separately for every three months. These are the only documents that are used to analyze data.

The introduction of this new system introduces a well kept and efficient solution with effective support in data analyzing and decision making.

METHODOLOGY AND DATA COLLECTION

Development of the new system was done according to the Software Development Life Cycle (SDLC) (Sommerville, 2008). The limitations of applying the SDLC approach in developing soft systems had minimal effects in this automation process as the existing system was well kept and systematic. New system is designed and developed adhering to Rapid Application Development (RAD) approaches (Whitten et al, 2004) to be aligned with the time constraints of the project.

In this project both primary data collection and secondary data collection methods (Rabianski, 2003) were used to identify the requirements and to collect data. The business process at the Office of SSP was identified by analyzing the manual system documents and by interviewing the people who are responsible with maintaining their data. Several interviews were

conducted with selected officers of all the divisions. Also the past record were collected and analyzed to identify the type of data that are used. Table 1 summarizes the main functional requirements identified in the system.

Table 2. Summary of Functional Requirements

ID	Description
1	Existing user must be able to login to the system
2	System must verify and validate users according to their level
3	System must be able to add new users
4	System must be able to update, view and maintain user information
5	System must distinguish information by the division
6	System must be able to add, view, update and delete information in each division
7	System must generate reports as requested by the users
8	System must generate graphs to represent data
9	System must be able to do data compression

Figure 1 shows the overall UML use-case diagram (Booch et al, 2003) of the new automation system.

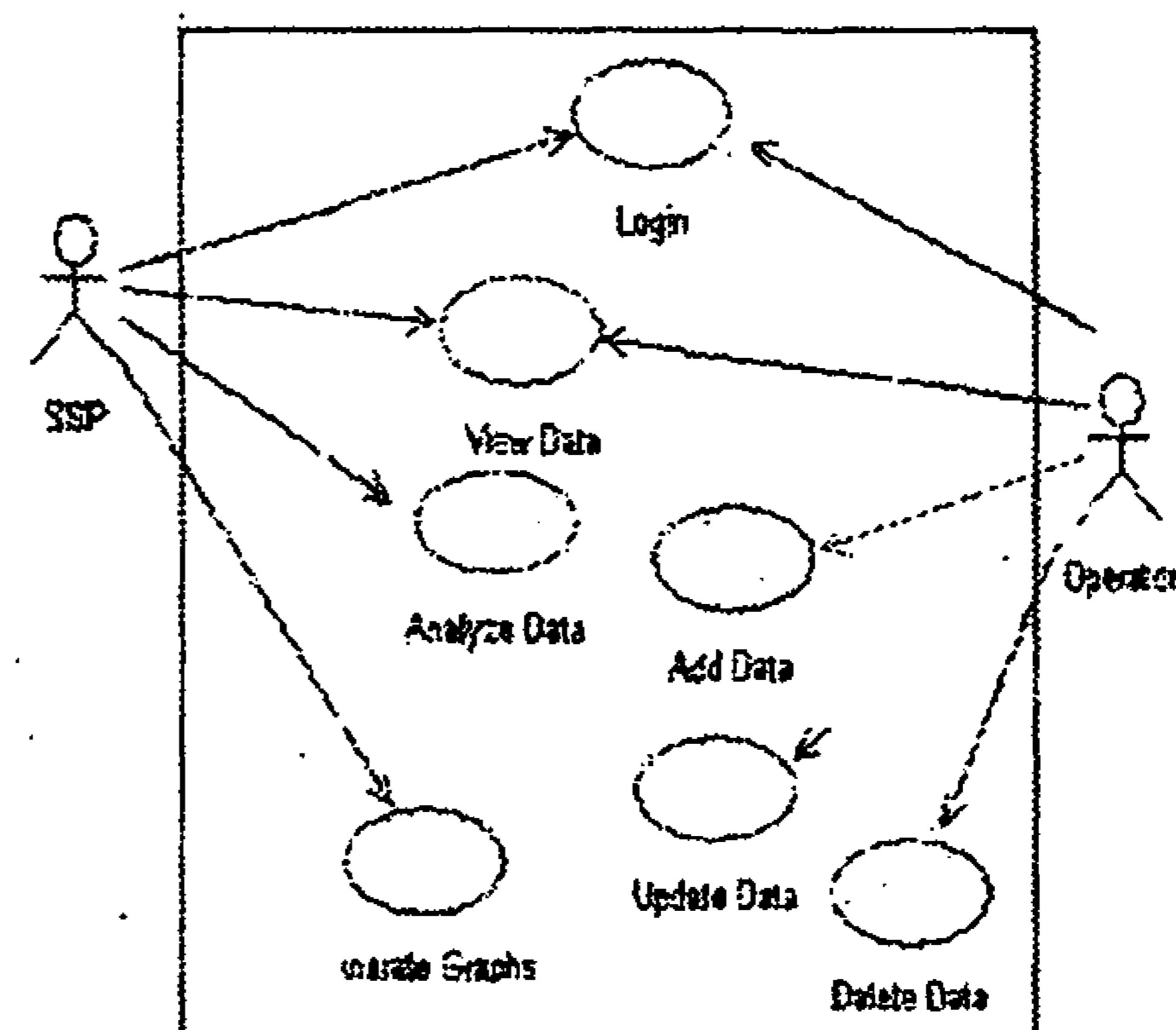


Figure 4. Use-case Diagram of the new system

Actor 'Operator' represents a variety of users at different clerical standings in the SSP office. All actors possess controlled access to the system depending on their level of authority over the data.

This system consists with four main modules as user login, database operations, report generation and graph generation. The system was developed as a web based application. So HTML was used to develop web pages and PHP was used as the server side language. Cascade style sheets are used to style the web pages. All the application software used in this development are platform independent thus the system is platform independent. So this system uses data encryption, session variables, database security and log files to maintain a desired security levels. Information at the Office of SSP is confidential. Therefore certain measure has been taken over the safety of the online available data.

The architecture of the system is shown in figure 2. Internet is used as the backbone of access. Server protected by a firewall manages the entire systems. Authorized users can access the database through the internet.

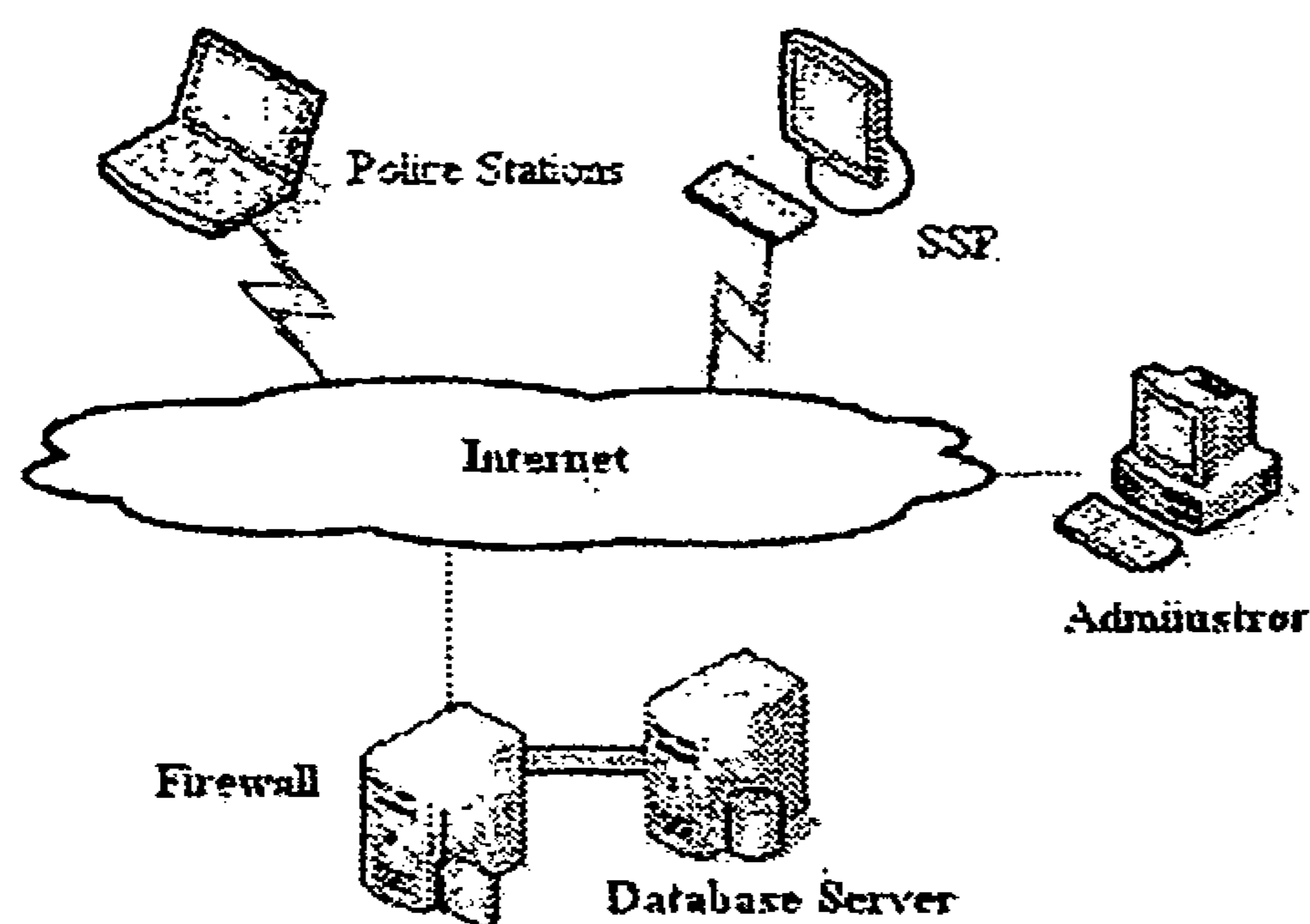


Figure 2. System Architecture

RESULT AND DISCUSSION

Government institutions are among the less favoured in the general public due to their inefficiency and less effective service. Introduction of automated systems to office

environments increases the efficiency and effectiveness of organizations. Police Department, one of the leading and close-bond social organizations can immensely benefit from office automation.

A system was developed as an electronic solution to provide the indentified requirements. The system was presented to the clients and has been accepted with minor modifications. It is in perfect functioning condition.

Introduction of this new system drastically increases the efficiency of the Office of SSP, eliminating most of the time consuming routine procedures which usually put the general public in undesirable waiting for service. This aspect positively influences the effectiveness of service Police Department provides to the society as a leading social service organization which keeps one of the closest governmental relationships with the general public.

The efficiencies of the current system and new system were compared in terms of the time taken to record a single offence's details and in terms of time taken to prepare an average abstract offence report. A sample of 50 offences in traffic division was used for this purpose. The results are summarized in the Table 2.

Table 2. Summary of Time Comparison

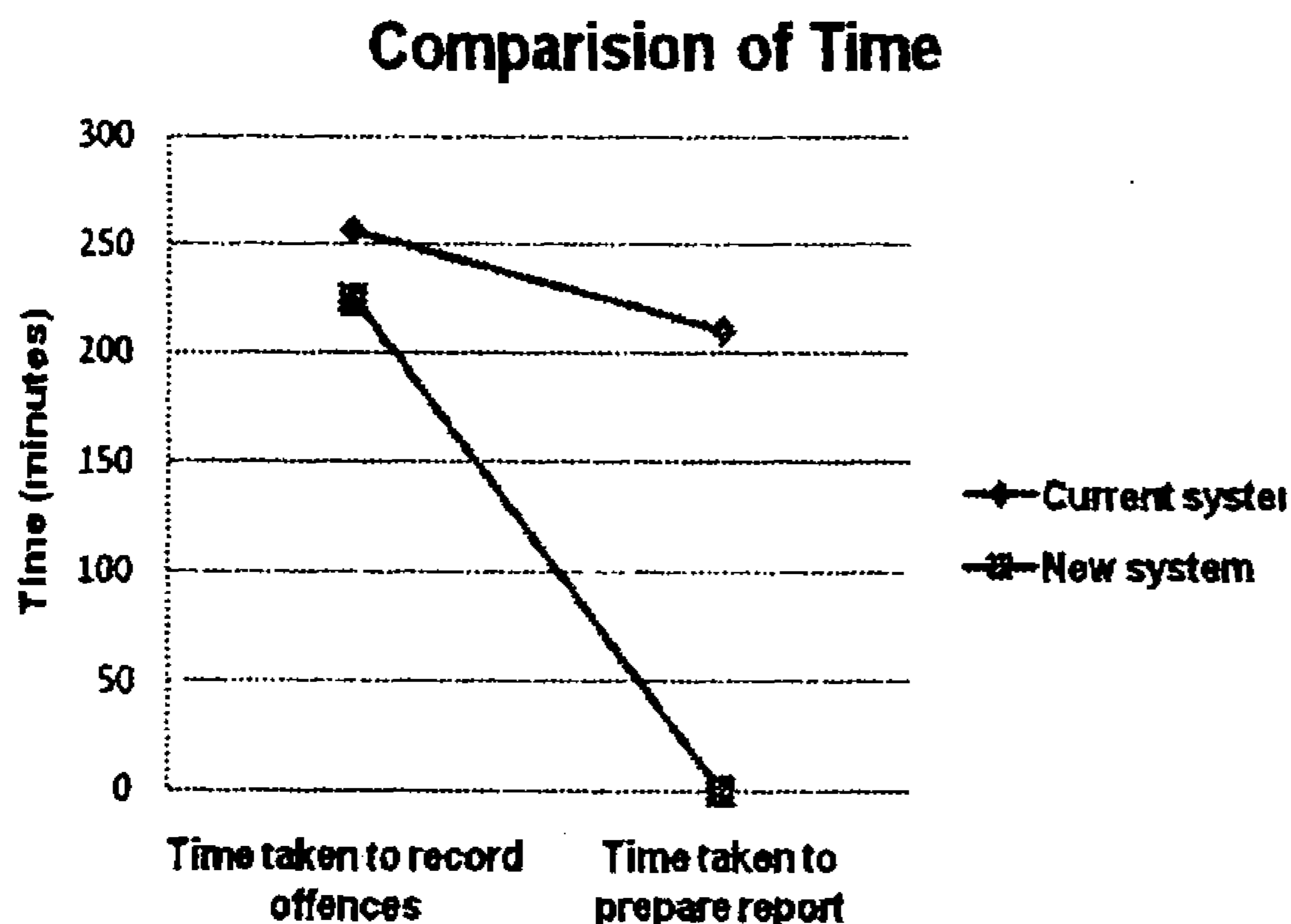
System	Time taken to record offences	Time taken to prepare report
Current system	256 min	210 min
New system	225 min	10 seconds

A graphical representation of the above results is shown in Figure 3.

These results show that the new system drastically reduces the time taken to record offences. The time taken to prepare report was also significantly reduced by the new system. As a result the efficiency will be increased.

Among the usual issues arise with the introduction of an automated system to a

non-electronic environment like the unavailability of the basic equipment, level of computer literacy of users, etc., the most prominent fact regarding the implementation of this new system was the users' reluctance to accept it. Similar to many government



organizations in Sri Lanka, the users tend to see the new system as an 'additional trouble' than a welcoming solution to increase the efficiency.

Having implemented this system, the Office of SSP, Kuliyaipitiya can provide an outstanding service to the public within the division and extend its most effective support to establish the objectives of the Police Department of Sri Lanka.

CONCLUSION

The problems and weaknesses of the existing system were identified and new system was developed to eliminate the identified problems and weaknesses. Furthermore, it consists of data analysis and summarization facilities with a collection of informative report generations enhancing the decision making process for the SSP. The new system was tested and found to have met the requirements with proper functionality.

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