ONLINE CRIME RECORDS MANAGEMENT SYSTEM

CASE STUDY: MBALE CENTRAL POLICE STATION

BY

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BU/UP/2020/1653

A PROJECT REPORT **SUBMITTED TO THE FACULTY OF SCIENCE AND EDUCATION IN PARTIAL FULFILMENT REQUIREMENTS FOR THE AWARD OF A BACHELOR DEGREE OF INFORMATION TECHNOLOGY OF BUSITEMA UNIVERSITY**

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JULY 2023

DECLARATION

I **Kirenzi Juma** declare to the best of my knowledge that this dissertation is my original work and has never been submitted to this university for a similar purpose.

Signature.....

Date.....22/01/2024.....

APPROVAL

This is to acknowledge that this project report titled "WEB-BASED CRIME RECORDS MANAGEMENT SYSTEM" presented by KIRENZI JUMA, Ren No. BU/UP/2020/1653 is the original work.

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DEDICATION

I thank the Almighty God who had successfully enabled me to complete the entire course with theproject. I dedicate this project to my beloved mother, Mrs. Milisa Nabirye without forgetting Mbale central police station. Special thanks go to my dear Academic supervisor Mr. Oboth Andrew who passed through many ups and downs to see me throughthis great course training program. Lastly, let me thank everyone who has put effort into seeing me through my education up to this level including my dear course mates, may the Almighty God bless you abundantly.

ACKNOWLEDGEMENT

The support and cooperation of several people who had enabled me to gain more of the scholastic aspects of the program made this attachment more successful

In the first place, I would like to thank the Almighty "**ALLAH" (GOD)** for taking me through the period of three years course and enabling me to accomplish it at Busitema University. My sincere thanks and gratitude are to be extended to my beloved Mother Mrs. Milisa Nabi rye for the financial support and endless prayers she did extend to me while at the university.

I would like to thank my lecturer as well as supervisor Mr. Oboth Andrew for the knowledge rendered to me in the fieldof programming and his constant guidance and help throughout the project time.

I would like also to appreciate the management of Mbale central police station for allowing meto conduct my research at their police station and, for the support and encouragement rendered to me in different capacities. My colleagues Timothy Wonasolo, Billy Nicholas, Lydia Achieng, and Fredrick Bwiire cannot miss my bold hand clap for the tireless support that they had flooded me with while developing my project system.

ABSTRACT

The development of Crime Records Management Systems can be traced back to the early 1980s when computer technology began to be used more widely in law enforcement. At that time, many police departments still relied on paper-based record-keeping systems, which were inefficient and often prone to errors. Online Crime Records Management System is any combination of information technology and people's activities that enable law enforcement agencies to store, retrieve, retain, archive, and view information, records, or files about law enforcement operations (Beynon-Davies,2009). These tools automate vital processes that enhance day-to-day operations, and support operations, management, and decision-making. The methods of detection employed are dictated by the nature of the crime and the procedures permitted by the legal system (Nicole, 2009). The main objective of this study is to develop a web-based Crime Records Management System.

The methodologies used in the project include Structured System Analysis (SSAD) which was used for analysis and designing of the system as well as RAD (Rapid Application Development) (RAD) Model which focuses on rapid prototyping and quick feedback with less emphasis on specific planning. MySQL which is an open-source relational database management system was used during the system development, and HTML and CSS as markup languages were also used for the general structuring and styling of the web pages. Visual Studio Code was used as the main text editor which enabled the researcher to write the dynamically generated pages easily and very quickly, and the web browsers such as Mozilla Firefox and Google Chrome were also used to display web pages and access the Xampp server.

In conclusion, the Online Crime Records Management System is a valuable tool for law enforcement agencies as it allows a comprehensive and efficient way for the storage, management, and retrieval of information related to criminal activities in order to overcome the challenges associated with the manual-based crime records management system. It enables police officers and other users to quickly access critical information, which can help them solve crimes faster and more efficiently.

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LIST OF ACRONYMS

CRMS…….. Crime Records Management System

CPS……. Central Police Station

ICT…….. Information Communication Technology

CID…….. Criminal Investigation Department

POMU……. Public Order Management Unit

FIR…….. First Information Report

NCIC…….. National Crime Information Centre

FBI…… Federal Bureau of Investigation

ERD…….. Entity Relationship Diagram

SDLC…… System Development Life Cycle

DFD…….. Data Flow Diagram

UML……. Unified Modeling Language

UCD…….. User Case Diagram

MYSQL……. My Structured Query Language

GUI…… Graphic User Interface

PHP…… Hypertext Preprocessor

CSS……. Cascading Style Sheets

HTML……. Hypertext Markup Language

RAM…… Random Access Memory

CCTV……. Closed Circuit Television

USB…… Universal Serial Bus

UPS……..... Uninterruptable power supply

CHAPTER ONE

1.0 INTRODUCTION

The rules and regulations are paramount to all aspects of life and it contains both how one expects to live, and how others can treat one's lifestyle. (Mubaraka, Jirgi, &
Nanyanci, 2013) certain proponents have asserted that crime which is a violation against laws of the society, is integral to human nature and hence the society can never be completely free from it. Today, the society is characterized by increasing levels of risk posed by internal and external security threats. Within this context, security driven by technology is increasingly being used by government, corporate bodies, and individuals to monitor and reduce risk (Ajocict, n.d.)

A crime records management system is any combination of information technology and people's activities that enable law enforcement agencies to store, retrieve, retain, archive, and view information, records, or files about law enforcement operations (Beynon-Davies,2009). These tools automate vital processes that enhance day-to-day operations, support operations, management, and decision-making.

The methods of detection employed are dictated by the nature of the crime and the procedures permitted by the legal system (Nicole, 2009). The crime record management system is a valuable tool for law enforcement agencies as it allows them to quickly access critical information, which can help them solve crimes faster and more efficiently.

A criminal record is a record of a person's criminal convictions history. The information contained in a criminal record and its existence varies between countries and even between jurisdictions within a country (Al Capone, 1932), and (Zhang et al, 2019) examined the effectiveness of using a crime records management system in reducing crime rates in China.

Examples of the crime records management systems used include the National Public Security Criminal Records Management System (NPS-CRMS). It is a comprehensive system that is used by law enforcement agencies across the country to investigate crimes, track criminals, and inform crime prevention strategies. NPS-CRMS is a centralized system that stores all criminal records in China it was established in 1999 and has been continuously updated and improved over the years, and it currently contains over 100 million criminal records.

Criminal Case Management System (CCMS), Public Security Information System (PSIS), and National DNA (Deoxyribonucleic acid) Database are also among the crime records management systems being used in China. CCM is a nationwide system that stores and manages information

about criminal cases. The CCMS is used by law enforcement agencies, courts, and prosecutors to track cases from start to finish. The Public Security Information System (PSIS) is a large database that contains information about individuals and businesses and it is used by law enforcement agencies to investigate crimes and to prevent crime. The National DNA (Deoxyribonucleic acid) Database system contains DNA profiles from crime suspects and convicted criminals. The National DNA Database is used by law enforcement agencies to solve crimes and to identify criminals.

The Chinese government is committed to using technology to improve crime prevention and detection and the use of crime records management systems is one way in which the Chinese government is working to make China a safer place**.**

Crime records management systems therefore are an important tool for improving crime prevention and detection, increasing public safety, reducing recidivism rates, and improving the criminal justice system in China.

1.1 Background of the Study

Mbale Central Police Station (CPS) is the main police station in Mbale City Uganda. It is located on Republic Street in the city center. Mbale central police station (CPS) is responsible for policing an area of approximately 2,000 square kilometers, which includes the city of Mbale and the surrounding districts of Sironko, Manafwa, Bulambuli, and Bududa. It is located on Republic Street plot 12, in Mbale city Bugisu sub region. Mbale is a city located in Eastern Uganda and it is the main administrative and commercial center of the eastern region. Mbale is approximately 224.49 kilometers by road northeast of Kampala, Uganda's capital city.

Mbale CPS is one of the oldest police stations in Uganda, having been established in 1905. The station was originally located in a small building on the outskirts of town, but it was moved to its current location in 1923. The current building was designed by British architect Henry Cartland, and it is one of the most iconic buildings in Mbale City.

The station has played a key role in maintaining law and order in Mbale City and the surrounding areas for over a century. In recent years, Mbale CPS has been at the forefront of the fight against crime in Mbale, and it has played a key role in reducing crime rates in the city. Mbale CPS is a modern and well-equipped police station with a team of over 200 police officers, who are responsible for a wide range of duties, including crime prevention, investigation, and

prosecution. Mbale CPS also has a number of specialized units, such as the Criminal Investigations Department (CID), the Traffic Police, and the Public Order Management Unit (POMU).

Mbale CPS is committed to providing the best possible service to the public and has a number of community outreach programs in place, and it is always working to improve its relationship with the community. Mbale CPS is also committed to protecting the rights of all people, and it is committed to ensuring that everyone is treated fairly and with respect.

Even though Mbale city offers a wide variety of services to the community, the methods used for keeping crime records still remain manual such as registering complaints/ crimes, viewing status, retrieving criminal information and this approach entails the use of paper files in the documentation of criminal information by the police officers at Mbale city CPS. A complainant fills in a First Information Report (FIR) form which includes his or her statement concerning the accused. When the accused is brought in, his/her details are handwritten into case files. Prior to the advent of computers, these files were kept in wooden or metal wardrobes under lock and key and this was susceptible to damage by pests and unfavorable environment.

The development of CRMSs can be traced back to the early 1980s, when computer technology began to be used more widely in law enforcement. At that time, many police departments still relied on paper-based record-keeping systems, which were inefficient and often prone to errors.

Today, CRMSs are an essential part of law enforcement operations in many countries around the world. They play a critical role in helping police departments to fight crime and keep communities safe, by providing officers with the information they need to investigate crimes, identify suspects, and bring criminals to justice.

According to the report by the Uganda police force (Annual crime report, 2021) a number of security lapses were experienced during the period under review they were attributed to the lack of an effective electronic crime record management system, the force established that there are serious lapses of coordination within the service during investigations as reports take longer to be published. Lack of operational harmony between the different national security organs affected information sharing, storage and the carrying out of joint policing operations.

It is against this background that the researcher developed and tested a web-based crime records management system that would provide detailed information about crime activities being carried out at Mbale central police station in a given period of time such as crime and criminal details, complainant details, officer on duty. This process would save them time, prevent forgery and

ease information retrieval and minimize the costs of stationery since it is electronically stored rather than manually.

1.2 Problem Statement

Criminal activity worldwide contributes to notable instability within nations. (United Nations Office on Drugs and Crime (UNODC), 2022) Global Report on "Organized Crime", (International Crisis Group, 2020) Report on "Crime and Conflict."

Developed countries have established comprehensive systems for crime management and tracking through electronic databases (International Centre for prevention of crime (ICPC), 2020), Report on Crime Management and Prevention in Developed countries, while developing nations continue to struggle with automating their crime case processes **(**International Development Research Centre (IDRC), 2021), Report on Technology and Justice in Developing Countries. In these regions, criminal record-keeping is predominantly manual, with records stored in physical files. Consequently, the analysis, retrieval, and manipulation of criminal records remain a formidable challenge. In Uganda, this challenge still remains an open area for research. The police stations being the center of these activities have not migrated to automation and Mbale CPS is not an exception.

The current system used in Mbale CPS to manage crime records is manual which is file based. Some of the key challenges faced by such a system include data inaccuracy, data insecurity, data inaccessibility and data scalability. The absence of a dependable centralized crime recording system at the station results in cases being labor-intensive, challenging, and occasionally nearly impossible to track without the allocation of significant resources, extensive effort, and a significant element of luck.

It was against this background that the researcher developed and implemented a comprehensive and an efficient system for the storage, management, and retrieval of information related to criminal activities in order to overcome the challenges associated with the manual-based crime records management system.

1.3 Main Objective

The main objective of the study is to develop a web-based Crime Records Management System

1.3.1 Specific Objectives

1. To review literature and determine requirements for developing a web based crime records management system.
2. To analyze requirements and design a web-based crime records management system.
3. To implement a web-based crime records management system.
4. To test and validate a web-based crime records management system.

1.4 Significance of the study

During the development and testing process of web-based crime records management system the researcher and the officers at the police station benefited in the following ways;

1. The system developed was able to perform and process fast and error free crime records that are relevant to the police officers in their different capacities and their clients (criminals and complainants). This improved on their efficiency as they can serve clients in time.
2. The system was able to provide computerized format of keeping records of the criminals made any time at the central police station which could ease the retrieval of information when needed. It reduced manual way of handling crime activities and costs of purchasing stationary.
3. The system increased the general operational efficiency of police and their measures of keeping criminal records that will be easy to retrieve information from the system by crime investigators and approved persons. This saves them time that would be wasted checking in books and its related disadvantage of lack of information backup
4. The system also assisted the police in their bid to handle different crimes with timely and useful information about criminals due to centralized data management
5. The researcher acquired good communication, interviewing skills and deep understanding and expansion of knowledge on analysis and design of the system.

1.5 Scope of the study

The study was focused on the online and computer based crime records management system. Currently we are living in a world that is moving towards ICT and every aspect changes simultaneously. The research project was aimed at setting up a standard for crime records.

The scope of the study includes physical scope which describes the physical area of application where the project was applied and technical scope which describes the functionalities of the system

1.5.1 Physical scope

The study was conducted at Mbale Central Police Station located on Republic Street plot 12, in Mbale city Bugisu sub region. Mbale is a city located in Eastern Uganda and it is the main administrative and commercial center of the eastern region. Mbale is approximately 224.49 kilometers by road northeast of Kampala, Uganda's capital city.

1.5.2 Technical scope

The system was designed as a web application that provides a platform to receive and record all manners of crimes. In addition, a platform is available to register complaints, assign cases to CID officers, and view details of the case being investigated; with a dashboard to view and interpret different report incidences. The application is data-driven and user experience and it is responsive and consistent. The application is accessible over the internet on computers and other mobile devices. No other hardware resources are required and the evaluation is mainly experimental.

1.5.3 The key areas where a CRMS can be useful include:

This system was aimed at the implementation of a Crime Records Management System. It is a database system in which the police keep the records of criminals who have been arrested, to be arrested. This will help the police department in enhanced management of information. The main entities in the whole process include; the petitioner (the person who files a First Incident Report (FIR), victim, accused or criminal, cases, and investigating officer. The CRMS keeps records of the complainant, victim, accused, FIR, case and investigation officer and other users

1.5.4 Record Keeping:

This can help keep track of criminal activities and build a database of criminal records.

1.5.5 Investigation:

CRMS will assist in investigations by allowing officers to access criminal records, follow up leads, and identify potential suspects.

1.5.6 Reporting:

This will help allocate resources more effectively and identify areas that require increased attention.

1.5.7 Analysis:

CRMS will be used to analyze criminal records and identify patterns, such as the types of crimes being committed, the times and locations of incidents, and the demographic characteristics of offenders and victims.

1.5.8 Collaboration:

CRMS can be used to facilitate collaboration between other security agencies, such as sharing information about criminal activities and coordinating investigations.

CHAPTER TWO

LITERATURE REVIEW

2.0 Introduction

This chapter is about the literature review of the online Crime records management system. It specifies what online Crime records management system is, what it needs and how it works for its enhancement. Crime records management systems are an essential tool for law enforcement agencies to manage and track criminal activities.

We see that when a group of people or society is formed, some rules and laws are made to be followed. The purpose of these rules and laws are to give a peaceful life to all people who are living in that society. Whenever any law is violated by anyone we treat it that a crime is committed and the person who breaks that law is referred to as a criminal. To have a peaceful life we need a well-organized law enforcement system. In our Uganda, we have very good facilities in law enforcement sector but due to less of facilities some works cannot be done in a very good way. In this review, we will explore some of the research on crime records management systems.

2.1 ANALYSIS OF THE EXISTING SYSTEM

The existing system is traditional and manual recording system and therefore it involves Traditional physical paper documents. Paper records are often managed off-site and kept in an office filing cabinet. Records management is the control and maintenance of both digital and hard copy documentation of crime activities. This includes the creation, identification, storage, retrieval and disposition of such records. They store hardcopy documents in office spaces and as they grow, the number of records need to be tracked which eventually leads to misplacement of documents, slow processes and confusion.

Most police stations and associated police posts in Uganda use manual methods of taking records of crimes where by the police officer records the day to day crime activities on paper and the records are later kept in Wooden Cabinets for future reference. This is because there is slow adoption of computers and associated factors like inadequate funds to acquire ICT equipment, low technical support. This system is also thought of being slow and unreliable which gave rise to the development of a web-based crime records management system that computerizes crime records, update records which eases police operations at Mbale central police.

(Chmiel and Bhattacharyya 2015) asserts that most developing countries of which Uganda inclusive, the availability of ICT indicators is still a challenge and results in these economies developing ICT related policies and strategies, without the guidance of reliable and timely statistical evidence which is needed to guide decision making with respect to range of social and economic development.

2.2.1 Limitations of the existing system

1. The system requires lots of paper work which can easily be destroyed by water, fire, termites and of which the information cannot be backed up.
2. Lack of security which may lead to forgery/duplication since all crime records are hand written and accessed by the majority
3. Time consuming in case of information retrieval and costly to produce reports
4. Inconsistence in data entry, and it provides room for errors
5. Limited sharing of information

2.3 Some Related Case studies

Crime records management system keeps records of the complainant/petitioner, victim, accused, FIR, case and investigation officer entities and the system allows huge storage of multiple data for criminals.

2.3.1 Crime record management system that uses a machine learning algorithm

A study by Akhil et al. (2021) focused on the development **of a crime record management system that uses a machine learning algorithm** to predict the likelihood of a crime occurring in a particular area. The system was trained on historical crime data and was found to have an accuracy rate of 88.6%.

2.3.2 Effectiveness of using crime record management systems in reducing crime rates in China.

A study by Zhang et al. (2019) examined the effectiveness of using crime record management systems in reducing crime rates in China. The researchers found that the use of these systems significantly reduced the number of reported crimes and improved the efficiency of investigations.

2.3.3 Crime Investigation System Using Biometric Approach

The system implements a biometric-based crime investigation system for the Nigeria Police Force. The software was designed using Visual Basic programming language. A criminal's data is entered into a database where it is used for referential purposes and can be updated or modified regularly. Also, the ability to compare fingerprints whose unique patterns assist in redundancy control is an added attribute of the system. Advantages of the system include reduction of redundancies and inconsistencies in criminal information, ensure user defined rules to promote data integrity, enable sharing of data across all applications, and ensure proper access authorization for users. Its weaknesses are that the system was unable to generate reports and focuses more on criminal information than crime. (Falaye, Adama, & Agemerien, 2013.

2.3.4 Online Crime Mapping System

According to Thomas Onuoha Michael (2012), Crime Mapping System provides crime analysts and departmental planners with a means to spatially relate crime conditions, patterns, and trends. For example, an analyst can search for places where high levels of crime correlate with relatively low levels of patrol assignments. Patterns can be explored within a mapping system by searching places with elevated levels of crime against patrol deployment patterns across temporal dimensions. Trends can be uncovered by using past patterns to predict the locations of emerging hot spots of crime.

2.3.5 Management information systems

According to McGraw (1989), Management information systems produce information products that support many of the day-to-day decision-making needs of managers and business professional. The systems provide information on organization's performance in order to help managers to monitor and control the business. Management information systems contain other systems embedded within them.

2.3.6 A Scalable Online Crime Reporting System.

R. G. Jimoh, K. T. Ojulari, and O. A. Enikuomehin (May 2019) designed a system that aims to assist the Nigerian Police in their bid to solve crimes with timely and useful information about criminals and/or their mode of operations so as to nip in the bud criminal activities in a given locality. Finally, a prototype crime reporting system was designed that relies on four reporting forms: a complaint or dispatch reporting form, a crime event report form, follow-up investigation

report form, and an arrest report form. So the research aims to model the Crime Record Management System (CRMS) showing the communication among different actors, and the sequence of activities and interaction

In conclusion, crime record management systems are essential tools for law enforcement agencies in managing and tracking criminal activities. These systems have been found to improve the efficiency of investigations, reduce crime rates, and streamline data entry and retrieval processes. However, challenges remain in implementing these systems, particularly in developing countries Uganda inclusive where funding and technical expertise may be lacking.

2.3.7 National Crime Information Center (NCIC)

The United States Federal Bureau of Investigation (FBI) operates the computerized NCIC.

The NCIC was established as a service to the criminal justice community, Local, State, and Federal Law enforcement agencies to enter data in to, and inquire the system. NCIC maintains files of wanted persons, foreign fugitives, missing persons, unidentified persons, United States secret service protection officers, stolen vehicles, stolen license plates, stolen articles, stolen or recovered g un s, stolen securities and, stolen boats.

According to Jolm M. Carroll (1991) there were 8,253,417 active records in NCIC, as of November 1, 1989. These records can be used by an agency which meets the definition of a criminal justice agency or any agency under the management control of a criminal justice system. An agency meeting these criteria becomes eligible to receive NCIC information by applying to a state terminal control agency (state criminal justice agency that maintains a state system interface with t e NCIC system) for authorization to access through a state system.

CHAPTER THREE

METHODOLOGY

3.0 Introduction

This chapter presents the area of study, methodologies that the researcher used to collect data for writing the report and developing the system, data analysis and presentation, System design, system implementation, testing and validation and ethical considerations

3.1 Area of study

The study was conducted at Mbale central police station in Mbale City located on Republic Street. The focus was towards understanding the mode of operation of the current manual crime record keeping system at Mbale city CPS.

3.1.1 Population and sampling method

A population is the entire group that you want to draw conclusions about while a sample is the specific group that you will collect data from

3.1.2 Study population

This is the subset of the target population from which the sample is actually selected. The study population was the police administrators, operational staff of records department at Mbale central police station.

3.1.3 Sample size.

Sample refers to a research term used to define a number of individuals that was in the research study to represent a population. A total sample of 6 members was selected and they included 2 administrators, 4 operational staffs in records department.

3.2 System Development.

The development approach employed for this project was the Rapid Application Development (RAD) Model. RAD is a software development methodology that focuses on rapid prototyping and quick feedback with less emphasis on specific planning. RAD is a model that emphasizes the importance of communication and teamwork between developers and users and it is a fast-paced approach to developing software that is based on prototyping without any specific planning.

A prototype is a working model of the system, but with limited functionality. Henceforth the most important aspect for this model to be successful is to make sure that the prototypes developed are reusable. RAD is typically used for small to medium-sized projects, and it is often used for projects with tight deadlines. It is a good choice for projects where the requirements are

likely to change during the course of the project or the requirements are not fully known at the start of the project.

RAD consists of four-phase processes which includes:

1. **Requirements gathering and analysis:** In this phase, the team gathers and analyzes the requirements for the software system. This is typically done through interviews, workshops, and surveys.
2. **User interface prototyping:** In this phase, the team creates a prototype of the user interface for the software system. This prototype is used to get feedback from users and to identify any potential problems with the design.
3. **Construction:** In this phase, the team builds the software system based on the requirements and the user interface prototype.
4. **Testing and deployment:** In this phase, the team tests the software system to make sure that it meets the requirements and that it is free of defects. Once the software system has been tested, it is deployed to users.

3.2.1 Benefits of RAD

The RAD Model has some benefits which include;

i. **Speed:** The RAD can be used to develop software systems quickly. This is important for projects with tight deadlines.
ii. **User involvement:** RAD emphasizes user involvement throughout the development process. This helps to ensure that the software system meets the needs of its users.
iii. **Flexibility:** It is a flexible methodology that can be adapted to meet the needs of different projects.
iv. **Reduced risk:** RAD can help to reduce the risk of developing a software system that does not meet the needs of its users. This is because RAD allows the team to get feedback from users early in the development process and to make changes based on that feedback.
v. **Improved quality:** This methodology can help to improve the quality of software systems by reducing the number of defects. This is because RAD emphasizes prototyping and testing.
vi. **Reduced costs:** RAD model can help to reduce the costs of software development by reducing the amount of time spent on development and testing.

3.2.1 RAD Model Application

RAD is particularly well-suited for projects that meet the following criteria:

- **Tight deadlines:** RAD can help to develop software systems quickly, making it a good choice for projects with tight deadlines.
- **Uncertain requirements:** RAD is a flexible methodology that can be adapted to meet the needs of different projects, making it a good choice for projects where the requirements are not fully known at the start of the project, or where the requirements are likely to change during the course of the project.
- **User-centric projects:** It emphasizes user involvement throughout the development process, making it a good choice for user-centric projects.
- **Small to medium-sized projects:** RAD is typically used for small to medium-sized projects. It is not as well-suited for large and complex projects.

Below is a diagram of RAD Methodology

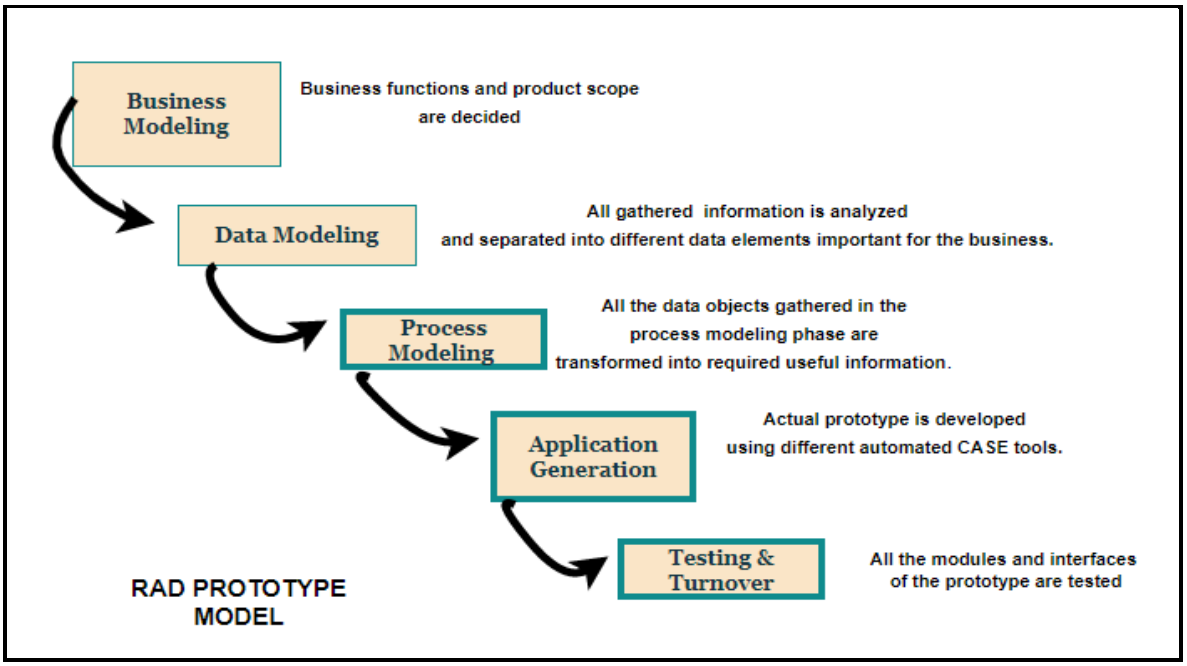

Figure 1: RAD Model diagram

The various phases of Rapid Application Development are;

i. Business Modeling

This is the first phase of the development process and involves identifying and defining the business processes, data entities, and relationships that are necessary for the software system to support. This phase ensures that the software system is aligned with the business objectives and requirements.

ii. Data Modeling

Data modeling in the Rapid Application Development (RAD) methodology is a crucial phase that involves designing the structure of the data that will be used by the software system. It aims to create a logical representation of the data that accurately reflects the business entities, relationships, and attributes. In this phase, there is need to understand data requirements, design data structures, normalize data, document data models and ensure data alignment.

iii. Process Modeling

Process modeling is a crucial phase in RAD that focuses on designing and documenting the business processes that the software system will support. It aims at creating a clear and detailed representation of the workflows, activities, and decision points involved in each business process.

iv. Application Generation

In Application Generation as the fourth phase, automated tools are used for the construction of the software, to convert process and data models into prototypes. Here actual prototype is developed using different automated CASE tools.

v. Testing & Turnover

Testing and Turnover is the final phase in the Rapid Application Development (RAD) methodology. This phase involves testing the software system to ensure that it meets the requirements and is free of defects, and then turning it over to the users.

3.3 Data collection Tools

Fact finding or data collection is central to any systems analysis and design process, and much of the analysis activity was collecting data using the following methods.

3.3.1 Document Review/Back ground Reading

Document review is the process of examining documents such as journals and manuals to identify, analyze, and assess relevant information. Document review was used by the researcher

to gather background information on a topic, to identify key concepts and themes, to track changes over time

3.3.2 Interview

An interview is a research method that involves asking questions to collect data from individuals who have knowledge, experience or opinions on a subject matter or particular topic. The researcher used this data collection tool to gather in-depth information, to collect first-hand information, to build rapport with participants, and to explore complex topics.

3.3.3 Questionnaires

A questionnaire is a set of questions used for obtaining statistically useful information from the targeted respondents about their attitudes, experiences or opinions. Questionnaires were used to collect data from a large number of people in a relatively short amount of time. It is often necessary to collect data from a large number of stakeholders, such as police officers, crime victims, and community members. The researcher also wanted to collect data on a variety of topics related to CRMSs, such as the use of CRMSs by police officers, the satisfaction of crime victims with CRMSs was another reason why the researcher used the Questionnaires.

3.3.4 Observation

This is a method or technique that the researcher used to collect data on human behavior, social interactions, and environmental factors. It was also used by the researcher to understand how CRMSs are used in practice and to identify areas for improvement.

3.4 System Analysis and Design

System analysis and design (SAD) is a methodical process of examining, analyzing, and designing information systems to ensure they meet the specific needs and requirements of an organization. It involves understanding the business goals, identifying user needs, and defining the system's functionality and structure. Research design refers to the overall strategy utilized to carry out research that defines a succinct and logical plan to tackle established research question(s) through the collection, interpretation, analysis, and discussion of data (Wikipedia).

There are a number of tools that were used to represent facts from the collected data. The tools included; a Context Diagram, Data Flow Diagram, Use-case Diagrams and Entity relationship Diagram. These clearly represent the raw facts gathered during the data collection process.

3.4.1 Context diagram

A context diagram, is also known as a Level 0 data flow diagram. Relationships were established between the data items to show how the different entities relate with the system. The context

diagram therefore shows the basic interaction of the system with its environment. It was used to define the boundaries of the crime records management system and to identify the data that flows within the system.

3.4.2 Data Flow Diagram.

A Data Flow Diagram (DFD) is a graphical representation of the flow of data through an information system. It can as well be used for the visualization of data processing. System designers usually start by drawing a context diagram to show the interaction between the system and outside entities. The Data Flow Diagram shows how the data moves within the system.

3.4.3 Use Case Diagram (UCD)

A use case diagram is a representation of a user's interaction with the system that shows the relationship between users and different cases in which the user is involved. A use case diagram was used to identify the type of users of the system and the different use cases.

3.4.4 Entity Relationship diagram

An entity relationship diagram (ERD), also known as an entity relationship model, is a graphical representation that depicts relationships among people, objects, places, concepts or events within an information technology (IT) system. It was used to help the researcher visualize the data in diagram form. It does reflect the relationship among the various entities within the crime records management system such as, Administrator, report print out, searching officers and crime record, adding and viewing employees, adding and viewing cases, settings, adding and viewing system users.

3.5 System Implementation

This is where the logical structure of the system is to be converted into physical structure through coding and development of the system. Therefore, the frontend and backend of the system was developed and tested.

3.5.1 Software Requirements

Software requirements are the descriptions of what the software is supposed to do and how it should behave. They are essential for the successful development of any software system. These requirements are categorized into two Functional requirements and Non-functional requirements. Functional requirements describe the features and functionality that the software system must provide while Non-functional requirements describe the performance, security, and other constraints that the software system must meet.

3.5.2 Operating system (windows 10)

The system was implemented on Windows 10 Operating System environment. An operating system is a system software that manages computer hardware and software resources and provides common services for computer programs. It was thus used to control and manage the operations of the computer.

3.5.3 Text Editor

Visual Studio Code was used as the main text editor which enabled the researcher to write the dynamically generated pages easily and very quickly.

3.5.4 A web browser (Mozilla Firefox, Google Chrome)

The web browser was used to display web pages and accessing with the Xampp server

3.5.5 Scripting languages

JavaScript was used in implementing the system so as to check and report errors involved, PHP Query was also used in the coding process for example PHP was used for creating client pages.

3.5.6 Markup languages like HTML and CSS

These were used for the general structuring and styling of the web pages.

3.5.7 MySQL

MySQL is an open-source relational database management system that was used during the system development. A database is a collection of interrelated data stored with minimum redundancy to serve many users quickly and efficiently. The web-based crime records management system requires a database to store, update as well as record crime/case details, complainant details, suspect/criminal details among others. The reliability, flexibility, efficiency, scalability and the level of data protection that MySQL provides, proved the reasons why it was used.

3.6 Testing

Various tests such as unit testing, integration testing, functional testing and usability testing were carried out on the system to ensure system accuracy, consistency through a well-planned set of procedures and the errors were detected and cleared out.

i. Unit Testing

Unit testing is a software testing process that involves testing individual units of the code to ensure that they work as expected. The individual modules of the system were checked to ensure that they are functioning well before being merged. It helps to identify and fix bugs early in the development cycle, reducing the cost and effort of fixing them later.

ii. Integration Testing

Integration testing is a software testing method that focuses on verifying the interactions and data exchange between different components or modules of a software application. It aims to identify any problems or bugs that arise when different components are combined and need to interact with each other. Integration testing is typically performed after unit testing and before system testing

iii. Functional Testing

This type of testing focuses on validating the functionality of a software application or system against its specified requirements. It aims to ensure that the software behaves as expected and meets the user needs.

iv. Usability Testing

Usability testing is a software testing method that focuses on evaluating the ease of use, learnability, and overall user experience of a software application or system. It aims to identify any usability issues that may hinder users from effectively completing tasks or achieving their goals.

3.7 Validation

The validation was carried out to ensure that the system performs to meet user requirements. Sample data was used to generate crime reports, so that the system can be shown functioning as per the user requirements. It involved compliance to functional and nonfunctional requirements.

3.8 Ethical considerations

Informed consent. Here the person participating in the evaluation is fully informed about the evaluation being conducted. Participants were fully informed about the project therefore they were fully aware of the purpose of the project.

Voluntary participation. This means that people participate in the evaluation process are free frombeing persuaded forcefully to provide information. The participants were free to either participate or withdraw their participation any time.

CHAPTER FOUR

SYSTEM ANALYSIS AND DESIGN

4.0 Introduction

This part is concerned with the study of the existing system, analysis of the requirements for the system, process and data modeling. This was done by clearly identifying the inputs, the processes that transform the inputs into outputs while satisfying the system constraints. Flow charts, context diagrams, Data flow diagrams and entity relationship diagrams was used to clearly demonstrate the processes of data transfer in the system as well as the relationship among entities in the system respectively

The software requirements are description of the features and functionalities of the target system. Requirements convey the exception of users from the software product. The requirements can be obvious or hidden, known or unknown, expected or unexpected from client's point of view.

4.1 Requirement Engineering

The process to gather the software requirements from clients, analyze and document them is known as requirement engineering. Its goal is to develop and maintain sophisticated and descriptive system requirement specification document.

4.2 Requirement Engineering Process

The main objective of the process is to describe the principle requirement engineering activities and the relationship, and it depends on the application domain the people involved and the organization developing the requirements. This process is of four steps which include;

- Feasibility Study
- Requirement Gathering
- Software Requirement Specification
- Software Requirement Validation

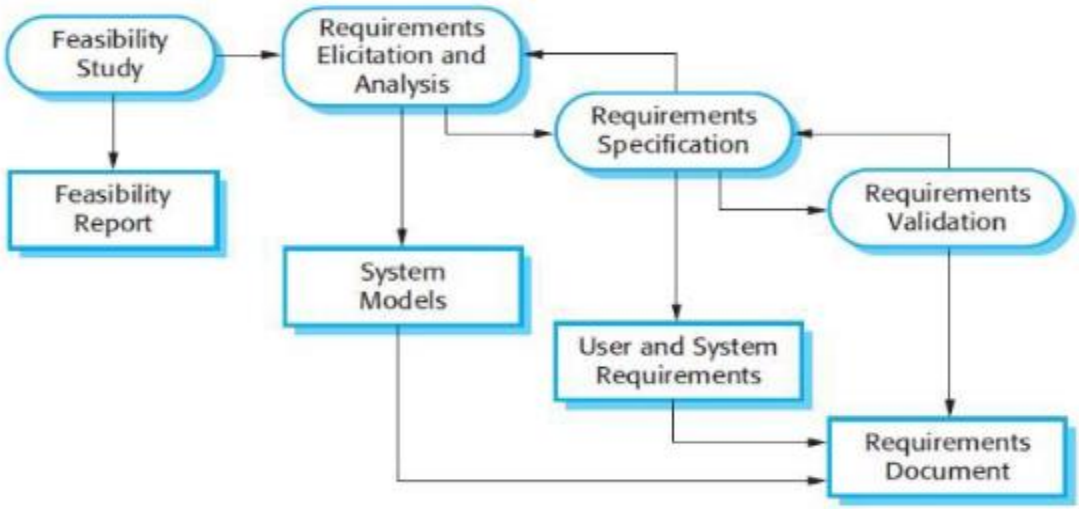

Figure 2: Requirement Engineering Processes

i **Feasibility Study**

A feasibility study aims to reveal objectively and rationally the strengths and weaknesses of the current or proposed system, the opportunities and threats present in the environment, the necessary assets to be implemented, and ultimately the prospective for success.

A feasibility study is a study that incorporates software analysis in case it is economically advantageous, in case it can satisfy the technical requirement, and if it is adoptable in the required environment. It also conditions the basic work and decides whether to accept the project. Finally, the final result will be a hard plan to continue with the project.

A feasibility study assesses the potential for progress of the project, therefore, objectively perceived is an imperative factor in the validity of the study for potential investors and lenders.

ii **Requirement Gathering**

Once the feasibility study is positive towards undertaking the project, the next phase is gathering requirements from the users, analyze and engineering communicate with the client and end-users to know their ideas on how the software should provide and which features they want the software include.

iii **Software Requirement Specification (SRS)**

This is a document created by the system analyst after the requirements have been collected by the various stakeholders. SRS defines the how the intended software will interact with hardware, external interface, speed of operation, response time of the system, portability of software across various platforms, maintainability, and speed of recovery after crashing, security, quality and limitations. The requirements received from the client are written in a natural language and it is the now the responsibility of the system analyst to document such requirements in a technical language so that they can be comprehended and useful to the software development team.

SRS should come up with the following features;

- User requirements are expressed in natural language
- Technical requirements are expressed in structure language, which is used inside the organization

Design description should be written in pseudo-code

- Format of forms and GUI screen prints
- Conditional and mathematical notations for DFDs

iv **Software Requirement Validation**

Once the requirement specifications are developed, the requirements mentioned in this document are validated. The user might ask for illegal, impractical solution or expected may interpret the requirements correctly. The requirements can be checked against the following conditions;

- If they can be practically implemented
- If they are Complete
- If they are valid as per functionality and domain of software
- If there are any ambiguous
- If they can be demonstrated

4.3 Software Requirements for Development

- Visual studio code
- PHP, HTML, CSS & JAVASCRIPT

4.4 Hardware Requirements

- Laptop i3 intel core
- RAM 4GB
- Hard Disk of at least 320GB
- An uninterruptible power supply (UPS).

4.5 Software Requirements for use

- Operating system, (windows 10 64 bit)
- Xampp Server v 5.6.40
- Web browsers such as Chrome, Mozilla Firefox

4.6 Weaknesses of the current system at Mbale central police station

Despite the benefits of the current system, there are also weaknesses associated with this system which include;

1) The system requires a huge amount of storage space due to much paperwork being compiled in order to keep information for future reference.
2) Poor backups for cases where records are damaged
3) It is time consuming in processing crime records and retrieval of information for investigations
4) Poor maintenance of crime records for future use
5) The system is prone to manipulation and alterations due to manual ways of processing and retrieving of crime records
6) It requires more police employees to provide quick services to the large number of cases to be handled
7) They system is costly as it needs more stationary to facilitate the police crime activities
8) Misplacement of or wrongly filed documents can lead to considerable costs
9) It is prone to human errors such as data entry errors
10) Inconsistency in data entry creating room for errors, miskeying information.

11) Large ongoing staff training cost to master all the police forms being used.
12) System is dependent on good individuals.
13) The system limits communication/ information sharing and collaboration among police officers

4.7 Strengths of the current system at Mbale central police station

1) The system is less expensive to setup
2) It is cheaper to deal with cases since there is no need for any power supply
3) The central police has a well-organized management and administration that runs the police activities.
4) Mbale central police offers maximum physical security for crime records against theft by deploying police officers and use of strong lockers
5) Correcting data entries may be easier with this manual system as opposed to computerized system
6) The system does not require well equipped labour for carrying out services such as taking statements from the complainants and the accused.

4.8 Justification of the proposed system

The proposed web-based crime records management system was designed to overcome the problems associated with the manual system used at Mbale central police station as stated above. Once the web-based crime records management system is used to offer services, information can easily be retrieved at any time since the work is automated unlike the manual crime records management system. It would save them time and reduce stationary costs.

4.9 System Analysis

This section focuses on the user, functional and non-functional requirements that guide the design and implementation of the crime records management system.

Functional Requirements. These are product features or functions that the developers must implement to enable users to accomplish their tasks. They are as follows;

Functionality performed by admin users.

Admin users are responsible for the activities that run in the entire system and they have full access to the entire system. They can add, delete, and update all the information about the complainants, crimes/cases, accused, employees and other users of the system. They maintain crime details, system users' details and employees' details.

The functionality performed by admin and users include;

Login for admin

- Add new employees and View all employees
- Record and View all recorded cases
- Print out reports
- Update user details
- Add system users
- Logout

Login for users

- View all employees
- Record and view cases
- Update user profile
- Logout

Nonfunctional requirements

These requirements define the system attributes such as security, reliability, performance, maintainability,scalability and usability.

Reliability requirement: The system should be consistent in offering services. It is the probability and percentage of the software performing without failure for a specific number of uses or amount of time.

Accuracy requirement: The System should be more accurate in terms of computing the total revenue accumulated after an order is successfully delivered.

Performance requirement: The system should be able to perform tasks within a short period of time. It defines how fast a system can respond to a particular user's action under a certain workload

Usability requirement: The system should be easy and allow users to perform crime activities, like recording and viewing cases, printing reports, updating records and among others. This feature concerns the users i.e. it indicates how effectively they can learn and use the system.

Security requirement: The system should validate the user name and password so that one canlogin and make changes to the system where need be.

Scalability requirement: The system should be able to handle a growing amount of work by adding resources.

Maintainability requirement: The system should be restored or repaired to a specified condition within a specified period of time.

4.10 System design

The system was designed using the identified requirements. The design followed system development method in the study that is RAD Methodology derived from the structural system analysis and Design methods. The design stages used include; system context diagram, data flow diagram, flowchart diagram, use case diagram and entity relationship diagram.

4.10.1 System Architecture

The conceptual model that defines the structure, behavior, and more views of a system is the System architecture. The architectural design involves decomposing the system into various sub systems that will work together to implement the overall system. It shows how database system and the graphical user interface communicate with each other.

The Online Crime Records Management System proposed in the study was designed using a four layered architectural pattern which included:

Presentation layer: This represented the various ranges of devices that were used to access the Online Crime Records Management System via the internet.

Online Crime Records Management System modules. This layer represented the key features which consisted of; Administrator module, and User module.

Server: This showed the server used during implementation.

Storage service: This layer covered the rapid and storage of data or information using a rational data base management system like MySQL which was used in this case.

Diagram of Architectural Design

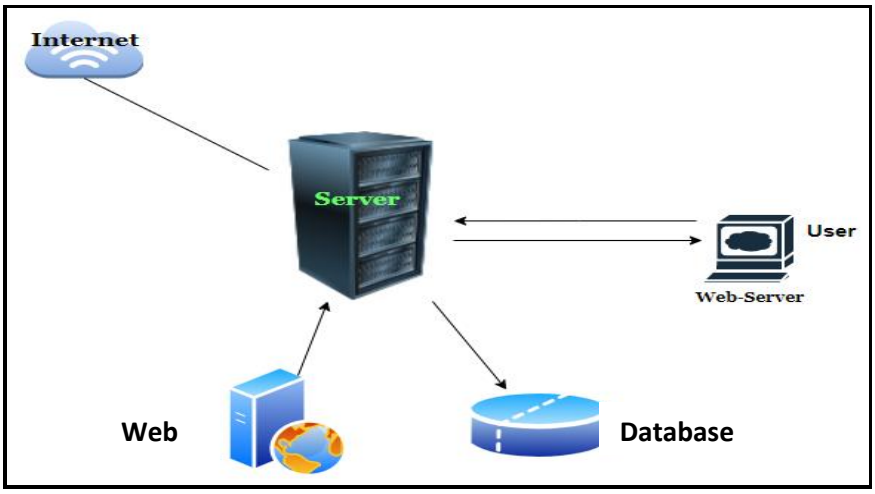

Figure 3: Architectural design

4.10.2 Context diagram of the system

This summarized how information flowed in the system. The users could log in, view employees, record cases, search and update profile. The administrators could log in, add and view employees, add users, record cases print results, update profile.

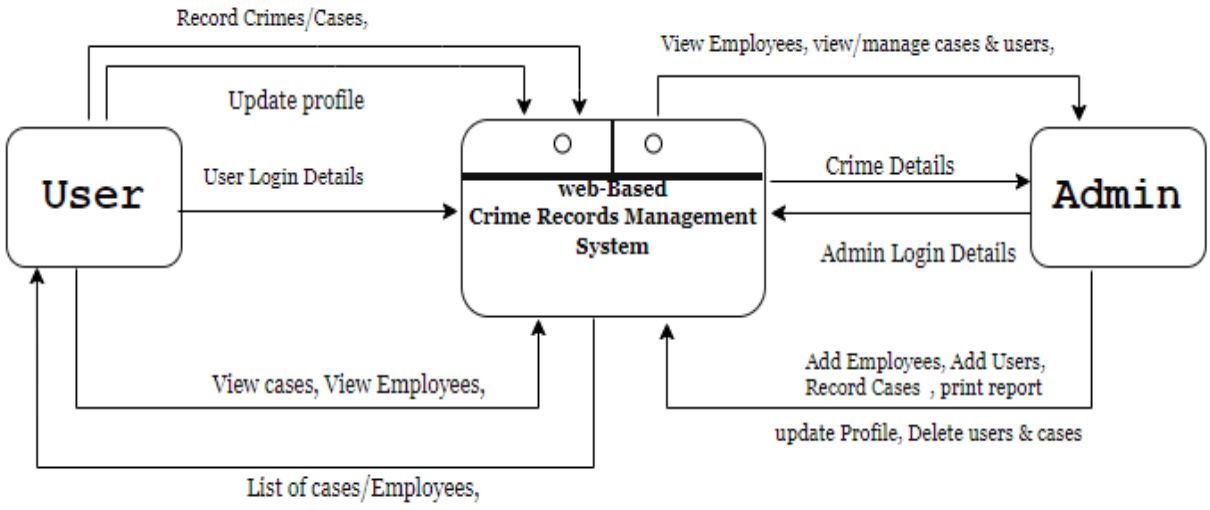

Figure 4: Context diagram

4.10.3 Data Flow Diagram of the proposed system

This is a graphical representation of the flow of data through an information system.

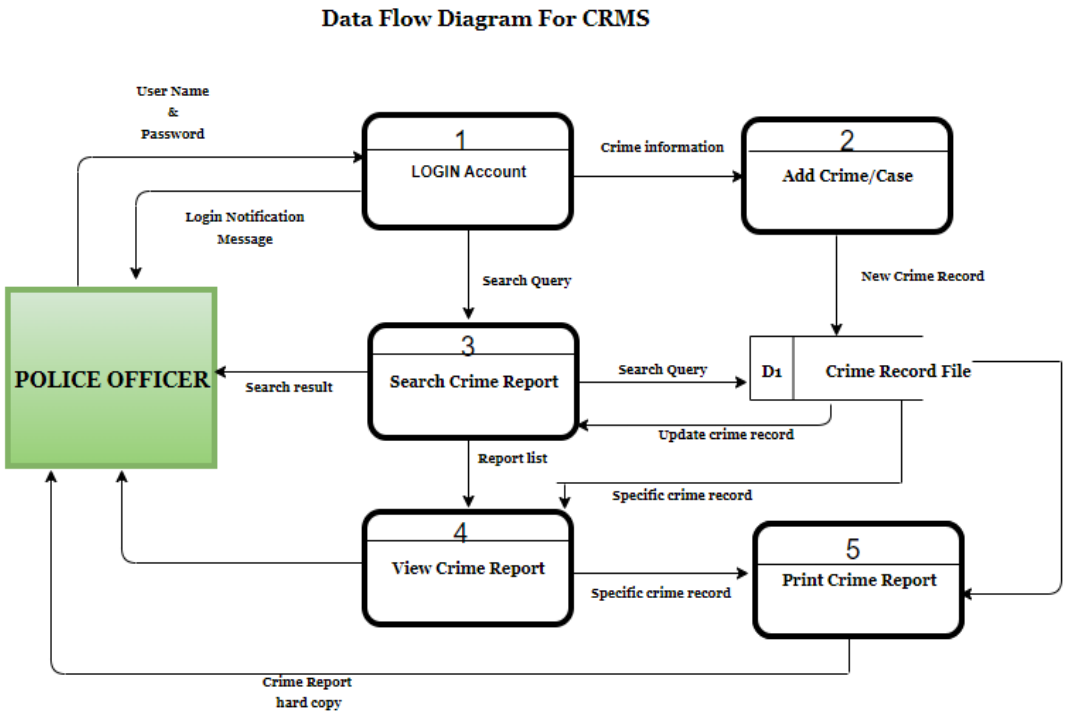

Figure 5: Data flow diagram

4.10.6 Use case diagram

Use case diagrams for each entity presented in the proposed system include the use case diagram for the user and the Administrator. These showed the different activities performed by the Administrator and the user in the system

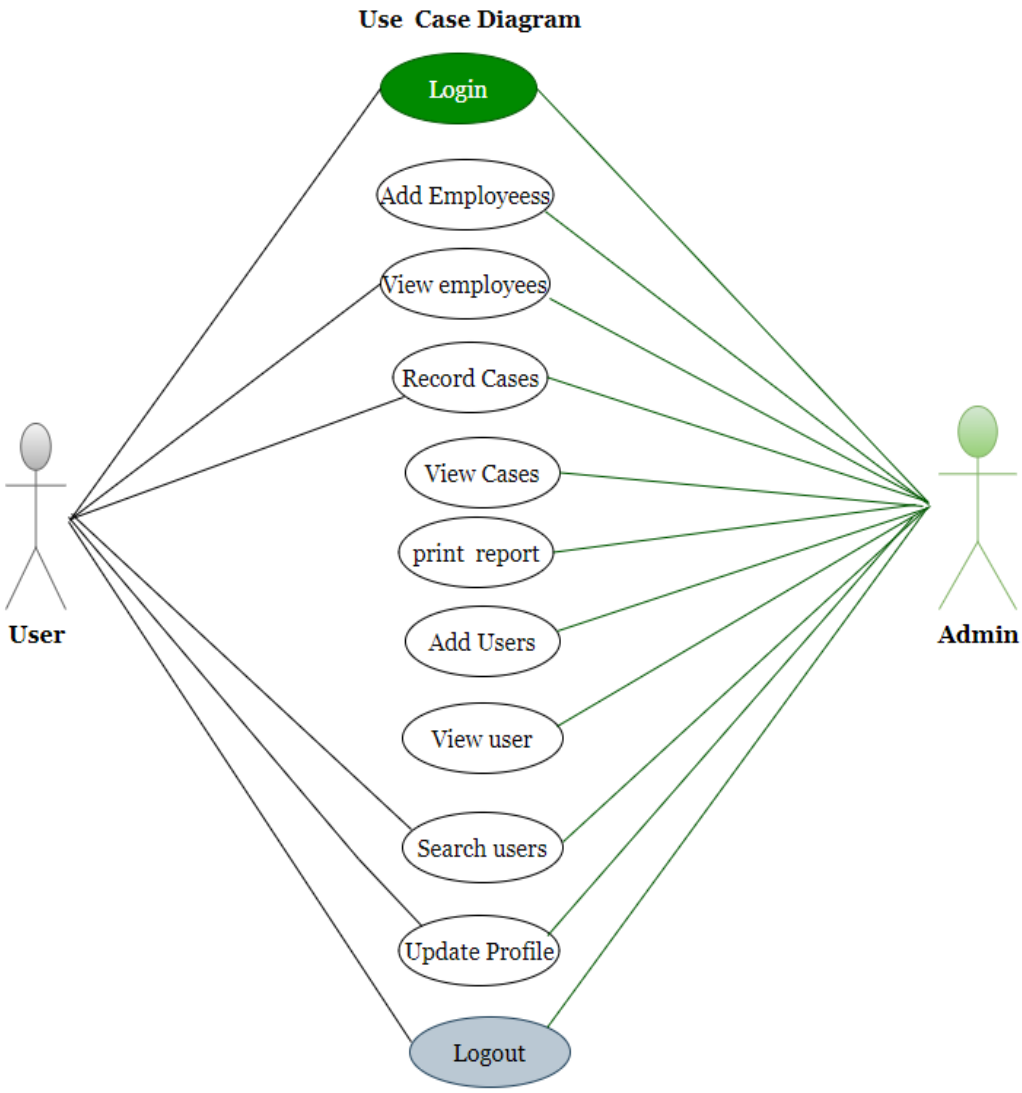

Figure 6: Use case diagram

4.10.5 Entity Relationship Diagram

An Entity relationship model describes things of interest. This is composed of entity types and specific relationships that exist between entities.

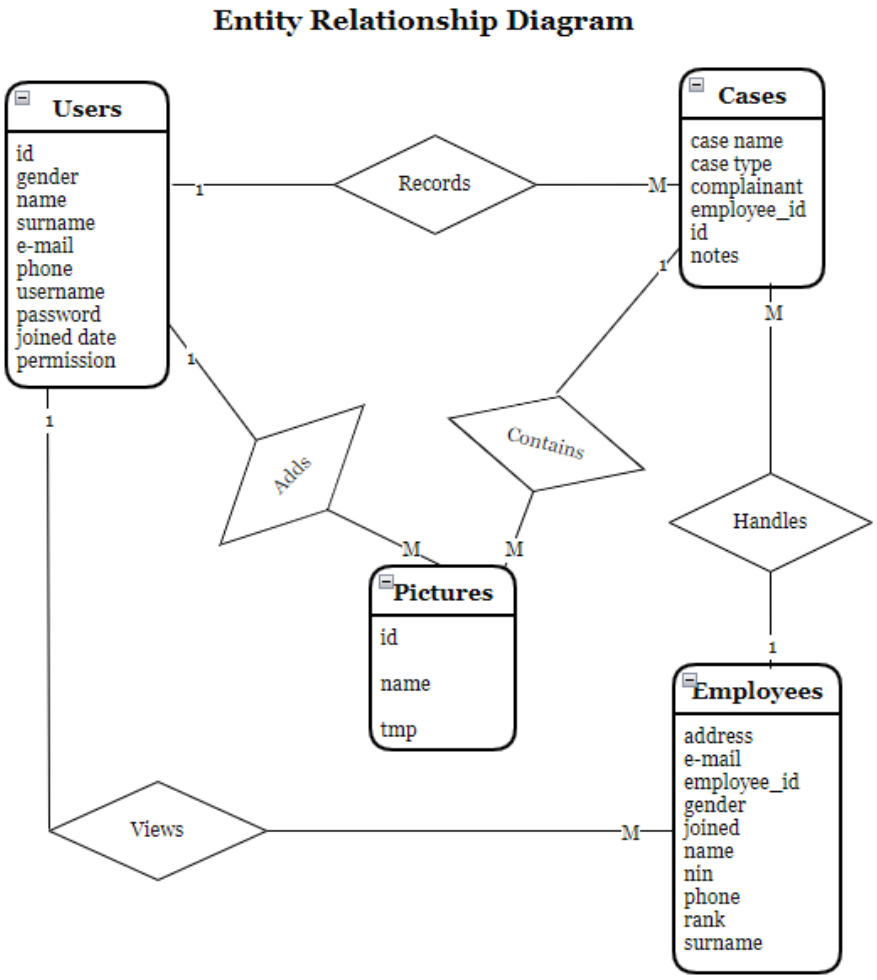

Figure 7: Entity Relationship Diagram

4.10.7 Implementation and Testing.

This is where the actual development of the Online Logistics Management System happened which included developing the Graphical User Interface (GUI), implementing the model, HTML and PHP, and creating the system database using MySQL. Visual Studio Code was used as a text editor.

4.10.8 Coding and testing.

Coding involved transforming the identified structural design specifications into actual working computer codes after which each function was designed, a test was performed to ensure that it worked properly as per the set user expectations. Coding was done using a text editor known as Visual Studio Code, and testing was carried out on a localhost XAMPP server software.

4.10.9 System Documentation and Training.

The system was documented after all the tests had been performed to serve as a reference point to the system administrator to maintain the system throughout its productive life. Training of the system users was done after the testing of the system.

CHAPTER FIVE

PRESENATATION OF RESULTS

5.0 Introduction

This chapter provides a summary of the major findings of the study in detail and presentation of different system interfaces, implementations, how the system managed inputs and outputs. Among the interfaces explained included, the login page, home page among others are as follows,

5.1 System Implementation

A product software implementation method is systematically structured approach to effectively integrate a software-based service or components into workflow of an organization or an individual end-user. There are some challenges faced by the development team while implementing the software such as code-reuse and version management.

5.2 Code-reuse:

The program interface of present and day language are very sophisticated and are equipped with huge library functions still, to bring the cost down of end product the organization management prefers to re-use the code which was created earlier for some other software. There are huge issues faced by programmers for compatibility checks and deciding how much code to re-use.

5.3 Version-Management:

The new software is issued to the clients every time, and the developers have to maintain the version and configuration related documents.

The implementation of the web-based crime records management system at Mbale central police station was done using some tools that are seen below;

5.4 Hardware for use

Laptop computer for entering data into the system

RAM 4GB to facilitate processing

Hard Disk 3200GB for storage of raw data and processed information

5.5 Software for use

- Operating system, (windows 10)
- Xampp Server v5.6.40
- Application software which included, PHP and HTML, MYSQL, Java script.

5.6 Screen shots for the system

The system is made up of different but related objects as discussed below.

Results

5.7 Login page:

This page was designed to be accessed by either the administrator or other users. It requires one to have the username and password for accessing the system as shown below,

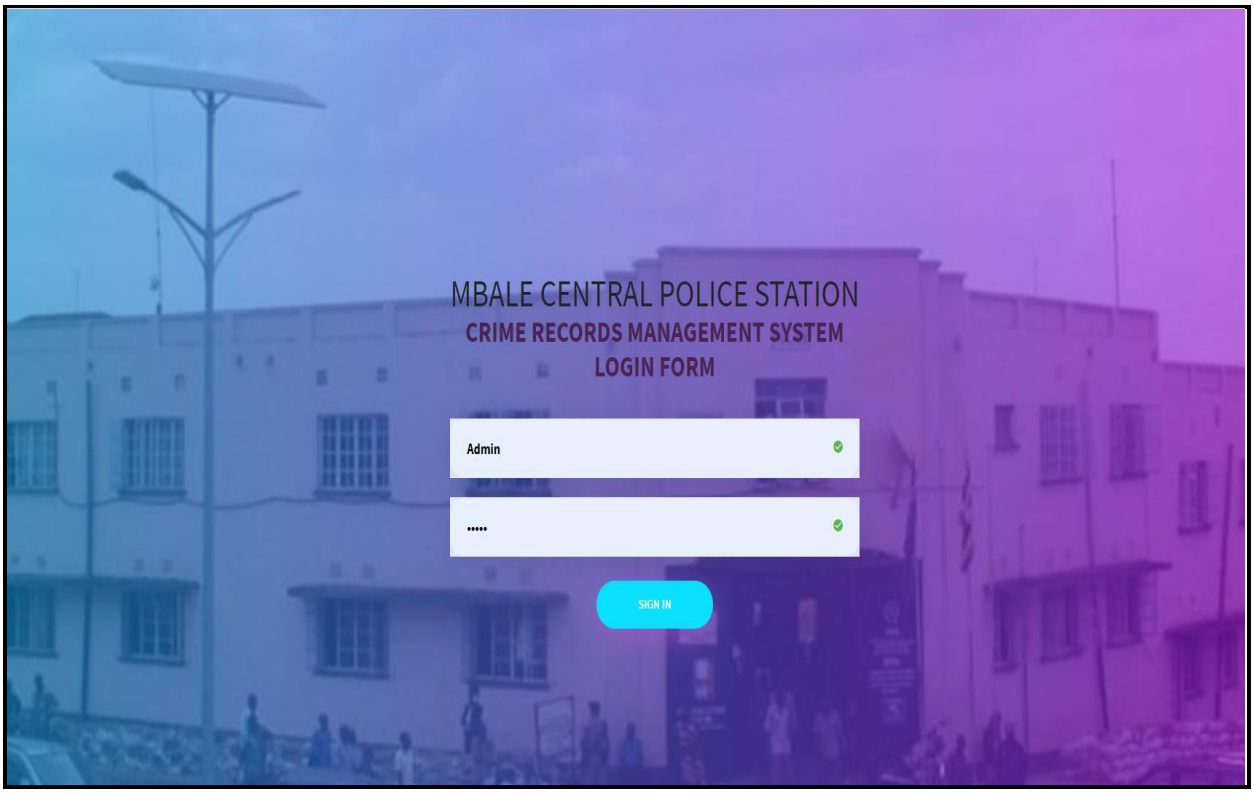

Figure 8: Login page

5.8 Home Page/Dashboard

This is sometimes known as the main page, and it is the first page to be experienced once the system displays. It introduces the users to the system. It allows the users to see the services

offered by the organization, log into the system by clicking the login button to view different features and manipulate the system. See the screen shot in the figure below,

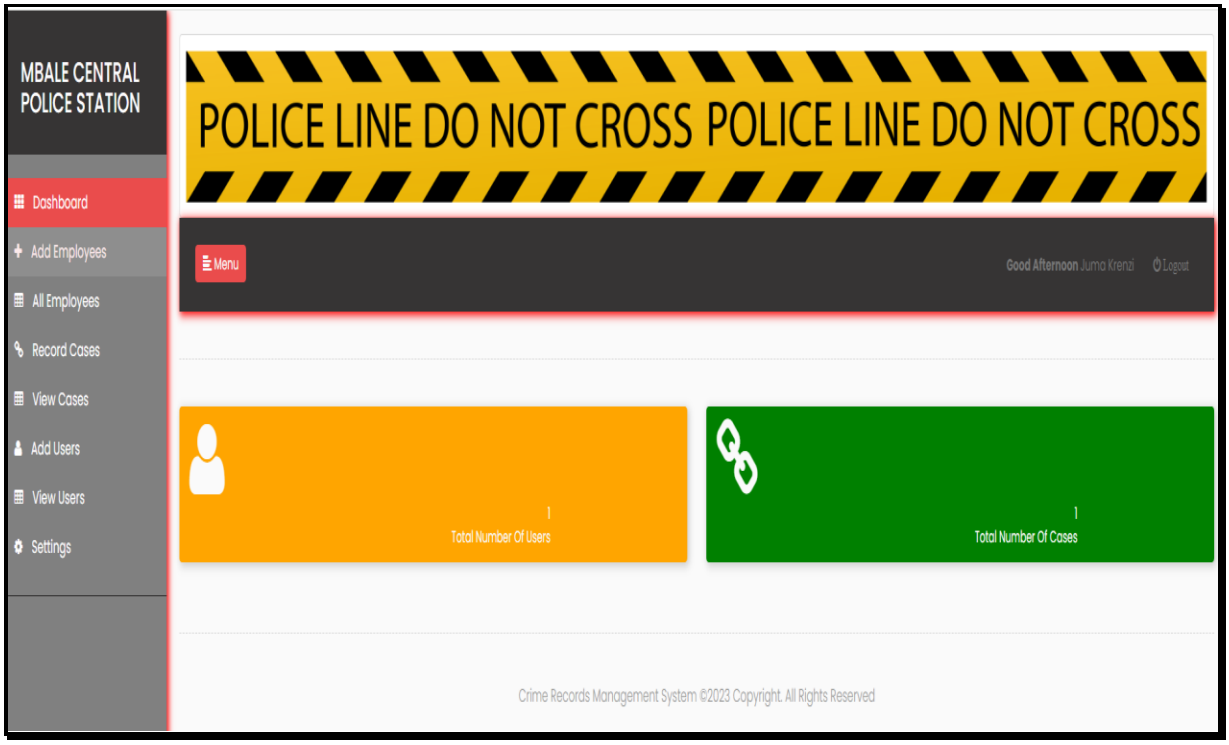

Figure 9: Home Page

5.9 Administrator's login main page (Adding Employees)

Under this page, the administrator is able to add and view police employees, add and view users, record crimes/cases and make some settings as shown in the screenshots below,

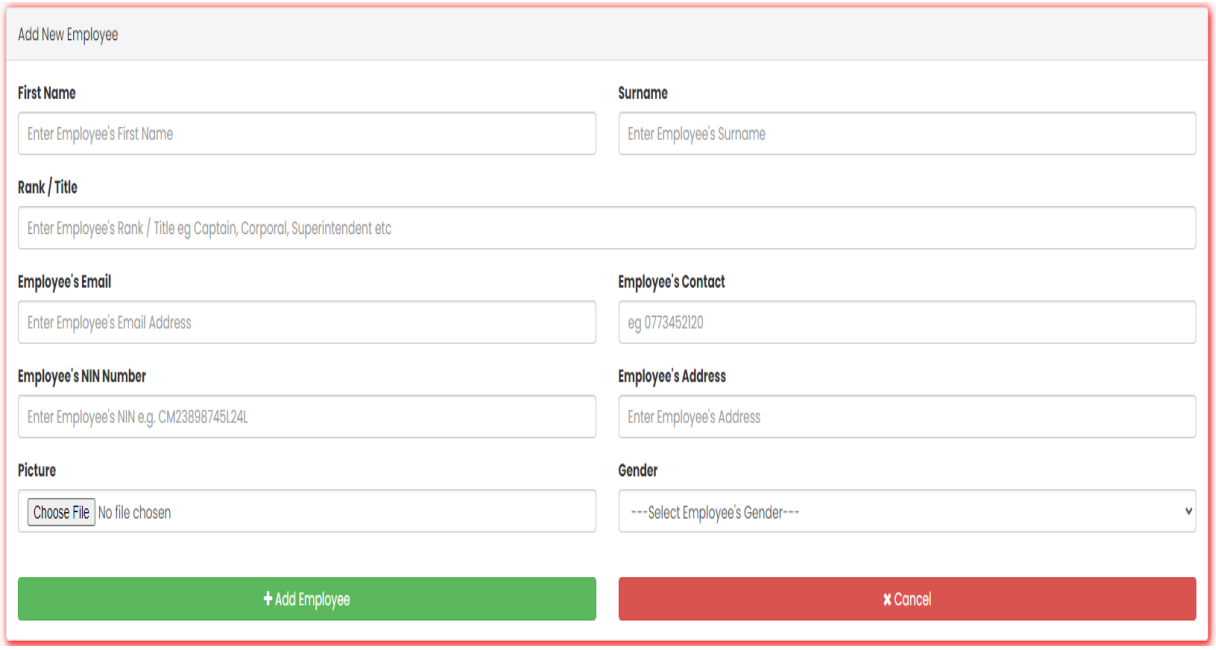

Figure 10: Administrator's login main page

5.10 View police employees' screenshot

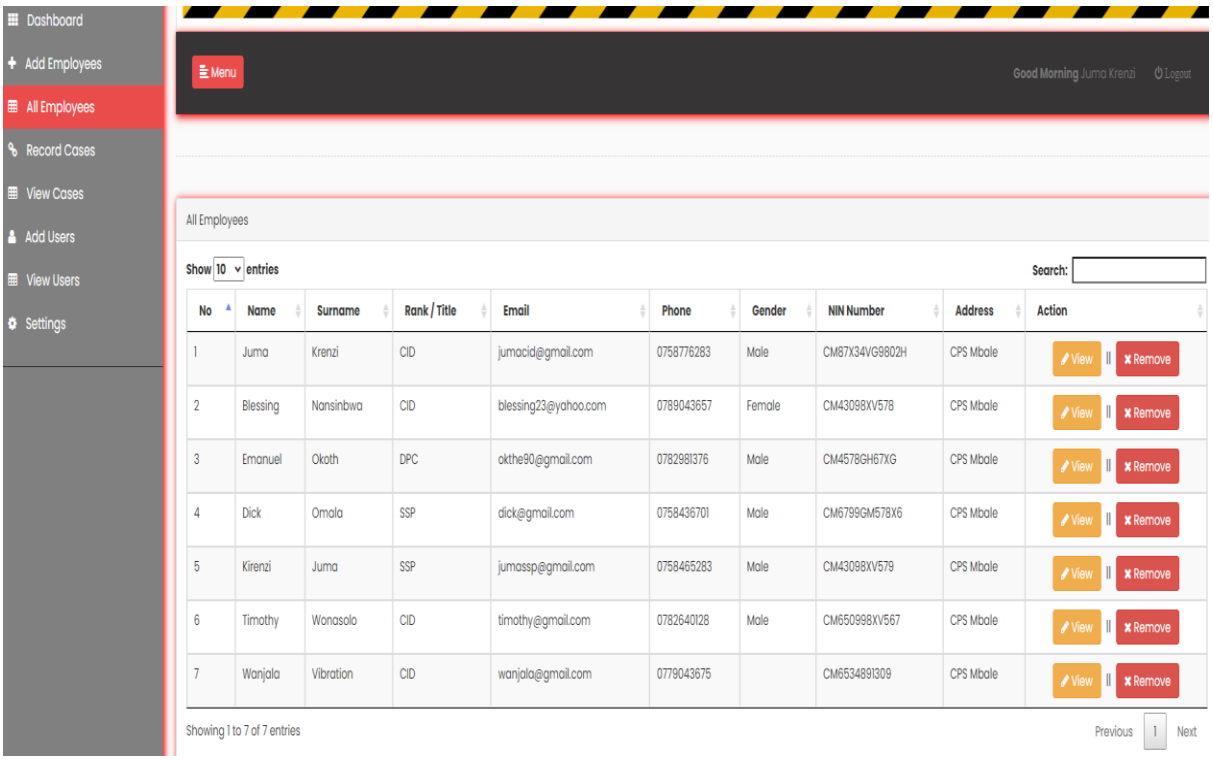

Figure 11: View police employees

5.10.1 Add new user's screenshot

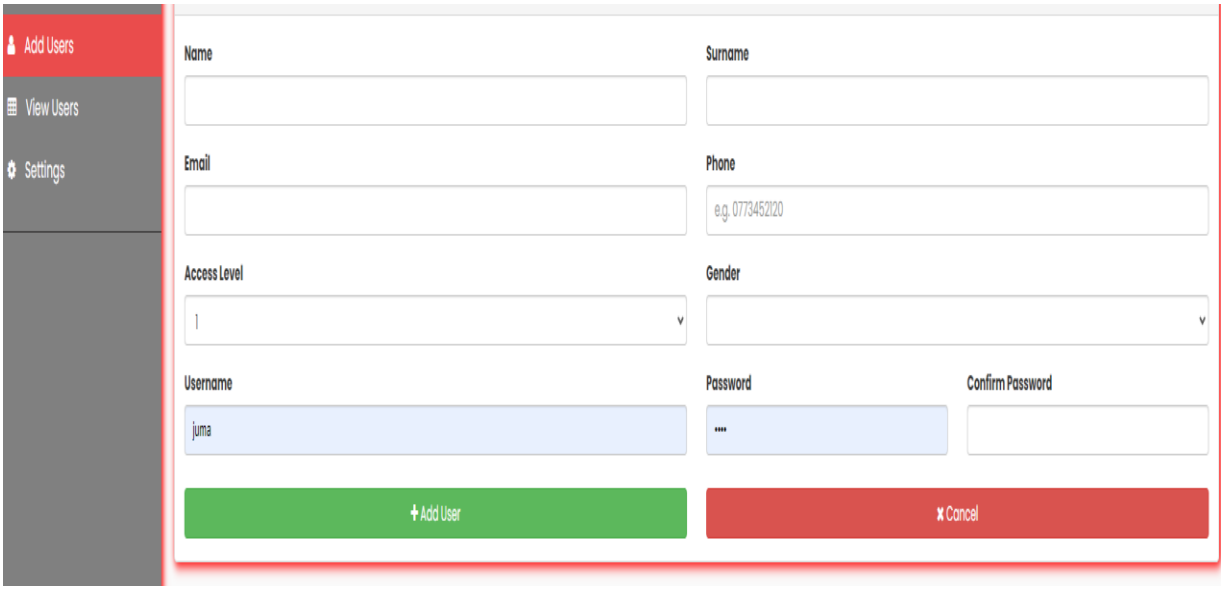

Figure 12: Add new users

5.10.2 View all users' screenshot

Figure 13: View all users

5.10.3 Settings screenshot

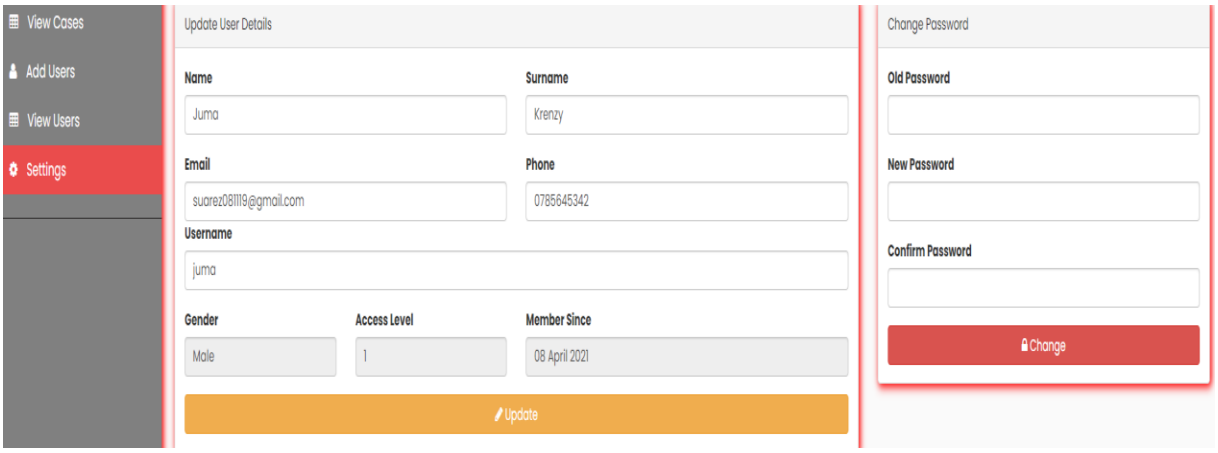

Figure 14: Settings screen

5.10.4 Crime entry form screen shot

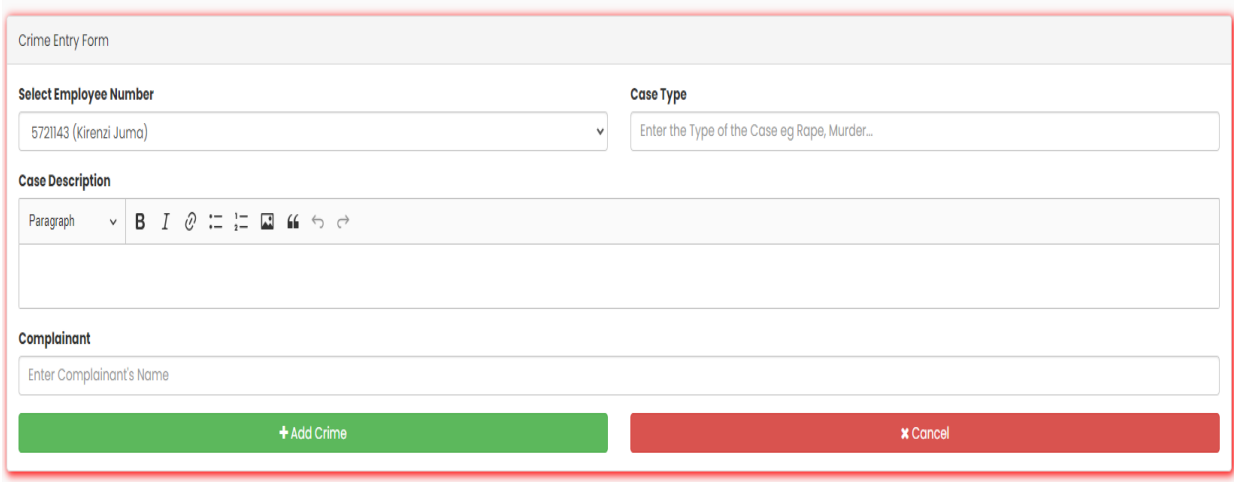

Figure 15: Crime entry form

5.10.5 View all recorded cases

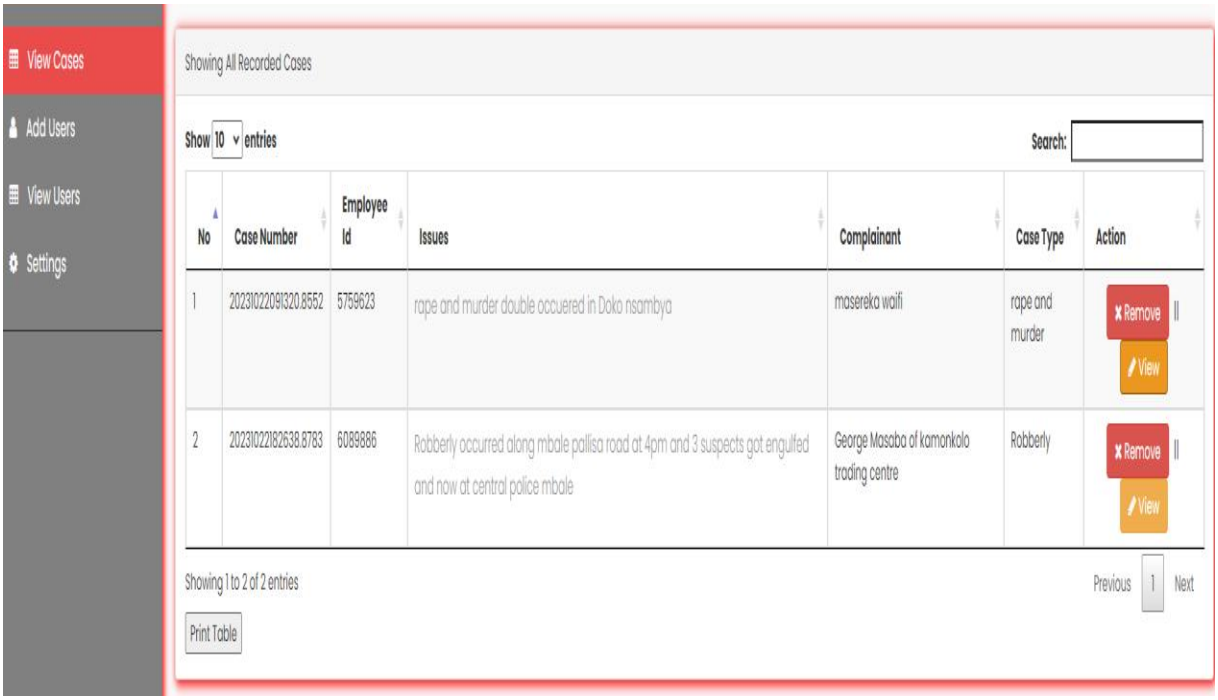

Figure 16: View all recorded cases

5.10.6 Print preview of recorded cases

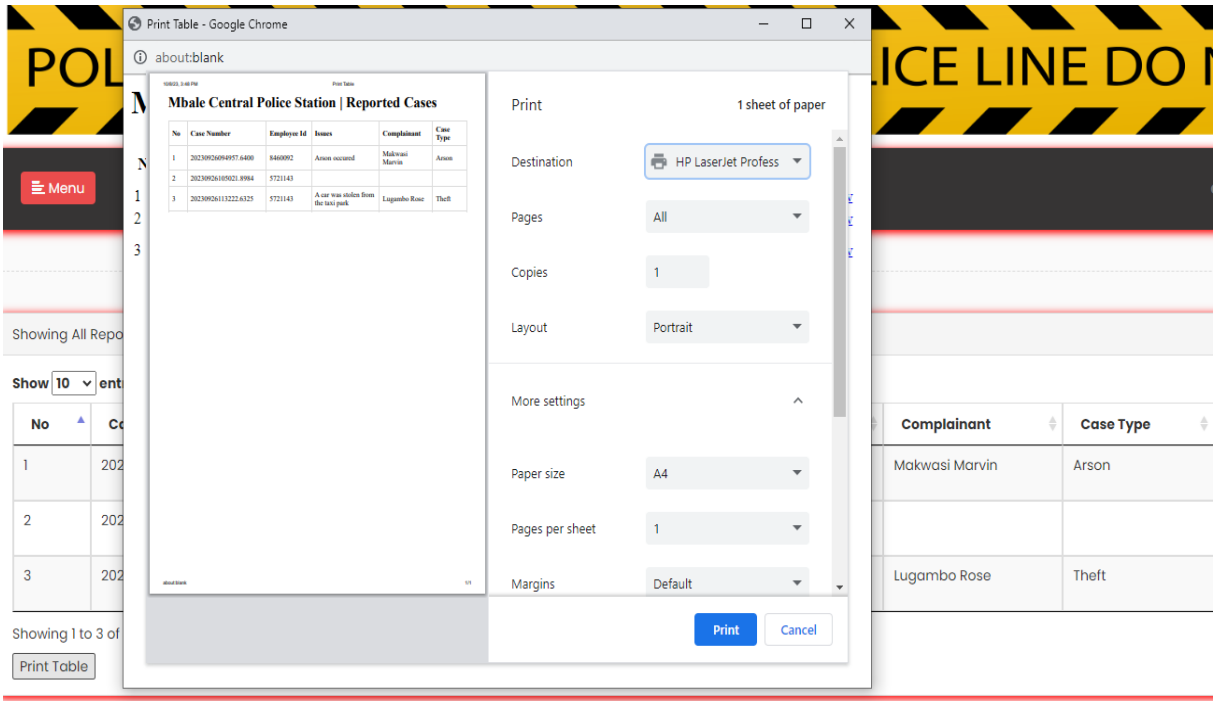

Figure 17: Print preview

5.11 Database design

This contains entities and related information. The entities in the web-based crime records management system include; admin credentials which has administrator's information, employees' and case details, and user's credentials. This is shown in the figure below;

The database design diagram

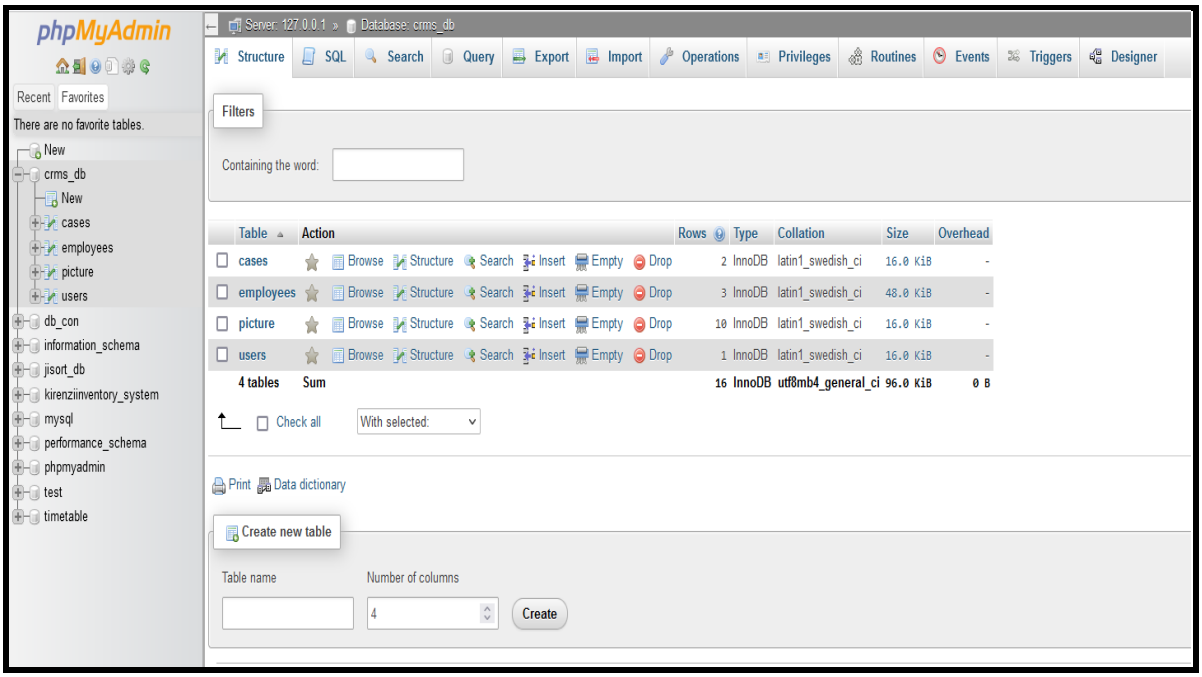

Figure 18: Database design diagram

5.12 System Testing

The researcher in this process had tested the system to identify and clear errors and verify whether it satisfies the requirements of Mbale central police station. The researcher used unit testing and integrated testing where the individual forms were tested and debugged where necessary.

5.12.1 Unit Testing

Under unit testing, the individual modules of the system were checked to ensure that they are functioning before merging them. This was done after coding through each script to ensure it performs as intended.

5.12.2 Integration Testing

After unit testing and merging of the individual modules of a web-based crime records management system, the whole system was tested to ensure that it meets the requirements.

5.12.3 System Validation

The validation was carried out to ensure that the system performs to meet user requirements. Sample data was used to generate crime reports and upon confirmation, the system was accepted and successfully installed for Mbale central police station.

CHAPTER SIX

DISCUSSION, RECOMMENDATION, CONLUSION AND FUTURE WORK

6.0 Introduction

This chapter gives a summary of the major findings of the study, conclusions and recommendations made by the researcher based on his analysis and interpretations of the findings as well as suggestions of the research.

6.1The Roadmap of the Project

The web-based crime records management system passed through six development stages of the system development life cycle (SDLC) that included, Requirements gathering, system analysis, system design, system implementation, system testing and system maintenance. The development approach employed for this project was the Rapid Application Development (RAD) Model. RAD is a software development methodology that focuses on rapid prototyping and quick feedback with less emphasis on specific planning. RAD is a model that emphasizes the importance of communication and teamwork between developers and users and it is a fast-paced approach to developing software that is based on prototyping without any specific planning.

6.2 Achievements

The researcher throughout the research gained some achievements which include;

1. The researcher was able to expand his knowledge about the research topic
2. The researcher gained more confidence during the research which aided in information gathering
3. The researcher discovered more and most current information which enabled him to complete the project
4. The researcher gained problem solving techniques which would be used to solve real world problems

6.3 Challenges encountered by the researcher

1. Inefficient data due to the fear by the police officials that the researcher may misuse their information

2. Poor time management was another challenge faced by the researcher. The research was paused a bit because he had to first go back and sit for tests and exams and this hindered the completion of the project in time
3. Inadequate financial support to facilitate the project activities
4. Fear of the police officials at the station who were always with guns of different types.

6.4 Discussion.

The discussion of this chapter was based on the theme of objectives stated in chapter one.

Objective (1): To review the literature and establish the requirements for developing an

Online Crime Records Management System. The requirements of the study were obtained from two sources and these include; Library research and field research. Under Library research, the study was conducted on the previous done projects about the same topic such as online order system by Naikoba Macklyn. This guided me on the alignment of my project work. The library research generated requirements that were used in the design of the DFD database design and a few others which led to the fulfilment of functional and non-functional requirements. The field research helped me get to know how the manual system works, the respondents' view and perception towards the Online Crime Records Management System which also generated the requirements that were used for designing the interfaces.

Objective (2): To design an Online Crime Records Management System

The system was designed depending on the requirements followed by the RAD from the

SSADM. The stage of design included Architecture, Context Flow Diagram and Data Flow

Diagram, Use-case diagram and database design, which enabled the smooth flow of data.

Objective (3): To implement an Online Crime Records Management System.

The implementation of the system design was carried out using the implementation tools which included; Visual Studio code editor, Google Chrome, MySQL, HTML, XAMPP server and windows operating system to fulfil the implementation where the researcher came up with the interfaces in chapter 5, such as "login, dashboard, adding cases, manage users among others. The system was implemented using parallel implementation to enable users to use the manual system as they continue to learn used to the new system.

Objective (4): To test an Online Crime Records Management System.

The system was tested during and after implementation. Each component was tested (Unit testing) and the whole system was also tested (system testing).

Unit testing was used to test individual parts/modules of the code whereby every part of the interface was as well tested to check whether it worked properly. This was essential during the identification of errors in specific units of the code thereby making debugging quite an easy task.

Integration testing was done after all the different modules had been merged to make a complete system. Integration was aimed at ensure that all the modules of the system worked hand in hand and that they could be integrated to form a complete working system.

6.4 Future Work

- The researcher was not able to include all the required system features due to limited time. Therefore he suggested that the future research students who would wish to do such a similar project should carefully study the system and add more modules such as penalties to criminals, most wanted criminals, sentenced period among others.
- The system should be hosted on a commercial web-hosting platform in order to enhance its security and improve on its accessibility to the users.
- System maintenance should be done through in order to improve on the system performance.

6.5 Recommendations

For the effective operations of the system, the researcher recommended the following;

1. Training: Management of Mbale central police station should train its employees/officials on how to use the system, and this will help the police station to realize the benefits of the newly deployed system.
2. Conversion: The use of parallel conversion method is recommended to central police station as it involves the use of both the current manual system and the web-based system concurrently as some police officials may not be familiar with the new system.
3. Security Management of Mbale central police station should ensure that there is maximum security to the information records at the station. This will enable the

concerned police officials to protect the records from unauthorized access, keep it in a safe manner to make the information available, trace criminal activities at all times. All forms of data security like the use of passwords, data encryption, use of locks, and physical monitoring of all records points should be employed and all records should be accessed by only known and authorized officials.

4. Similarly, the installation of CCTV cameras should be done to ease the monitoring of the police premises and data storage locations. Due to the dynamic needs of the police department, there is need the police station to employ an ICT personnel to always manage the new system, help to update the crime records and retrieve the required information for different crime activities.
5. A thorough cost benefit analysis of the hardware and software required should be conducted so as to implement the proposed system. The types of software to be developed in house and those purchased from the market should be identified and determined the types of software to be developed in house and those that will be purchased from the market should be identified and determined.
6. File backups should be done using external hard disks, USB flash disks in cases of file server failure and power failure. In this case there is a need to make frequent and regular copies of records which should be placed in different safe areas. To have power protection, uninterruptable power supply units (UPS) and standby generator should be put in place to keep the server running in case of power outages at the police station

6.6 Conclusion:

The newly installed web-based crime records management system will help the central police station to handle the problems associated with manual crime recording system. The analyst believed that the work done in this paper is **preliminary**, and therefore, should remain open for further development.

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APPENDENCIES

APPENDIX I: ORGANIZATIONAL SRUCTURE OF MBALE CENTRAL POLICE STATION

An organizational structure is a way of organizing the different parts of an organization and the relationships between them. It defines how activities such as task allocation, coordination, and supervision are directed toward the achievement of organizational aims. Organizational structure affects organizational action and provides the foundation on which standard operating procedures and routines rest. Mbale Central Police Station (CPS) is organized into a number of departments and units, each with its own specific responsibilities. So the organization structure of Mbale Central Police Station (CPS) is in a hierarchical order as seen below;

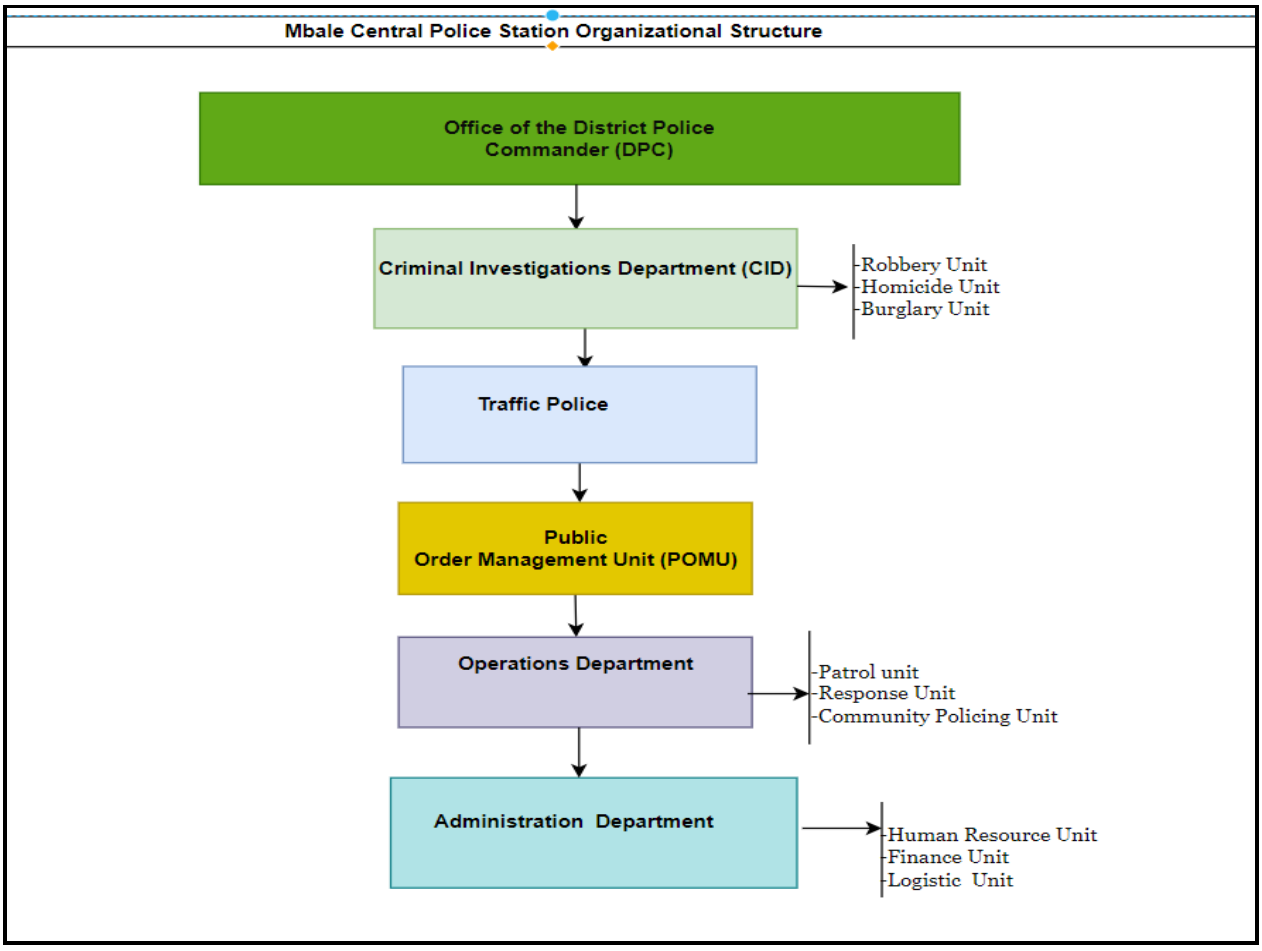


Figure 19: Mbale CPS Organizational structure

The DPC is the overall head of Mbale CPS and reports directly to the Regional Police Commander (RPC). The DPC is responsible for overseeing the day-to-day operations of the station and for ensuring that the station meets its objectives.

The CID is responsible for investigating crimes and bringing criminals to justice. The CID is headed by a Superintendent of Police (SP) or a Senior Superintendent of Police (SSP). The CID has a number of specialized units, such as the Homicide Unit, Burglary Unit, and the Robbery Unit.

The Traffic Police is responsible for regulating traffic and ensuring the safety of road users. The Traffic Police is headed by a Superintendent of Police (SP) or a Senior Superintendent of Police (SSP). The Traffic Police has a number of specialized units, such as the Road Safety Unit and the Traffic Enforcement Unit.

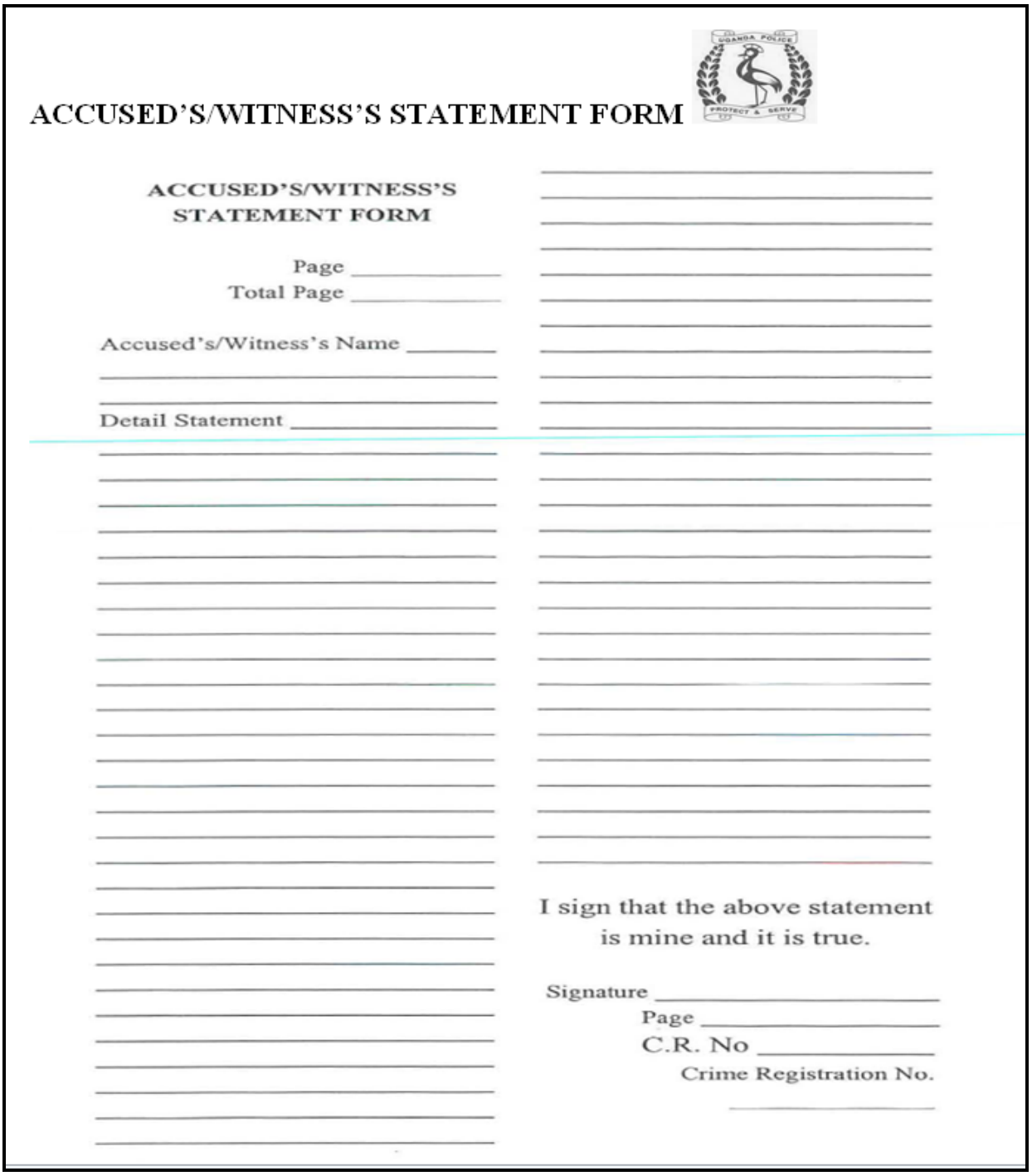
The POMU is responsible for maintaining public order and preventing civil disturbances. The POMU is headed by a Superintendent of Police (SP) or a Senior Superintendent of Police (SSP). The POMU has a number of specialized units, such as the Anti-Riot Unit and the Counter Terrorism Unit.

The Operations Department is responsible for the day-to-day policing of Mbale City and the surrounding areas. The Operations Department is headed by a Superintendent of Police (SP) or a Senior Superintendent of Police (SSP). The Operations Department has a number of specialized units, such as the Patrol Unit, the Response Unit, and the Community Policing Unit.

The Administration Department is responsible for the administrative support functions of Mbale CPS. And it is headed by a Superintendent of Police (SP) or a Senior Superintendent of Police (SSP). The Administration Department includes units such as the Human Resources Unit, the Finance Unit, and the Logistics Unit.

In addition to these departments and units, Mbale CPS also has a number of other specialized units, such as the Family and Child Protection Unit, the Anti-Corruption Unit, and the Drug Abuse Unit.

APPENDIX II: ACCUSED'S/WITNESS' STATEMENT FORM



ACCUSED'S/WITNESS'S STATEMENT FORM

ACCUSED'S/WITNESS'S
STATEMENT FORM

Page _____
Total Page _____

Accused's/Witness's Name _____

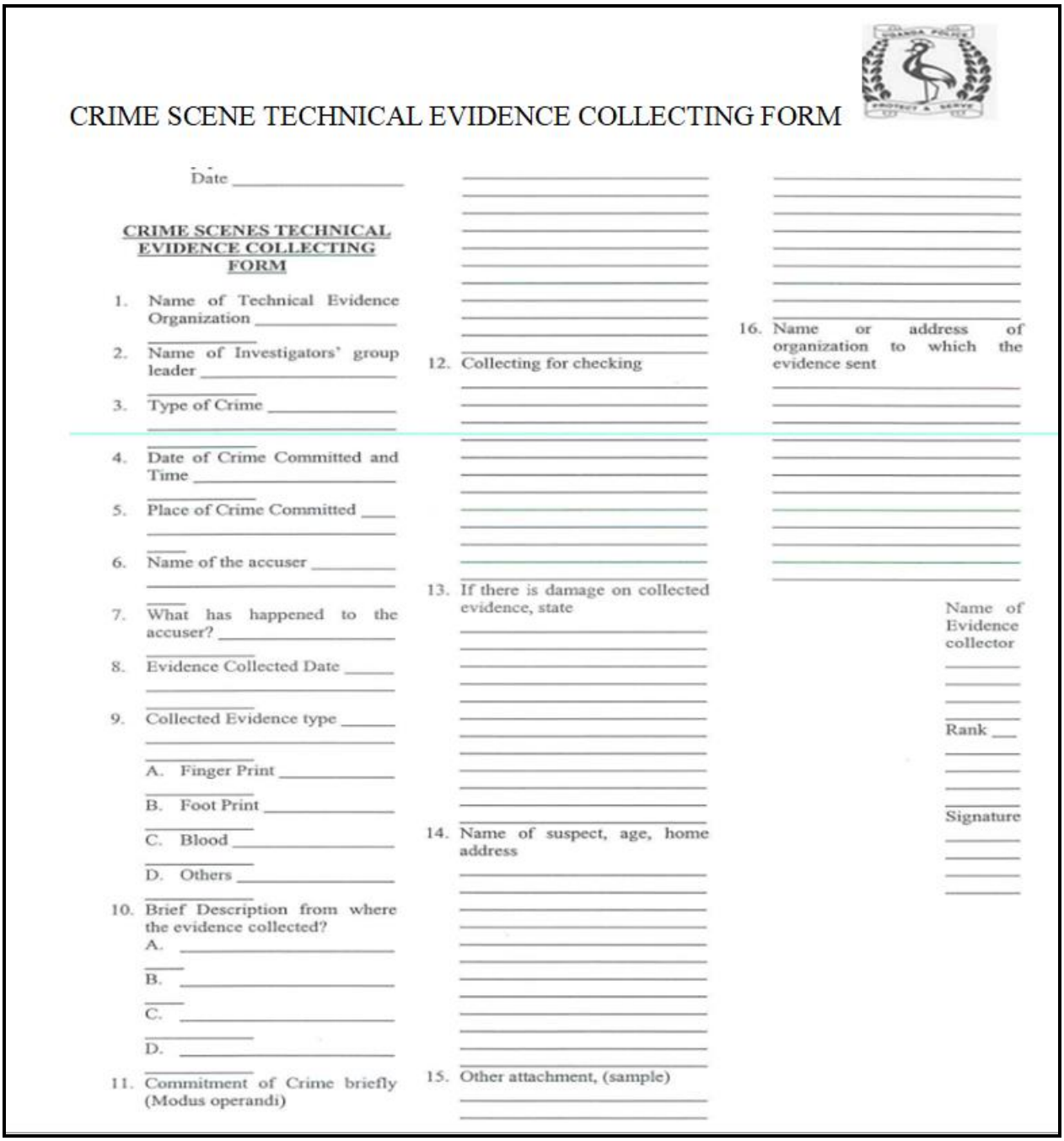
Detail Statement _____

I sign that the above statement is mine and it is true.

Signature _____
Page _____
C.R. No _____
Crime Registration No.

Figure 20: Accused's/witness' statement form

APENDEX III: CRIME SCENE TECHNICAL EVIDENCE COLLECTING FORM



CRIME SCENE TECHNICAL EVIDENCE COLLECTING FORM

Date _____

CRIME SCENES TECHNICAL EVIDENCE COLLECTING FORM

1. Name of Technical Evidence Organization _____
2. Name of Investigators' group leader _____
3. Type of Crime _____
4. Date of Crime Committed and Time _____
5. Place of Crime Committed ____
6. Name of the accuser _____
7. What has happened to the accuser? _____
8. Evidence Collected Date _____
9. Collected Evidence type _____
   A. Finger Print _____
   B. Foot Print _____
   C. Blood _____
   D. Others _____
10. Brief Description from where the evidence collected?
    A. _____
    B. _____
    C. _____
    D. _____
11. Commitment of Crime briefly (Modus operandi)
12. Collecting for checking
13. If there is damage on collected evidence, state
14. Name of suspect, age, home address
15. Other attachment, (sample)
16. Name or address of organization to which the evidence sent

Name of Evidence collector

Rank ___

Signature

Figure 21: Crime scene technical evidence collecting form

APENDIX IV: FINGER PRINT FORM

FINGERPRINT FORM

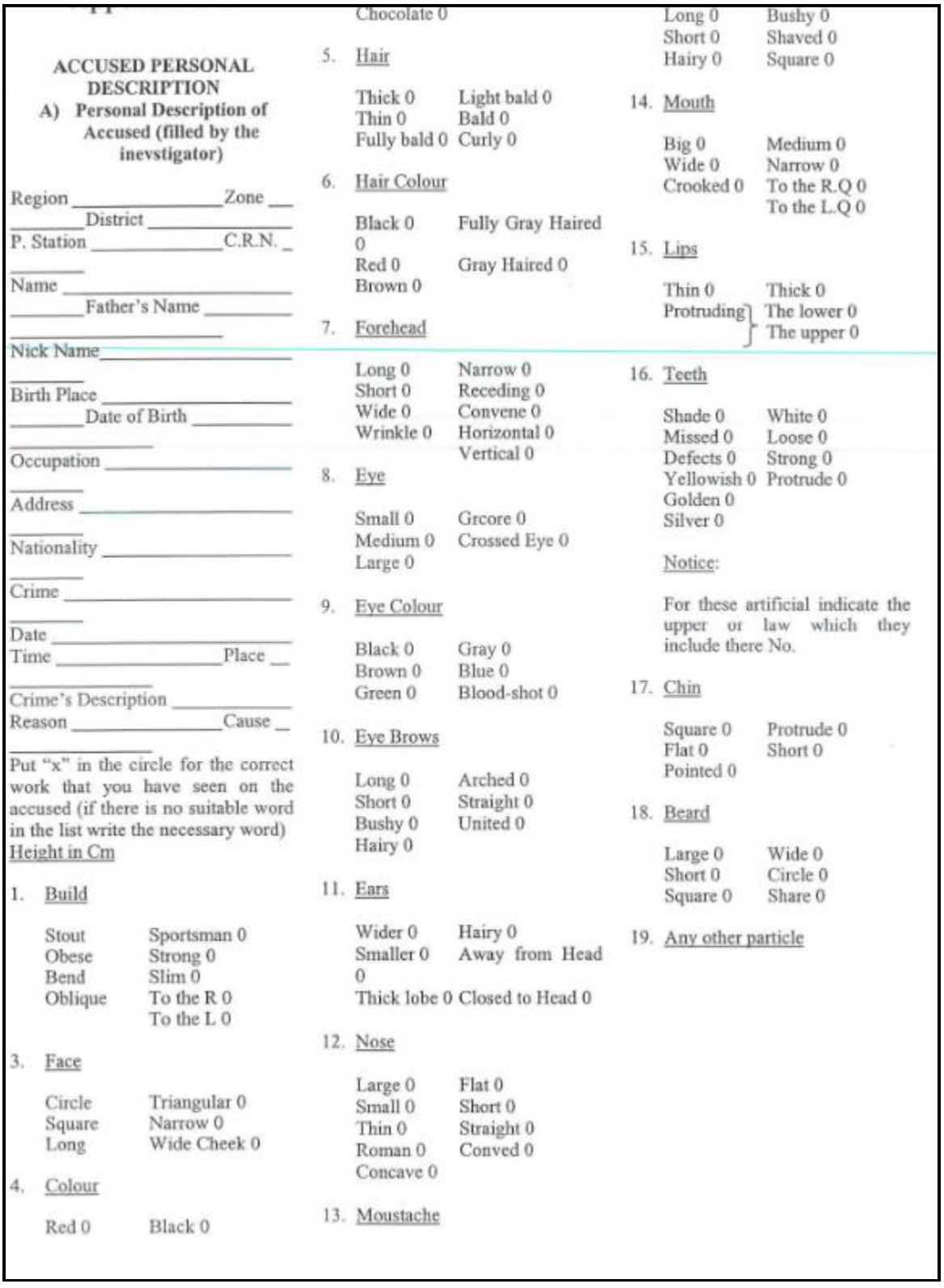
First Name _____ Family Name _____ Father's Name _____ First Name _____ Nick Name _____ Nick Name _____ Place of Birth _____ Date of Bith _____ Address _____ Crime _____	Fingerprint CLA _____ Province _____ Provincial C.R.O.No _____ Indent No. _____ Fingerprint No. _____

RIGHT HAND				
R.THUMB 1	R. INDEX FIN.2	R. MIDDLE FIN.3	R.RING FIN. 4	R. SMALL FIN.5
FOLD HERE	**LEFT HAND**			
L.THUMB 1	L. INDEX FIN.2	L. MIDDLE FIN.3	L.RING FIN. 4	L. SMALL FIN.5

FOLD HERE		
THE LEFT FOUR FINGERS	THE RIHT FOUR FINGERS	
FOLD HERE	**L. THUMB**	**R. THUMB**
Fingerprint Taken by _____ Rank _____ Date _____ Classified by _____ Rank _____ Date _____ Tested by _____ Rank _____ Date _____		

Figure 22: Finger print form

APPENDIX V: ACCUSED PERSONAL DESCRIPTION FORM



ACCUSED PERSONAL DESCRIPTION

A) Personal Description of Accused (filled by the inevstigator)

Region _____Zone ___
_____District _____
P. Station _____C.R.N. _
_____
Name _____
_____Father's Name _____
_____
Nick Name_____
_____
Birth Place _____
_____Date of Birth _____
_____
Occupation _____
_____
Address _____
_____
Nationality _____
_____
Crime _____
_____
Date _____
Time _____Place __
_____
Crime's Description _____
Reason _____Cause __
_____

Put "x" in the circle for the correct work that you have seen on the accused (if there is no suitable word in the list write the necessary word)

Height in Cm

1. Build

Stout Sportsman 0
Obese Strong 0
Bend Slim 0
Oblique To the R 0
To the L 0

3. Face

Circle Triangular 0
Square Narrow 0
Long Wide Cheek 0

4. Colour

Red 0 Black 0
Chocolate 0

5. Hair

Thick 0 Light bald 0
Thin 0 Bald 0
Fully bald 0 Curly 0

6. Hair Colour

Black 0 Fully Gray Haired 0
Red 0 Gray Haired 0
Brown 0

7. Forehead

Long 0 Narrow 0
Short 0 Receding 0
Wide 0 Convene 0
Wrinkle 0 Horizontal 0
Vertical 0

8. Eye

Small 0 Grcore 0
Medium 0 Crossed Eye 0
Large 0

9. Eye Colour

Black 0 Gray 0
Brown 0 Blue 0
Green 0 Blood-shot 0

10. Eye Brows

Long 0 Arched 0
Short 0 Straight 0
Bushy 0 United 0
Hairy 0

11. Ears

Wider 0 Hairy 0
Smaller 0 Away from Head 0
Thick lobe 0 Closed to Head 0

12. Nose

Large 0 Flat 0
Small 0 Short 0
Thin 0 Straight 0
Roman 0 Conved 0
Concave 0

13. Moustache

Long 0 Bushy 0
Short 0 Shaved 0
Hairy 0 Square 0

14. Mouth

Big 0 Medium 0
Wide 0 Narrow 0
Crooked 0 To the R.Q 0
To the L.Q 0

15. Lips

Thin 0 Thick 0
Protruding The lower 0
The upper 0

16. Teeth

Shade 0 White 0
Missed 0 Loose 0
Defects 0 Strong 0
Yellowish 0 Protrude 0
Golden 0
Silver 0

Notice:

For these artificial indicate the upper or law which they include there No.

17. Chin

Square 0 Protrude 0
Flat 0 Short 0
Pointed 0

18. Beard

Large 0 Wide 0
Short 0 Circle 0
Square 0 Share 0

19. Any other particle

Figure 23: Accused personal Description form

Tattoos, Scars, Spot, Pimple, Blemish, Eye Glasses, Stammer, Dumb, Deaf, Lame, Bad Habit

Accused Right Index

20. The Way How He Dresses _____
21. The Name Adress of his/her friends _____
Investigator No. _____Rank _____Name _____
Day_____C.Y. Signature _____

B. Filled by the investigator

Region _____ Regional Police Station _____C. R. No. _____

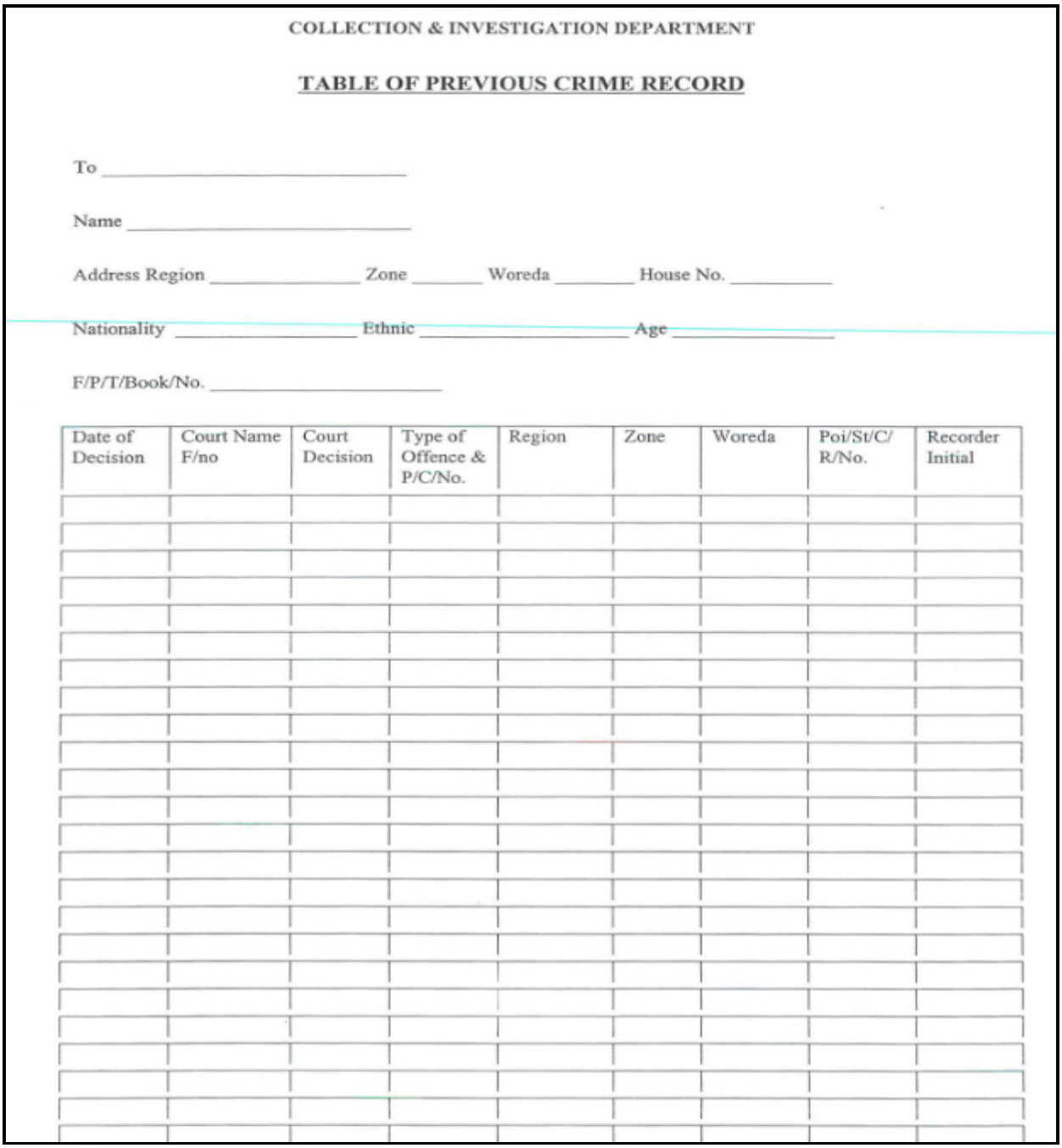
Charged/Sentence	Release Freely	Closed by Police Station

Signature of the Commander _____
No. _____Rank _____Name _____
Fingerprint Classification _____
Central Criminal Record No. _____
Prison House Record No. _____
Modus Operand Briefly _____

To: _____

Name index	Found Not found
Finger print	Found Not Found

APPENDIX VI: COLLECTION AND INVESTIGATION OF CRIME FORM



COLLECTION & INVESTIGATION DEPARTMENT

TABLE OF PREVIOUS CRIME RECORD

To _____

Name _____

Address Region _____ Zone _____ Woreda _____ House No. _____

Nationality _____ Ethnic _____ Age _____

F/P/T/Book/No. _____

Date of Decision	Court Name F/no	Court Decision	Type of Offence & P/C/No.	Region	Zone	Woreda	Poi/St/C/ R/No.	Recorder Initial

Figure 24: collection and investigation of crime form

APPENDIX VII: SYSTEM TESTING ASSESSMENT AND EVALUATION

Introduction

Dear respondent,

My name is Kirenzi Juma, a student of Busitema University under the Faculty of Science and Education undertaking a Bachelor's degree in Information Technology (BIT), the information provided during this research will remain confidential. This questionnaire can be adjusted according to your particulars' needs therefore, you are requested to answer it with care.

Circle the correct answer accordingly

Sex

a. Male b. Female

Position:

a. DPC b. CID c. SP d. IP e. Other……

3. **Age Group:**

a. between 18 & 40 b. between 45 & 60

Does the system being used work for you?

a. Yes b. No

If no explain the difficulties encountered while using this system.

……..

……..

……..

End

Thank you

APPENDIX VIII: OPEN ENDED INTERVIEW QUESTIONS

Dear respondent,

My name is **Kirenzi Juma**, a student of Busitema University under the Faculty of Science and Education undertaking a Bachelor's degree in Information Technology (BIT). I am carrying out a research study on Online Crime Records Management System at Mbale central police station

This survey is to guide me into understanding the current manual crime records management system at Mbale central police station. I kindly request for your cooperation in answering the following questions. Any information provided will be for academic purposes only and will be treated with absolute confidentiality.

I hope that my humble request may meet your kind consideration.

Thank you

Use the spaces provided to answer the questions given

Date ……...

APPENDIX IX: Checklist used in interviewing the top management levels of Mbale central police station,

What is the historical background of your organization (Mbale central police station).

…….

What is the current structure of your organization?

……

What is the mission of your organization?

…….

What are the main duties of the central police station?

…….

What are the objectives as Mbale central police station?

……

How many police officers do you have?

……..…

What are the opening and closing hours of the central police station?

……..…

How do you manage crime records without ICT equipment?

…….

What are the policies and strategies regarding the management of crime records in your organization?

……

What are some of the problems being experienced in the management of crime records in the organization? .....

……

What are your future plans as far as criminal records management is concerned?

……

APPENDIX X: Checklist used in interviewing the line management of the crime records department;

Dear Sir/ Madam,

My name is Kirenzi Juma, a student of Busitema University Nagongera campus, offering a Bachelor's Degree in Information Technology and carrying out research on Online Crime Records

Management System and Mbale central police station is the case study.

I kindly request you to report appropriately to the questions provided to enable me gather credible data for the above topic.

Your response will be used for academic purposes only and will be treated confidentially.

What are the procedures used in the management of criminal records in your organization?

……..……..

What operations do you perform in the processing of criminal records?

……

What major challenges do you face while executing your duties manually?

……

What possible solutions have you done to overcome the above challenges above?

……

What do you suggest for improving on the effectiveness and efficiency of the operations for which you are responsible? .....

……

What are the lines of communication in your activities?

……

APPENDIX XI: Checklist used in interviewing the operational staff of the crime records department;

Dear Sir/ Madam,

My name is Kirenzi Juma, a student of Busitema University Nagongera campus, offering a Bachelor's Degree in Information Technology and carrying out research on Online Crime Records Management System and Mbale central police station is my case study.

I kindly request you to report appropriately to the questions provided to enable me gather credible data for the above topic.

Your responses will be used for academic purposes only and will be treated confidential.

Use the spaces provided to answer the questions given

What are the operations performed in your section?

…….

What are the procedures used in the management of criminal records in your organization?

……

What types of forms do you use and for which functions?

……

What are some of the common errors made during data entry?

……

How do you safely store/keep the crime records information?

……

What are lines of communication in your operations?

……

How do you wish to advise your superior if an opportunity is given?

……

Thank you