

**DESIGN AND IMPLEMENTATION OF AN ONLINE PHONEBOOK  
SYSTEM**

**CASE STUDY: MTN-UGANDA**

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11/02/11  
[Signature]*

## DECLARATION

We declare that this report is our original work and has not been presented for examination in any other University.

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Date *30-06-2011*.....

**APPROVAL**

This is to certify that this research report entitled “**Online phonebook System**” was conducted under my supervision and guidance and was submitted to the school of computer studies with my approval.

Signature ..... 

**Mr. KOMAKECH BRIANS**

**Supervisor**

DATE ..... 30 ..... 06 ..... 2011 .....

## DEDICATION

I **Awada Patience** dedicate this report to my parents Mr. Obbo Godfrey (father) and Mrs. Obbo Proscovia Akumu (mother) for seeing me through my entire academic life till completion of this report. My brothers (Ronnie, Shem, Hugh and Neville) also played a great role of encouraging me to always aim for the highest. I finally dedicate all my course mates who helped me throughout my entire stay at Kampala international university not forgetting my best friends who are none other than Gideon Kiplagat, Kimongo Edwin, Chebet Rhoda and Imelda Musuluve.

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I greatly thank the almighty God for the protection since I began our studies; I also wish to acknowledge my supervisor **Mr. Brians Komakech** for the guidance throughout this project and our studies. And my parents for their support on my educational career.

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## ABBREVIATIONS AND ACRONYMS

**PHP:** Hypertext Preprocessor

**ER:** Entity Relationship

**SMS:** Short Message System

**MMS:** Multimedia Message

**ASP:** Active Server Pages

**XP:** Extreme Programming

**IT:** Information Technology

**RAM:** Random Access Memory

**MB:** Megabyte

**GB:** Gigabyte

## ABSTRACT

In the wake of mobile telephony, online systems that support data backup of personal information (i.e. Telephone numbers, names, and SMS messages) stored on the SIM card and in the memory of the mobile phone onto a remote data server need to be considered.

This serves as insurance for losing this information by accident. This project is aimed at designing online phonebook system that can be accessed anytime and anywhere irrespective of geographic as well as space limitations. It consists of a database driven website that stores members phonebook contacts .

The system has been developed using PHP and MySQL server. The system allows members to add contacts to their phonebooks and provides them with search and edit options. Further research in this area is encouraged to integrate voice recognition service into the system as well as automatic retrieval of backed up contacts to enable recovery of phonebook contacts and detail without the use of cable wire.



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## CHAPTER ONE

### INTRODUCTION

#### 1.1 Introduction

A system and method for backing up a phonebook in an electronic device creates a backup file, copies data in the phonebook to the backup file, and sets identification for the backup file. The system and method further attaches the backup file to an multimedia service (MMS) message, adds the identification to a title of the MMS message, and sends the MMS message attached with the backup file to a target electronic devices. The target electronic devices determines if a title of any received MMS message contains the identification of the backup file, detaches the backup file from the MMS message and copies data in the backup file to a phonebook of the target electronic devices, in response to a determination that the received MMS message contains the identification of the backup file

#### 1.2 Background of the study

This is a subsidiary of the MTN Group, a multinational communications and network access company, operating in Uganda. They are passionate about people, and they focus on providing the best possible service to their customers. With MTN, you can stay on top of it all. SMS, email, surf and talk away with their connectivity solutions on Mobile, Fixed Line or Internet; all designed to be customized to your specific needs. Get connected to the yellow family. The MTN Uganda Foundation was launched late 2007. It is the Corporate Social Responsibility arm of MTN Uganda that carries out various charitable projects within the communities it operates.

The MTN Foundation focuses on six programmed areas to guide its interventions:

##### 1.2.1 Education

In line with the Millennium Development Goals set by the UN, Uganda's Government's aim is to ensure education (including Science & Technology) for all by the year 2025. To this end MTN has contributed to the development of education facilities in the country through the following initiatives:

- Infrastructural development through building and renovating classrooms, pit-latrines and water tanks.
- Providing furniture foodstuff, computers, text books and even low-cost bandwidth.

Join the 1GOAL: Education for All initiative campaign, a 2010 FIFA World Cup legacy project that is supported by MTN, Africa's first and only global sponsor of the 2010 FIFA World Cup™, world football governing body FIFA, world leaders, the GSM Association, other mobile operators, global football stars, educational champions and charities.

The 1GOAL campaign seeks to accelerate access to education to 72 million children worldwide by 2015. Participate in the pledge campaign by signing up and show your support; Click on the image below.

### 1.2.2 Health

In the area of health MTN has actively supported a number of local health awareness causes, inclusive of HIV/AIDS:

- Uganda Child Cancer Foundation
- Hospice Africa Uganda
- Malaria Consortium
- The Red Cross for flood victims
- Red Cross, the proceeds from the MTN Kampala International Marathon

Malaria can be stopped if we act **NOW**. Football stars, non-governmental organizations, foundations, governments, and corporations and people like you are joining forces ahead of the 2010 World Cup in South Africa to unite against malaria. By leveraging football/soccer, one of the most popular sports in the world, **United against Malaria** aims to raise global awareness and renew worldwide commitment to ending malaria, as well as increase the use of prevention tools and malaria treatment in Africa.

FACTS:

- Malaria kills a child in Africa every 30 seconds and nearly one million people each year.

- Worldwide, 3.3 billion people are at risk of malaria – that’s half of the world population
- 91% of malaria deaths occur in Africa; 85% of these are children under 5 years of age
- In addition to the death toll, malaria contributes to the cycle of poverty and limits economic development: Malaria costs Africa at least \$12 billion in lost productivity every

### **1.2.3 Art & Culture**

MTN has been active in the local music scene and over the last 5 years, has supported upcoming artists, who have set the pace for local music production. With endorsement and exposure from the MTN brand, little known artists have risen to become stars. Of particular pride to MTN is the M-Lisada Band (fondly referred to as the MTN Brass Band). This Band of former street children and orphans came to our attention after performing at several MTN events. MTN took keen interest in the children and offered to support them under its CSR profile by arranging with the Kampala Music School to offer formal music education to 30 of the 68 children. Since 2007, the children have been undertaking Royal Schools of Music examinations with commendable results.

In Uganda sports had for a long time been neglected, especially in the unrest encountered in the late 70’s and early 80’s. When MTN started operations in 1998 it undertook several sporting initiatives which have become a resounding success.

### **1.3 Problem Statement**

Do you use your cell phone SIM card to store all the important contact numbers of your friends, family and business contacts?

If yes, it's all the more important for you to backup the simcard or cell phone's address book else imagine the case when you forget that cell-phone somewhere or the phone be stolen

Most cellular companies do not offer phonebook backup services and it has reached a time where we can think of a solution

We'll look at a web based service which allows you to store all your mobile phone numbers online for the ease of retrieval

## **1.4 Objectives**

We went to the field with a variety of objectives, including the following;

### **1.4.1 Main Objective**

The focus of this research was to automate the phonebook system that will lead to improved service of retrieving customers lost contacts in the telecommunication sector.

### **1.4.2 Specific objectives**

- i) To investigate the current system of MTN mobile service provider Company to identify requirements and specifications.
- ii) To design a database and a graphical user interface that will help in automating the mobile service.
- iii) To develop a management applications that will help users interact and access the system.

## **1.5 Hypothesis**

- a) Is it possible to design an online phonebook system that is efficient, time saving, more reliant, current, and computerized which can reduce on the loss of customer's contacts in different branches of the mobile service company.
- b) Is it possible to change the system for the company so as to make the company look more current?
- c) Is it possible to produce a document that can help the company or the system administrator and other stakeholders to understand the key design and the implementation issues in the company and the system, so as to be able to control and manage the new system in the company?

## **1.6 Scope of the study**

### **1.6.1 Geographic scope**

This research primarily is to focus on designing a management system for MTN mobile service provider, which covers northern, eastern, central and western Uganda regions.

The solution is to design a fully working system which will enable users to store their phonebook contacts permanently

### **1.6.2 System scope**

The study addresses what is involved in the phonebook system process of MTN mobile service and what impact it has. Back up of lost phone contacts were also looked at. The project also identified the problems the customers face and specifies different ways of minimizing them.

### **1.7 Significance of the study**

The study is to provide the following values and benefits to various groups who are directly or indirectly affected by the system.

- i) The system will enable the recovery of personal data when handset is lost or stolen.
- ii) The system will enable secure and easy phonebook storage and update.
- iii) The system will ensure that there is no risk of personal data overwriting.
- iv) The system will enable multiple access to personal data with user friendly end-user interface.
- v) The system will establish a mechanism to facilitate initiatives towards utilization of Information Technology (IT) as an enabling tool for improved service delivery.
- vi) The system will help users in capturing customers' data, storing it and generating reports and receipts.
- vii) The system will help customers keep their records that is phone contacts and allow them retrieve their lost contacts in advance.



### 1.8 Conceptual Frame work

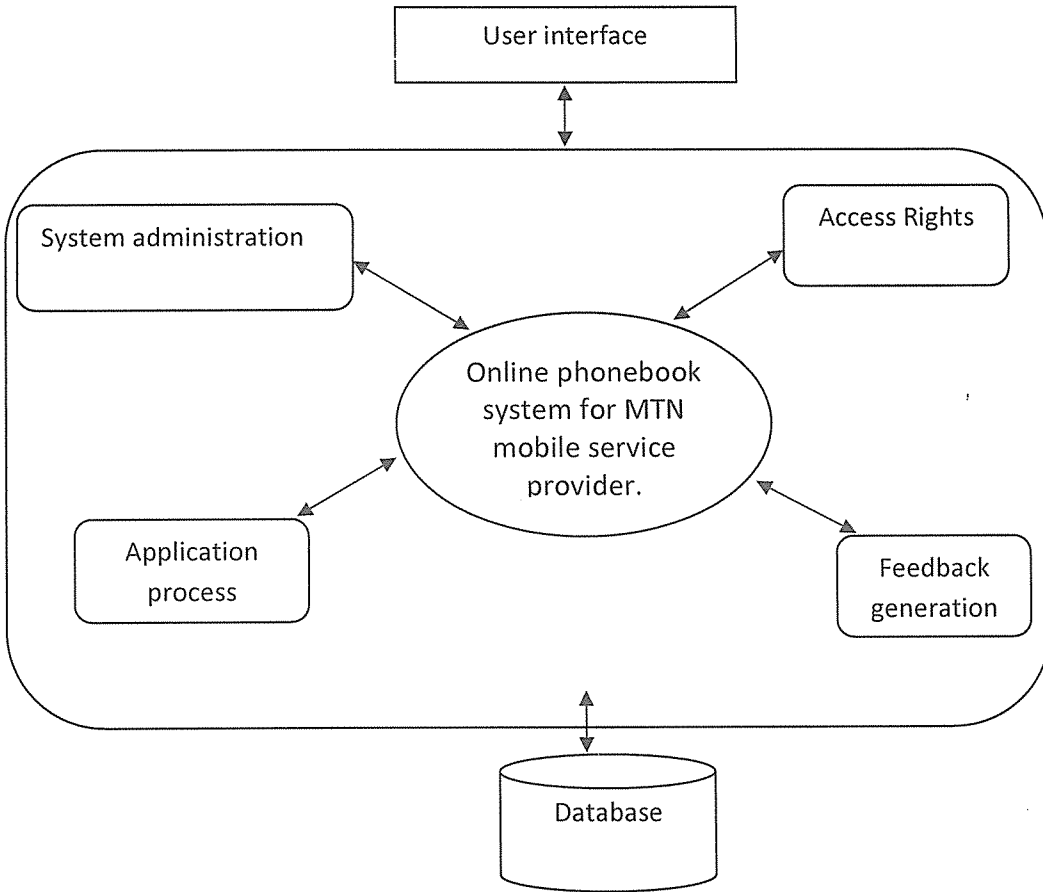


Figure 1

### 1.8 Conceptual Frame work

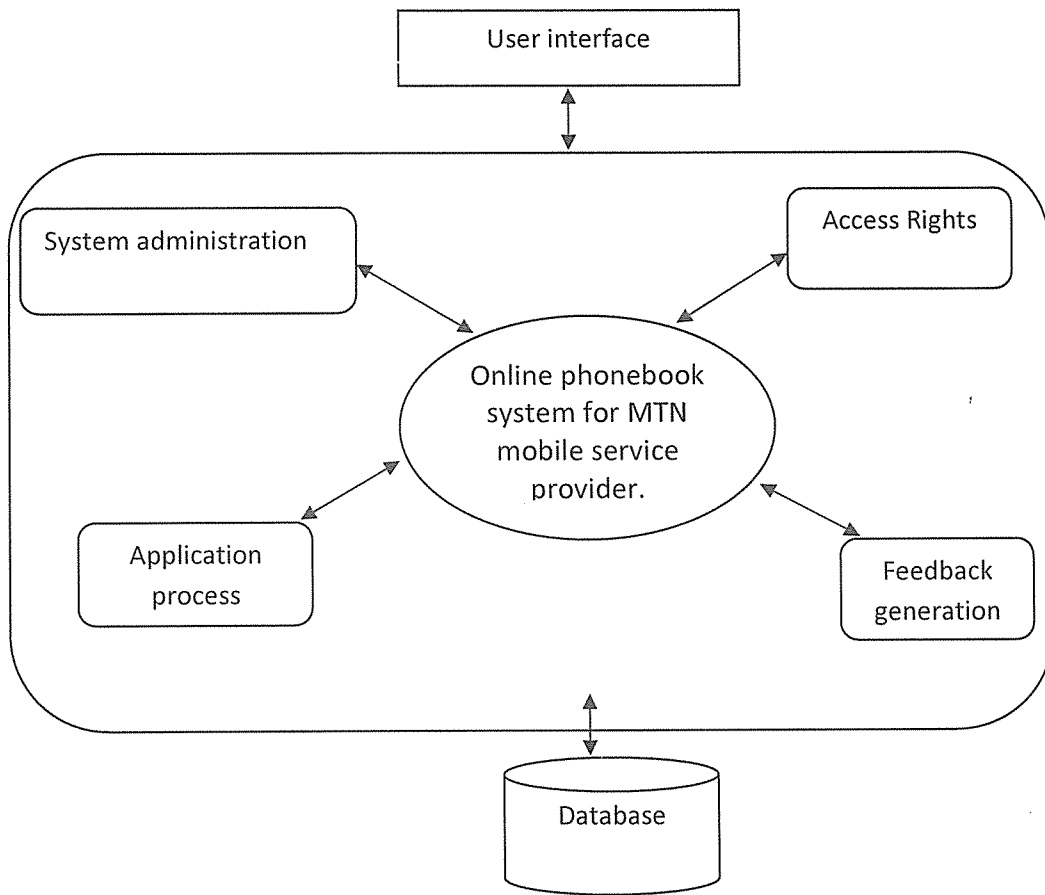


Figure 1

## CHAPTER TWO

### LITERATURE REVIEW

#### 2.1 Introduction

This chapter reviews what has been published on a topic by other scholars and researchers about phonebook systems and provide a critical review of related literature on the study available.

The telephone has been the preferred way to communicate since the 1900's. The telephone network grew and now almost everyone in the developed world has access to one. Until the 1990's the telephone network was the largest communication network in existence, providing voice and fax services to billions. Unlike the telephone network, the internet is a public network and the connection to it is cheap, costing a local call at the most. When the internet started to grow and become more popular, email was soon adopted and could be used to send documents anywhere in the world for free. As technology grew and internet connection speeds started increasing, people started to make voice calls using this vast network.

Organizations with network infrastructures in place could also start replacing their PABX systems with cheaper Voice over IP (VoIP) systems. Calls to offices in different geographical locations could also be routed over an existing data link rather than having to pay for a costly national or international call.

It was now possible to call someone anywhere in the world for only the price of the connection to the internet. The problem with this is that people like to use things that they know and understand. Everyone knows how to use a telephone, but you can't use a normal telephone to make calls over the internet. Because of this people started coming up with ways to make people more comfortable with using VoIP, by making the interface as much like a traditional telephone as possible.

#### 2.2 Related literature and systems

In the wake of mobile telephony, online systems that support data backup of personal information (i.e. Telephone numbers, names, and SMS messages) stored on the SIM card and in the memory of the mobile phone onto a remote data server need to be considered. This serves as insurance for losing this information by accident.

This project is aimed at designing online phonebook system and SMS backup system that can be accessed anytime and anywhere irrespective of geographic as well as space limitations. It consists of a database driven website that stores members phonebook contacts as well as SMS.

The system will be developed using ASP.NET and C# and Microsoft SQL server. The system allows members to add contacts to their phonebooks and provides them with search and edit options as well as saving their SMS. Further research in this area is encouraged to integrate voice recognition service into the system as well as automatic retrieval of backed up contacts to enable recovery of phonebook contacts and details without the use of cable wire.

Phonebook.php is a PHP/MySQL-based online phonebook system designed for large companies with multiple locations and departments. It features searching by site, department, or name, a Web admin interface, online paging, and more

A system and method for backing up a phonebook in an electronic device creates a backup file, copies data in the phonebook to the backup file, and sets identification for the backup file. The system and method further attaches the backup file to a multimedia service (MMS) message, adds the identification to a title of the MMS message, and sends the MMS message attached with the backup file to a target electronic device.

The target electronic devices determines if a title of any received MMS message contains the identification of the backup file, detaches the backup file from the MMS message and copies data in the backup file to a phonebook of the target electronic devices, in response to a determination that the received MMS message contains the identification of the backup file.

### **2.2.1 System Tray Phone Book system**

The System Tray Phone Book is a phone book like any other, only that it takes the minimum space on your desktop as possible and includes a built-in phone dialer and an E-Mail sending utility.

The System Tray Phone Book is a normal phone book except for the fact that it "sits" on your system tray and only uses a small icon instead of big complicated windows. It contains a built-in phone dialer and mail sender.

Using the System Tray Phone Book is very easy. All you need to do is start the program, which will automatically place a small yellow phone icon on your system tray. By right clicking on the icon you open the entire options to the software (Modifying/Adding Phones, Viewing Phones that were already added...). SoftSea.com had fully tested, reviewed and uploaded the install files, System Tray Phone Book does not contain any adware or spyware, the latest version is 1.0, you can download this contact management software (524.77 KB) from special server of SoftSea.com. The license of this office software is Freeware, you can free download and free use this contact management software.

### **2.2.2 Cellular Phonebook Backup-Pal System**

I know that it may be difficult to imagine, but not everyone owns a Smartphone or even a computer for that matter (gasp!). Making a backup of your data on Smartphone is usually pretty easy and something most owners of these devices would be well equipped to do. But for those people that own a basic mobile phone, that task is not always a simple one. Typically it requires the purchase of a data cable and some proprietary software. Of course, this won't be helpful if the person doesn't have a computer in which to install it on.

I should not have to sell anyone on the fact that keeping a backup of your data is a smart thing to do. People lose their phones all the time and then have to reconstruct their phone books after they purchase a new phone. Then there are the people that get a new phone every two years with their carrier plans. Most of the time you can have the store where you purchase the phone transfer your contacts from the old to new phone for free, but that doesn't give you a backup that you can use anytime you need to. That's where the Backup-Pal comes in.

The Backup-Pal is a small hockey puck shaped device with three buttons, an LED and a mini USB cable connected to it. That's it. No displays or switches to fiddle with.

On the back you'll find a battery compartment that holds 3 AAA batteries required to power the device. The memory inside the Backup-Pal is non-volatile. That means that once you do make a backup of your data, it will not disappear if the batteries in the device die. You'll also see a label display with all of the necessary information needed to back up and restore your phone's contacts.

The mini USB cable is attached to a module (called the interface head) that plugs into the main body of the Backup-Pal. The interface head is where the brains of the Backup-Pal lives. As compatibility for more phones is added, this is the part that will require an update. During my testing with this device, they actually sent me a second interface head when I told them that I needed compatibility for one of my Nokia phones. They are pursuing a way to upgrade this part without requiring a complete swap of the physical part.

As of this writing, the Backup-Pal supports a limited number of Samsung, Motorola and Nokia phones. You can view the current compatibility listing [here](#). Each of these brands of phones has a different type of data connector. You buy the data connector adapter that you need with the backup unit.

The adapter plugs into the mini USB cable attached to the Backup-Pal and then the adapter plugs into your phone. Some phone models such as Motorola don't even require an adapter at all. You can plug the mini USB cable directly into the phone.

### **2.3 Conclusion**

In conclusion therefore, the above literature will enable the researcher to know the appropriate application to employ in the system and also to avoid him/her from designing what others have at hand. The literature also provides guidelines for the researcher on how to go about with the intended system.

## CHAPTER THREE

### METHODOLOGY

#### 3.1 Introduction

This chapter reviews the methodology, techniques and the tools that will be used to accomplish the development of the phonebook system. It also provides the oversight of methods for collecting the information that will be used to determine the users and their requirement of the system.

#### 3.2 Targeted Population

The research will cover all the MTN service centers. The target size will be 100 subscribers from different districts country wide.

#### 3.3 Sample

The study will be based on primary data and data collection techniques involving use of interviews as main instruments to enhance and give quality to the findings. Interviews are a useful tool through which data can be acquired by reading the perceptions and feelings while collecting data although at times they yield minor biases, which is an implication that not all information will be proven accurate. The study will ensure that interviews will be impressive to eliminate suspicious tendencies. Secondary data will also be relied upon by reviewing literature of previous writers on the same study and included textbooks, CDs, Internet, Journals and previous research on database security in organizations.

#### 3.4 Data Collection Techniques

The following are the methods of data collection that were used.

##### 3.4.1 Interviews

We conducted multiple interviews, both structured and informed with and without a written guideline and set of questions, in two different phases of the research: during the experiment and post analysis. By so doing we were able to assemble and analyze the respondents' views of the (LCMS). Most of those references were however noted down for easier referencing.

### 3.4.2 Questionnaires

The questionnaire of closed and open-ended question was distributed to all concern persons. This method of data collection gave the respondents ample time to fill the questionnaires with the correct information freely. The information from this method was mainly used to facilitate coding and data analysis.

### 3.4.3 Observation

Visits are to be made to the MTN service center to observe how the current system works. This technique is helpful in verifying the findings got from interviews and to get to know better the problem at hand physically.

## 3.5 Requirement analysis;

The researchers will explore the current database protection system to establish problems it brings about and thus will be in position to identify user requirements as well as inputs to the system and required output. This will be through analyzing the current as well as anticipating future problems of the unprotected data and integrity which will help to enlighten the researchers on the needs of the system protection to be drawn. This involves both the functional and non-functional analysis as shown below:

### 3.5.1 Functional requirements

The system is intended to track and backup up customers lost contacts incase of phone loss or simcard misplacement.

### 3.5.2 Non-functional requirements

The system lets the user to add entry, delete entry and search for an entity and transit between the online backup and the phone/simcard.

## 3.6 Design;

Design is for validation of performance of the system in data processing, software and user interface in order to specify how the system will be protected through use of mysql as the structured methodology tool, to allow for protection of confidential data.

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### 3.6.1 User Interface

User interface design or user interface engineering is the design of computers, appliances, machines, mobile communication devices, software applications, and websites with the focus on the user's experience and interaction. The goal of user interface design is to make the user's interaction as simple and efficient as possible, in terms of accomplishing user goals—what is often called user-centered design. Good user interface design facilitates finishing the task at hand without drawing unnecessary attention to it. Graphic design may be utilized to support its usability. The design process must balance technical functionality and visual elements (e.g., mental model) to create a system that is not only operational but also usable and adaptable to changing user needs..

### 3.6.2 Database design

#### 3.6.2.1 Logical design

A logical architecture identifies the software components needed to implement a solution, showing the interrelationships among the components. The logical architecture and the quality of service requirements determined during the technical requirements phase form a deployment scenario. The deployment scenario is the basis for designing the deployment architecture, which occurs in the next phase, deployment design.

When developing a logical architecture you need to identify not only the components that provide services to users, but also other components that provide necessary middleware and platform services. Infrastructure service dependencies and logical tiers provide two complementary ways of performing this analysis.

Database design also includes **ER (Entity-relationship model)** diagrams. An ER diagram is a diagram that helps to design databases in an efficient and efficient way.

Attributes in ER diagrams are usually modeled as an oval with the name of the attribute, linked to the entity or relationship that contains the attribute.

Within the relational model the final step can generally be broken down into two further steps that of determining the grouping of information within the system, generally determining what

are the basic objects about which information is being stored, and then determining the relationships between these groups of information, or objects.

### **3.6.2.2 Physical design**

Physical Database Design discusses the concept of how physical structures of databases affect performance and includes specific examples, guidelines, and best and worst practices for a variety of DBMSs and configurations. Something as simple as improving the table index design has a profound impact on performance. Every form of relational database, such as Online phonebook system ,Enterprise Resource Management (ERP), Data Mining (DM), or Management Resource Planning (MRP), can be improved using these methods.

### **3.6.3 Testing**

**3.6.1 Unit testing:** focuses on testing each unit of the code

**3.6.2 System Testing:** is the next level of testing. It focuses on testing the system as a whole.

This article attempts to take a close look at the System Testing Process and analyze:

Why System Testing is done? What are the necessary steps to perform System Testing? How to make it successful.

## **3.7 Implementation**

Through implementation, validity of the security system will be done followed by an installation of the necessary software and system maintenance. And thereafter will come up with the concept of data security to improve its integrity in order to protect the position of the company.

### **3.8 System Designing Tools and languages**

The researcher will use database development and programming tools. Database development tools include mysql

#### **3.8.1 Operating System**

The researcher will use extreme programming (XP) methodology to accomplish the development of the system.

Extreme programming (XP) is a system development methodology which is intended to improve system's quality and responsiveness to different changing customer requirements.

If easily advocates frequent “releases” in short development cycles which improve on productivity and introduce the checkpoints where changes on the customers’ requirements can be adopted XP involves four activities.

- i. Coding: advocates of XP argue that the only truly important product of system development process is code since it shouts the most suitable solution.
- ii. Testing. One cannot be certain that any included function works unless tested problems in system development here XP approach is that if a little testing can eliminate a few flaw, the a lot of testing eliminates many more flaws and this improves on systems functionality.
- iii. Listening  
This is where the system, designer listens to what the customer form the system and must understand there needs well in order to give the system users feedback about the technical aspects of how the problem might be solved. Communication between system designer and system users will further be addressed in the planning stage.
- iv. Designing: good designing will avoid lots of dependencies within the system meaning changing on apart of the system will not affect other parts of the system.

### **3.8.2 Programming Languages (s) and Tools**

The researchers will use visual studio/PHP for designing the interfaces where as mysql server to develop the database for phonebook system.

### **3.9 Conclusions**

In conclusion therefore if, Online phonebook system is developed, there will be security and record keeping, reduced risks of losing contacts and more customers will not get so worried of losing their contacts each time their phones are stolen or misplace their simcards. This is because all of this will be just a click away.

## CHAPTER FOUR

### SYSTEM ANALYSIS AND DESIGN

#### 4.1 Introduction

System analysis and design describes in details the design issues of the new system and the current system. With thorough insight into the operations and analysis of all the output requirements of the system, ensures a good design, which is a major step to successful system development. System analysis is a problem-solving technique that decomposes a system into its component pieces for the purpose of studying how well those component parts work and interact to accomplish their purpose.

#### 4.2 Analysis of the Current System

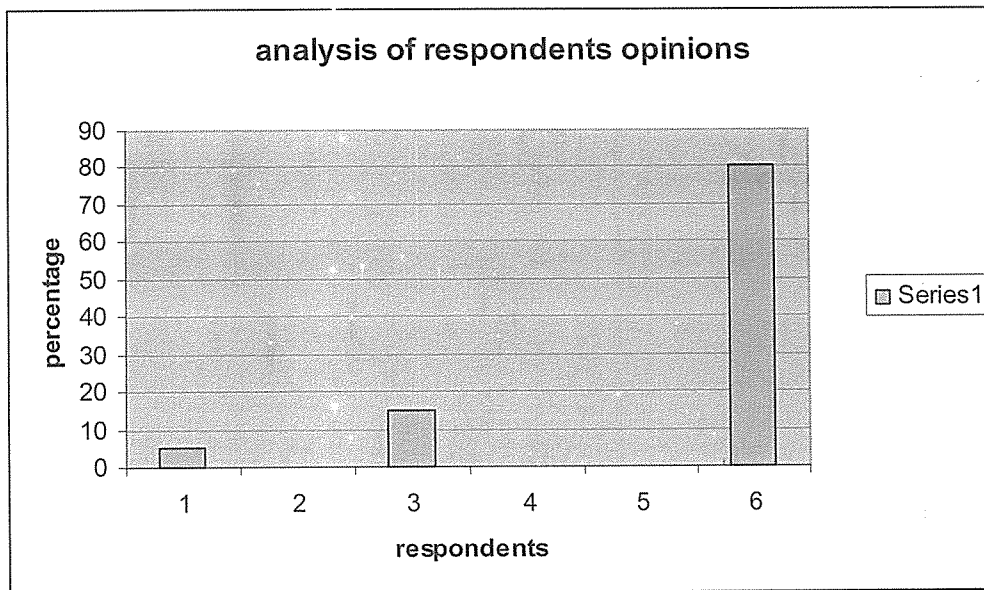
The investigation analysis was carried out to establish how the existing system functions and what its problems were. This led to a definition of a set of options from which the users could choose their required system. In carrying out this, information about the current system was collected by recording the problems and requirements described by the users of the current system; a picture of the required system was then built.

**The major problems identified with the current system were as follows:**

- viii) The customers tend to lose their personal data when handset is lost or stolen.
- ix) The customers do not have secure and easy phonebook storage and update.
- x) The customers suffer a risk of personal data overwriting.
- xi) The customers are not able to carry out multiple access to personal data with user friendly end-user interface.
- xii) The customers are not able to capture their data, storing it and generating reports and receipts.
- xiii) The customers are not able to keep their records that is phone contacts and retrieve their lost contacts in advance

### 4.3 Need for the new system

Basing on the research question “what are the major security threats to the system?” we found out that 80% of the respondents supported a new security system, 15% were not in support in fear of losing their jobs and 5% were just neutral.



### 4.4 Description of the New System

After analyzing the current system, considerations of implementing a new online phonebook management system was made. It needed a well web based system to improve on customers lost contact's retrieving. This was done to improve the company's data dictionary, data integrity and security, quality of services and utilization of resources.

#### 4.4.1 Advantages of the New System

- i) The system will enable the recovery of personal data when handset is lost or stolen.
- ii) The system will enable secure and easy phonebook storage and update.
- iii) The system will ensure that there is no risk of personal data overwriting.
- iv) The system will enable multiple access to personal data with user friendly end-user interface.

- v) The system will establish a mechanism to facilitate initiatives towards utilization of Information Technology (IT) as an enabling tool for improved service delivery.
- vi) The system will help users in capturing customers' data, storing it and generating reports and receipts.
- vii) The system will help customers keep their records that is phone contacts and allow them retrieve their lost contacts in advance.

#### **4.4.2 Feasibility Study of the New System**

##### **4.4.2.1 Technical Feasibility**

Technical feasibility means the proposed solution can be implemented with the available hardware, software and technical resource. The existing resources are: A personal computer with 10 Giga bytes hard disk and 256 Mega bytes of RAM (Random Access Memory), System software are Windows 95/98/XP with MS-Office, MYSQL server, MS-SQL Server, Oracle database system, Java, ASP, JSP, Servlets, and Java Script.

##### **4.4.2.2 Operational Feasibility**

The online phonebook System is easy to use. The user does not need any costly training to operate this system. However the new users must have computer operation knowledge especially on Windows platform. As is common for any new software at the beginning things may appear a little unfamiliar. But the system if gradually used it will be found quiet easy to operate, and the user will become skilled in it automatically.

#### **4.5 System Requirement Specification**

After data collection and analyzing, the researcher came up with the requirements of the new system as below:

- i) The system will enable the recovery of personal data when handset is lost or stolen.
- ii) The system will enable secure and easy phonebook storage and update.
- iii) The system will ensure that there is no risk of personal data overwriting.
- iv) The system will enable multiple access to personal data with user friendly end-user interface.

- v) The system will establish a mechanism to facilitate initiatives towards utilization of Information Technology (IT) as an enabling tool for improved service delivery.
- vi) The system will help users in capturing customers' data, storing it and generating reports and receipts.
- vii) The system will help customers keep their records that is phone contacts and allow them retrieve their lost contacts in advance.

#### 4.5.1 Hardware Requirements

Pentium 3 and above, Random access memory (RAM) of 512 megabytes (MB) and above, Hard disk space of 3 gigabytes (GB) and Internet connection.

#### 4.5.2 Software Requirements

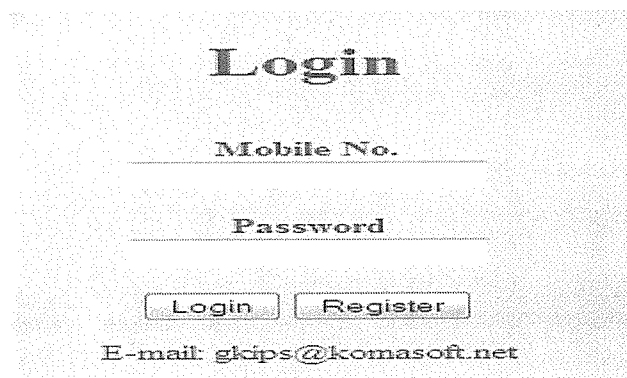
Windows operating system, Web server with hypertext markup language, Antivirus software and graphical browser installed and MySQL server.

### 4.6 System Design

Having obtained the new system requirements, the next task was to design a system that meets the specified user requirements. System design involved the specification and design of a technical, computer based solution for the requirement process identified during system analysis. It was driven by the technical concerns of the system designer. System design was looked at from Logical Design, Physical Design and Database Design.

#### 4.6.1 Login

Here the user enters the username and password in order to access the system.



The image shows a login form with the following elements:

- Login** (Title)
- Mobile No.** (Label) with an input field below it.
- Password** (Label) with an input field below it.
- Login** (Button)
- Register** (Button)
- E-mail: [glcips@komasoft.net](mailto:glcips@komasoft.net)

#### 4.6.2 Registration form

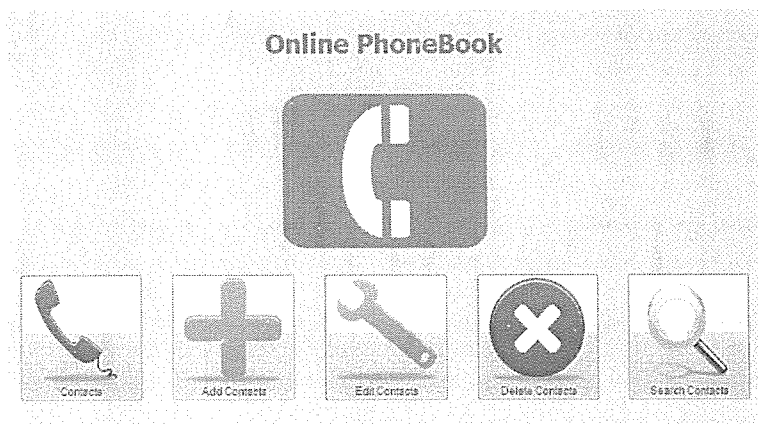
Customers who intend to use the phonebook system must register their number in the form below



The image shows a registration form titled "Register form". It contains two input fields: "Mobile No." and "Password". Below the fields is a "Submit" button.

#### 4.6.3 Admin

This is the navigation page when a user logs into the phonebook

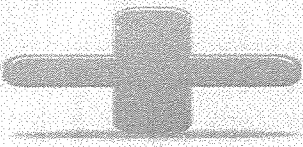


#### 4.6.4 Adding a new contact to the phonebook

This enables the user to add a new contact into the phonebook. The new contact will only be added into the database only when the all fields are filled.



## Add Contacts



Name	<input type="text"/>
Mobile No.	<input type="text"/>
E-mail	<input type="text"/>
Location	<input type="text"/>
Network	<input type="text" value="MTN"/>
D.O.B	<input type="text"/>

#### 4.6.5 Deleting a contact from the phonebook

Phonebook system allows the user to delete a contact first the he/she searches for the contact to be deleted then press the delete button. Deletion removes the contact from the phone book database permanently.

### Delete Contacts



Value	Field
<input type="text"/>	<input type="text" value="mobile_no"/>

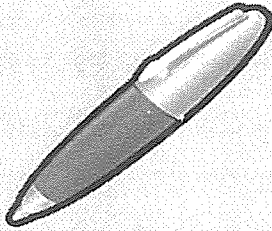
### Information

Names	<input type="text" value="{Sa["/>
Mobile No	<input type="text" value="{Sa["/>
E-mail	<input type="text" value="{Sa["/>
Location	<input type="text" value="{Sa["/>
Network	<input type="text" value="{Sa["/>
D.O.B	<input type="text" value="{Sa["/>

#### 4.6.6 Editing the phonebook

The interface below shows how to make changes on a contact which already exist in the phonebook database, it involves searching the contact either by mobile number or name then the user makes changes.

### Edit Contacts



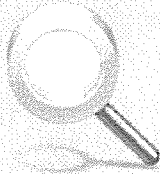
Value	Field
<input type="text"/>	names ▾
<input type="button" value="Search"/>	

Names	<input type="text" value="{Sa["/>
Mobile No.	<input type="text" value="{Sa["/>
E-mail	<input type="text" value="{Sa["/>
Location	<input type="text" value="{Sa["/>
Network	<input type="text" value="{Sa["/>
D.O.B	<input type="text" value="{Sa["/>

#### 4.6.7 Searching the phonebook

The interface shows how the system allows the user to search the with ease, user can either search contact by name, mobile number and email address.

### Search Contacts

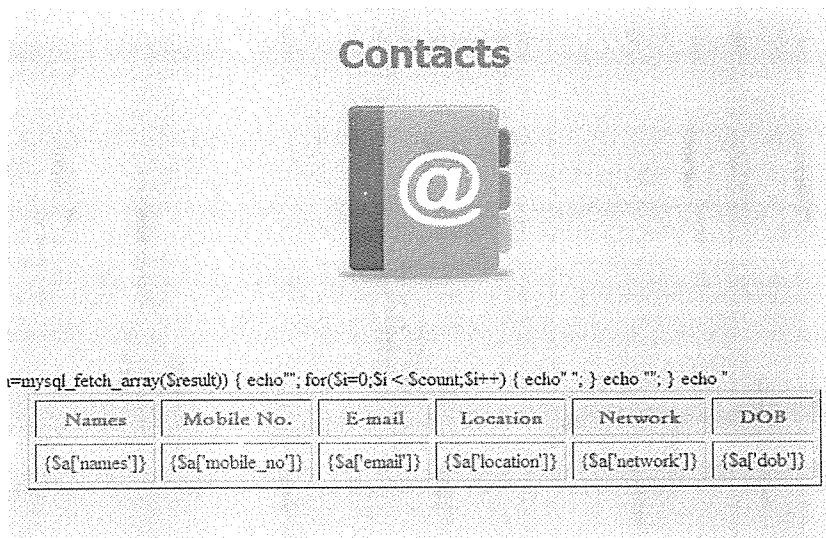


Value	Field
<input type="text"/>	names ▾
<input type="button" value="Search"/>	

Result	
Names	<input type="text" value="{Sa["/>
Mobile No	<input type="text" value="{Sa["/>
E-mail	<input type="text" value="{Sa["/>
Location	<input type="text" value="{Sa["/>
Network	<input type="text" value="{Sa["/>
D.O.B	<input type="text" value="{Sa["/>

#### 4.6.8 Phonebook contacts

The list of all contacts in the database is shown in the display below. When a user enters



## 4.7 Database Design

The customers need to login to the system by inserting a valid username and a password. If the application is successful, the system confirms by submitting the main page where he/she can update, delete and then fill in their names, and pin code. The system administrator also needs the valid username and password to access the company's information. System administrator is also able to register other administrative users, and can view and manage the customers records. Human resource department post the available work on the system, schedule the work and generate reports from customers records from the system as the customers are able to update the given details from the system.

### 4.7.1 Physical Design

It shows how the system would be physically and technically implemented. Database design is the process of producing a detailed data model of a database. This design data model contains all the needed logical and physical design choices and physical storage parameters needed to generate a design in a Data Definition Language, which can then be used to create a database. A fully attributed data model contains detailed attributes for each entity.

The process of database design generally consists of a number of steps which are not all necessary in all cases. To create the database, the researcher started by determining the data to be stored in the database. Then the researcher identified the relationships between the different data

elements by looking out for the dependencies in the data that is where one piece of information is dependent upon another. Using MYSQL, the researcher created a database called administrator together with its tables.

```
mysql> select * from phone;
```

names	mobile_no	email	location	network	dob
weldon	09898	langat@yahoo.com	kansanga	mtn	7/7/2011

row in set (0.00 sec)

## CHAPTER FIVE

### DISCUSSION, RECOMMENDATIONS AND CONCLUSION

#### 5.1 Introduction

A system and method for backing up a phonebook in an electronic device creates a backup file, copies data in the phonebook to the backup file, and sets an identification for the backup file.. The outcomes and contribution of the study to evaluation of changes in the software developed are discussed and conclusions are given below.

#### 5.2 Discussion

This section of the research provides a summarized overview of how the objectives and tasks of the project have been achieved, lesson learnt, recommendations as well as the conclusion and any other area for further research which should be carried out. The system achieves a lot more than the old system; it provides an environment that is both convenient and efficient for the retrieval and storage of information.

The system provides an easy way of updating information, so that information changes in ones file is automatically updated in the database. The system ensures that an effortless and speedy means of retrieving lost phone contacts is in place. It ensures that MTN mobile service maximizes on its benefits and reduces the time and money spent by customers on retrieving their lost contacts - up to 85%. The system has a login form that provides a secure security that is hard for unauthorized users to access information in the database. Furthermore, software engineering principles like robustness, usability, interoperability, efficiency and platform were strictly followed making the software highly user friendly yet minimizing any undesirable tradeoffs.

The system enables the human resource department to manage and generate reports, while administrator manages logged in information, which is modified, deleted and views users' profiles. The entire system was implemented by the researcher using web clips with the user interface and other components in HTML, MySQL, and PHP. It was the researcher's wish to automate the update of the knowledgebase and reasoning steps when new information is gained from experience obtained after using expert system module for a given number of times.

However, this was not possible, because the programming tool (web clips) did not provide support for this.

### **5.3 Recommendations**

This project can be improved by embedding in more dynamic utilities that were not possible due to the project scope but can improve the MTN mobile service system for retrieving customers lost contacts. For the users to obtain accurate and up-to-date information which they can use to make suggestion and any concrete conclusions, the system need to be updated frequently, if possible on a daily basis. The database should be managed by a skilled person with the necessary expertise on database design and management. The database should be protected from intrusion because the information stored in it is very delicate.

The researcher's findings of the study recommended adoption and usage of a web based system developed for the online phonebook management system, so as to improve on knowledge of manual record keeping of the customers'. Furthermore, a mechanism enabling updates to the system would also be available so that customers' and administration can be able to update their details accordingly. This is because of the faster growing of technology which changes each and every time whereby new ideas are invented by other researchers. The web based system for the contact retrieving process developed can still be improved.

### **5.4 Conclusion**

The strength of a company to manage and make use of its stored sensitive data promises its excellence in today's competitive business world. This triggers the need to use all the information technology techniques available in order to secure and make good use of the available company data. Simplicity is the target everyone would wish to achieve in everyday life hence coming up with an online phonebook management system to make Human resource management life easy and to save on costs and time. The main purpose for developing this project was aimed at developing an online phonebook management system and method for backing up a phonebook in an electronic device to create a backup file, copy data in the phonebook to the backup file, and sets an identification for the backup file... The researcher was able to achieve through the system produced as output of the project.

Lastly, the researcher wanted to make the information concerning the online phonebook management system available to the majority of users from Uganda and abroad. With the produced system being a web based, this was achieved. All the steps undertaken during this project report have been useful to the researcher because the researcher come to realize the way how activities are done in the outside world that is out of MTN mobile service. The researcher has gained skills in various fields like the creation of a web based systems, research and design among others. It has been so educative, inspirational and interesting that any student ought not to miss the research project report. The study provided solution of providing easy and faster way of accessing information by the users of the system. Nevertheless, findings of the study were limited to a specific target (MTN mobile service). The desired aim was to provide an online phonebook management system and method for backing up a phonebook in an electronic device to create a backup file, copy data in the phonebook to the backup file, and sets an identification for the backup file.

### **5.5 Project Limitations**

During the data collection phase, on a number of occasions, the researchers found the respondents for question too busy to provide meaningful audience, especially during working hours. Most of the intended respondents were not reached because it was not easy to meet them due to the fact that they appeared very busy. It was so expensive to conduct the survey because the respondents were most of the time out of the scope of the appointments and would always say sorry thus not getting always the required information or data.

### **5.6 Areas of Further Study**

To make the system more comprehensive the researchers suggests addition of the following: further research to be carried out on how to enter data in the database in MySQL. For one to enter data in MySQL, one should use forms created in the web pages or use the INSERT INTO command in SQL. Using forms to enter data into the database is relatively easy but not all data can be entered through forms, for example in the Project table, there is no form created to enable one to enter the data into the database. On the other hand using SQL commands to enter data is a

little bit difficult, cumbersome and requires skills. The researcher's suggestion is that research should be carried out on this to find easier ways of doing this like when creating the database or a table. Security controls including digital signatures should be enforced in this system to minimize hacking.



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**APPENDIX A**  
**SAMPLE CODES**

**// Contact page**

```
<?php
$link=mysql_connect("localhost","root","");
mysql_select_db('phonebook');
$result=mysql_query("select * from phone order by names,names;");
$flag1=mysql_num_rows($result);
if($flag1==0)
    die("<center><h2>No records found </h2></center>");
echo"<table border='1' align='center' cellspacing='5' cellpadding='5' bordercolor='red'>
<tr><th align='center'>Names</th>
<th align='center'>Mobile No.</th><th align='center'>E-mail</th>
<th align='center'>Location</th><th align='center'>Network</th><th align='center'>DOB</th></tr>";
$count=mysql_fetch_field($result);
while( $a=mysql_fetch_array($result))
{
    echo"<tr>";
    for($i=0;$i < $count;$i++)
    {
        echo" <td align='center'>{$a['names']}</td>
            <td align='center'>{$a['mobile_no']}</td>
            <td align='center'>{$a['email']}</td>
            <td align='center'>{$a['location']}</td>
            <td align='center'>{$a['network']}</td>
            <td align='center'>{$a['dob']}</td>";
```

```

    }
    echo "</tr>";
}
echo "</table>";
?>
// Add page
<?php
    if(isset($_POST['hidden']))
    {
        if(is_string($_POST['names']))
        {
            $name = "{$_POST['names']}";
            $name=ucwords($names);
        }
        else
        {
            die("<center><h2>Check the names field</h2></center>");
        }
        if($_POST['mobile_no']== "")
        {
            die("<center><h2>Check the mobile no. field</h2></center>");
        }
        else
            $mobile_no="{$_POST['mobile_no']}";
            $mobile_no=ucwords($mobile_no);

```

```
$email="{$_POST['email']}";
$location= "{$_POST['location']}";
$network="{$_POST['network']}";
$dob="{$_POST['dob']}";

mysql_connect("localhost","root","") or die("could not connect to the database");
mysql_select_db('phonebook') or die("could not find appropriate database");
$query="insert into phone(names,mobile_no,email,location,network,dob)
        values('$names','$mobile_no','$email','$location','$network','$dob)";
mysql_query($query) or die("<center><h2>Please check the values</h2></center>");
echo"<center><h2>Contact added successfully</h2></center>";

}
?>
```

**APPENDIX C**  
**SCHEDULE FOR THE PROJECT**

Number	Task	Nov	Dec	Jan	Feb	Mar	Apr
1	Problem analysis						
2	Design the program						
3	Coding						
4	Testing and debugging						
5	Maintaining the program						



COMPLETED TASKS



INCOMPLETE TASKS