# AWEB-BASED TO RE-ESTABLISH CONTACT BETWEEN MISSING AND SEPARATED FAMILIES DURING CONFLICTS AND NATURAL DISASTER IN SUDAN

**BADR ELDEEN HASSAN MADANI** 

UNIVERSITI TEKNOLOGI MALAYSIA

# AWEB-BASED TO RE-ESTABLISH CONTACT BETWEEN MISSING AND SEPARATED FAMILIES DURING CONFLICTS AND NATURAL DISASTER IN SUDAN

#### BADR ELDEEN HASSAN MADANI

A project report submitted in partial fulfilment of the requirements for the award of the degree of Master of Science (Information Technology – Management)

Faculty of Computer Science and Information System
Universiti Teknologi Malaysia

# To my parents

Whom waited long for this

and

# To my wife and beloved son

Whom offered the support and patience throughout the thesis execution

#### ACKNOWLEDGMENT

I would like to express my thanks and gratitude to Allah, the Most Beneficent, the Most Merciful who granted my ability and willing to start and complete this thesis.

Acknowledgement is due to the University Technology Malaysia for supporting this research.

I would like to express my deepest sense of gratitude to my supervisor Assoc. Prof. Azizah Abd. Rahman, for her patient guidance, encouragement and excellent advice throughout this study.

Also, I would also like to express my thank you to all my fellow postgraduate course mates for their support. My sincere appreciation also extends to all my colleagues, friends and others who have provided assistance at various occasions.

#### **ABSTRACT**

In a short period of time the World Wide Web, with its global reach and flexibility, has had a huge impact on the way we live, work and study. Its potential for contributing to the delivery of a genuinely inclusive society must be realised to the full. This study is an important step towards that goal. This study provides important services to those who are in need for restoring family links during conflicts and natural disaster in Sudan through the internet. Furthermore, this study provides a range of initiatives to improve the response to online reports of missing people & found people. Therefore this study emphasizes on helping those that have been displaced due to this conflict to unite with their loved ones and families. This study seek to use the internet as a tool to build a webpage that will help to re-establish contact between Missing and Separated Families during Conflicts and Natural Disaster in Sudan. The requirements to conduct and develop this study are based on the Red Cross Red Crescent society's criteria using an open source system. People can get the essential information on missing and found people using the system. This study also gives the developmental process of architectural design of the missing and found Web-based system.

.

#### **ABSTRAK**

Dalam jangkamasa yang pendek, jaringan sejagat (world wide web) melalui pendekatan global dan fleksibilitinya telah memberikan pengaruh yang amat besar terhadap cara menjalani kehidupan, bekerja dan menimba ilmu. Potensinya dalam menyumbang kepada pembebasan masyarakat yang sebenar mestilah disedari dengan sepenuhnya. Kajian ini merupakan satu langkah yang penting untuk mencapai matlamat tersebut di mana ia memberikan perkhidmatan yang penting kepada mereka yang perlu memulihkan kembali hubungan kekeluargaan yang telah terputus semasa konflik dan bencana alam yang berlaku di Sudan melalui penggunaan internet. Tambahan lagi, kajian ini juga memberikan inisiatif untuk meningkatkan respon terhadap laporan atas talian mengenai kehilangan dan penemuan. Oleh yang demikian, kajian ini lebih menitikberatkan untuk membantu mereka yang telah terpisah daripada keluarga kerana masalah konflik yang terjadi ini untuk kembali bersatu dengan orang yang tersayang dan keluarga masing-masing. Kajian ini menggunakan internet sebagai alat untuk membina laman sesawang (website) yang mana akan membantu untuk menyambungkan kembali hubungan kekeluargaaan dikalangan keluarga yang telah terpisah ketika konflik dan bencana alam yang berlaku di Sudan. Keperluan-keperluan bagi menyelenggara dan membina kajian ini adalah berdasarkan kriteria Persatuan Palang Merah yang menggunakan sistem sumber terbuka (open source). Pengguna boleh mendapatkan maklumat kehilangan dan penemuan melalui implementasi ini. Kajian ini juga memberi proses pembinaan rekabentuk senibina bagi memulihkan kembali hubungan kekeluargaan yang telah terputus secara atas talian.

# TABLE OF CONTENTS

CHAPTER	TITLE	PAGE
	DECLARATION	ii
	DEDICATION	iii
	ACKNOWLEDGMENT	iv
	ABSTRACT	v
	ABSTRAK	vi
	TABLE OF CONTENTS	vii
	LIST OF TABLES	xii
	LIST OF FIGURES	xiii
	LIST OF ABBREVIATIONS	xiv
1	PROJECT OVERVIEW	1
	1.1. Introduction	1
	1.2 Problem Background	2
	1.3 Statement of the Problem	4
	1.4 Project Objective	4
	1.5 Scope	5
	1.6 Importance of Project	5
	1.7 Chapter Summary	6
2	LITERATURE REVIEW	7
	2.1. Introduction	7
	2.2. Definition of Terms	9

•	٠	٠	
V1	1	1	

	2.3. Software Development Projects	11
	2.4. Types of web-base for Missing people	12
	2.4.1. Advantages and weaknesses of web-base for	13
	restoring family links	
	2.4.1.1. Advantages	13
	2.4.1.2. Weaknesses	14
	2.5. Stakeholders and partners Missing People and	14
	Restoring Family Link	
	2.6. Best practices	16
	2.6.1. Introduction	16
	2.6.2. www.inet.co.th	17
	2.6.2.1. Services provided by www.inet.co.th	17
	2.6.3. www.missingpeople.org.uk	18
	2.6.3.1 Services and Activities	19
	2.6.3.2. Procedure to report a found missing	20
	person	
	2.6.3.3. Benefits	21
	2.6.3.4. Responsibilities of	21
	missingpeople.org.uk	
	2.6.4. www.missingkids.com	22
	2.6.4.1 Services and Activities	23
	2.6.4.2. Procedure to report a found missing	24
	person	
	2.6.4.3. Case Management	25
	2.7. Important Tools to identify a person	25
	2.8. Summary of best practices	27
	2.9. Chapter Summary	28
3	METHODOLOGY	29
	3.1. Introduction	29
	3.2. Project Methodology	29
	3.2.1. Phase 1: Initial Planning Phase	32
	3.2.2. Phase 2: Analysis Phase	32

	3.2.2.1. Literature Review	32
	3.2.2.2. Study of web-bases for missing and	33
	found people	
	3.2.3 Phase 3: Design, Development and Testing of	33
	Prototype	
	3.3. System Development Methodology	35
	3.3.1. Evolutionary Prototype Model	36
	3.3.2. Object Oriented Approach	38
	3.3.3. UML Notation	38
	3.4. System Requirements Analysis	39
	3.4.1. Hardware Requirements	40
	3.4.2. Software Requirements	41
	3.5. Project Schedule	42
	3.6. Chapter Summary	42
4	ANALYSIS AND DESIGN	43
	4.1 Introduction	43
	4.2. Organizational Analysis	43
	4.2.1.Organization Structure	44
	4.3. Present Process	47
	4.4. User Requirements	48
	4.4.1 Tracing Forms	49
	4.4.2 Functional Requirement	50
	4.4.2.1 Search Capabilities	50
	4.4.3 Non - Functional Requirement	51
	4.5. To-Be Process and Data Model	52
	4.5.1. Flowchart Diagram	53
	4.5.2. Use Case	54
	4.5.2.1. Use Case Description	55
	4.5.3. CRC Card	55
	4.5.4. Class Diagram	55
	4.5.5. Sequence Diagram	56
	4.5.6. Activity Diagram	56

	4.6 System Architecture	56
	4.7 Services Stages of web-based of missing and found	57
	people Management System	
	4.8 Services provided by the web-based of missing and	58
	Found people	
	4.9 Services to be carried out by the proposed system	60
	4.10 Stakeholder Analysis	60
	4.11 Interfaces of the system	62
	4.12. Chapter Summary	62
5	DESIGN IMPLEMENTATION AND TESTING	63
	5.1 Design Implementation	63
	5.1.1 Implementation of Web-Based for Restoring	64
	Family Links.	
	5.1.2 Programming Code	64
	5.2 Test Result / System Evaluation	65
	5.2.1 Black Box Testing	65
	5.2.2 Integration Testing	67
	5.2.3User Acceptance Test	67
	5.3 Installation Procedure	69
	5.4 Chapter Summary	69
6	ORGANIZATIONAL STRATEGY	70
	6.1 Introduction	70
	6.2 Training and Management	71
	6.3 Conversion Strategy	71
	6.3.1 Conversion Type	72
	6.4 System Continuity Plan	73
	6.5 Expected Organizational Benefits	73
	6.5.1 Impact towards the Organization and	74
	Individuals	
	6.6 Chapter Summary	74

7	DISCUSSION AND CONCLUSION	75
	7.1 Introduction	75
	7.2 Achievement	76
	7.3 Constraints and Challenges	77
	7.3.1.1 Strengths and weaknesses	77
	7.4 Aspirations and Future Enhancement for the	78
	System	
	7.5 Chapter Summary	79
REFEREN	ICES	80
Appendice	s A - I	82 - 150

# LIST OF TABLES

TABLE NO	TITLE	PAGE
2.1	Summary of best practices	27
3.1	Details in every phase of project development	34
3.1	Details in every phase of project developmentcon	35
3.2	Activities in Evolutionary Prototype	36
3.3	workflows of Evolutionary Prototype phases	37
3.4	Software required for developing the system	41
4.1	System improvements and upgrading	49
4.2	Functional requirements for project	50
4.3	Search capabilities	51
4.4	Non-functional requirement for project	52
4.5	Services to be carried by the proposed system	59
4.6	Stakeholders for the proposed system.	61
5.1	List of black box testing	66

# LIST OF FIGURES

FIGURE NO	TITLE	PAGE
2.1	Literature Review Structure	8
3.1	Project Methodology Framework	31
4.1	Organizational structure	46
4.2	Flow chart diagram	53
4.3	User Diagram	54

#### LIST OF ABBREVIATIONS

CRC Class-Responsibility-Collaboration

HTML Hypertext Mark-up Language

NCMEC National Centre for Missing & Exploited Children's

OO Object Oriented

PC Personal Computer

PROT5 The SRCS department of Information System

PHP Personal Home Page

RAM Random Access Memory

UNICEF United Nations Children's Fund

UNHCR United Nations High Commission for Refugees

ICRC International Committee of the Red Cross

UML Unified Modelling Language
URL Uniform Resource Locator

SRCS Sudanese Red Crescent Society

#### **CHAPTER 1**

#### **PROJECT REVIEW**

#### 1.1 Introduction

The past decade has witnessed a number of armed conflicts and natural disaster worldwide with the result of alarming levels of forced migration in Africa, Asia, America and Europe. One of the many hardships imposed by armed conflicts and natural and man-made disasters is the separation of families; because of this, countless numbers of people are left seeking news of family members.

According to UNICEF in the last 10 years, there are 2 million children orphaned or separated from parents. At present the United Nations High Commission for Refugees (UNHCR) counts 18 million refugees who have fled across an international border, a six fold increase on 1970; as many again are internally displaced and often no less destitute. This totals one person in 125 of the entire world population.

On 26<sup>th</sup> December 2004 large areas of coastal southern Thailand were transformed when a tsunami, generated by a powerful submarine earthquake in theIndian Ocean, swept ashore. Officially, there were 5,395 confirmed deaths in Thailand with another 2,932 people listed as missing.

As a result to the conflicts and natural disasters, there are many different types of people are reported missing, from the very young to the very old, boys and girls, men and women, people who are running away and people who have drifted out of contact, people from all walks of life, under different circumstances, with different experiences while they are missing.

Consequently, there are many humanitarian organizations provide crucial immediate humanitarian assistance and reunite families separated through war, political conflict or natural disaster.

#### 1.2 Problem Background

During the conflicts and natural disaster that affected South region as well as Darfur region in Sudan, the impact is most immediate and dire for Children and families. Many lose their homes, lose family members and friends, and face the fact that the infrastructure that supported their daily lives is gone. Some of the children have been separated from their parents or other loved ones. These experiences result in serious emotional needs that may not be met.

Lone elders, sick and disabled adults are no longer taken care of by the families and communities as they used to be, because the social net has been made

dysfunctional due to the loss of extra resources. According to the traditional practice in Sudan (mainly in Darfur and South Sudan), men and children left their nucleus families for job and education. Before the conflict started, they kept in touch with their families via visits, private letters, oral messages and telephone throughout Darfur, the rest of Sudan, and abroad.

Today these people's communication mechanisms have been damaged by the conflict in all parts of Darfur. In addition, some people did disappear during the hostilities. The traditional means used by the local population for the tracing of their relatives does not lead to any results in locating these persons unaccounted for. The spontaneous family reunification is also constrained. For these vulnerable persons, restoring/maintaining the family contact and reunifying with able family members is one of the solutions.

Since then, the Sudanese Red Crescent together with the Sudanese national Humanitarian Organization have been trying to cope with all these critical situations in order to help and lend a hand to those people, who lost contacts with their family members, to re-establish the contact with their relatives as well as to reunite missing children to their parents. The Sudanese Red Crescent has been receiving more than 1700 cases from abroad mainly from UK, Libya, Egypt, Kenya, Uganda and Gulf countries. All these cases about people were lost the contact with their families due to the conflicts that effected in Darfur as well as in south Sudan.

Therefore, the idea to implement a most efficient restoring family links means have to carry out. A means that let those people to restore and maintain contact between family members, to maintain range of activities that aim to prevent separation and disappearance, and clarify the fate of persons reported missing. The Sudanese Red Crescent therefore has been thinking of lunching a special web-base to help in those situations and give hope to those who struggling to gets any single information about their missing ones.

As now days, advanced and modern technologies are being introduced in all fields of life through which changes the way people do and react to things. Therefore this study project is aim to launch a special webpage that provide services to those people who lost contact with their families in order to maintain family news and to clarify the fate of persons reported missing during times of displacement.

### **1.3** Statement of the Project:

How to develop and design webpage to trace and manage information of missing people, during armed conflicts and natural disaster.

#### 1.4 Project Objective

- To identify the information requirement of the missing/found people during conflicts and natural disaster.
- To analyze the stakeholders who are involved in missing/found people during conflicts and natural disaster.
- To design the best way to manage the information in terms of missing/found people during conflicts and natural disaster.
- To develop a special webpage to help those seeking to re-establish contact that lost due to the conflicts and natural disaster in Sudan, with their relatives.

#### 1.5 Scope

This system will concentrate on how to design a webpage for those who affected by the armed conflicts and natural disaster in Sudan, to clarify the fate of persons reported missing or found and to restore contact between family members.

#### 1.6 Importance of Project

This project is to develop *a* web-base system to re-establish contact between family members during conflicts and natural disaster in order to achieve the objective of improving the services by enhancing feature of the webs-base to help more people round the world to access the information. This project will provide better system to be applied in the Sudanese Red Crescent main site and formulating best practices to handle the family links barrier problems during conflicts and natural disaster. A good web-based can provide equivalent valuable information less complicatedly, more quickly and can often result in significantly higher response rates.

#### Some benefits of the project are:

- i. Simplify the way of managing the tracing request of enquirer.
- ii. Confidential 24 hour online services providing support for people who are out of contact with their family
- iii. Reduce the routing-path through which a tracing request may take to reach the main office.
- iv. Provide efficient generated-report that can assist the organization of making more accurate decision.
- v. The ability to capture, index, securely store, archive, and retrieve an electronic documents

# 1.7 Chapter Summary

In this chapter, short ideas about the project have been given. The main purpose of this project was to develop a complete and effective web-based foe restoring family links during conflicts and natural disaster. The problem background, problem statements, objectives and scopes of the project have been presented in this chapter. The recognized objectives and scopes were the backbones of this project.

#### **REFERENCES**

The information on missing persons during Tsunami disaster [online]. Available at

http://missingpersons.or.th/index.en.html [accessed date 04 Mar 2009]
http://www.missingpeople.org.uk/areyoumissing/missing [accessed date 04 Mar 2009]

http://www.missingkids.com/missingkids/servlet/PublicHomeServlet?Langua geCountry=en\_US& [accessed date 04 Mar 2009]

ACPO (2006) Guidance on the Management, Recording and Investigation of Missing Persons. (Bramshill: National Centre for Policing Excellence on behalf of ACPO)

Biehal, N., Mitchell, F. and Wade, J. (2003) Lost From View: Missing Persons in the UK (Bristol: The Policy Press)

Morgan, R. (2006) Running Away: A Children's Views report (Newcastle: Commission for Social Care Inspection, Office of the Children's Rights Director for England)

Newiss, G. (2006) 'Understanding the risk of going missing: estimating the risk of fatal outcomes in cancelled cases', *Policing: An International Journal of Police Strategies and Management*, Vol. 29, No. 2, 2006.

Tailing, R. and Burrows, J. (2004) ) 'The nature and outcome of going missing: the challenge of developing effective risk assessment procedures', *International Journal of Police Science and* Management, Vol. 6, No. 1, 16-26

Wade, J. and Biehal, N. with Clayden, J. and Stein, M. (1998) *Going Missing: Young People Absent from Care* (Chichester: John Wiley and Sons)

Tilley, N. (2000) 'Missing from home' in Police Research Group, Focus 9. London: Home Office Police Policy Directorate.

Save the Children Fund (2008). Helping Children in Difficult Circumstances. ATeacher's anual. London SCF.

UNICEF (2006). Children in Situations of Armed Conflict. New York. UNICEF: E/ICEF.CRP.2.

GUIDANCE ON THE MANAGEMENT RECORDING AND INVESTIGATION OF MISSING PERSONSA- ACPO Centrex 2005 - NATIONAL CENTRE FOR POLICING EXCELLENCE (NCPE) ON BEHALF OF THE ASSOCIATION OF CHIEF POLICE OFFICERS (ACPO) - UK