

**Davao City Disaster Management System Implemented with Sahana and
FrontlineSMS**



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Recommendation for Oral Defense

In partial fulfillment of the requirements for the degree of BACHELOR OF SCIENCE IN INFORMATION TECHNOLOGY, this SENIOR PROJECT entitled:

Davao City Disaster Management System Implemented with Sahana and FrontlineSMS

has been prepared and submitted by Hazel Joie Diez, Irene Grace Lo, and Elson James Solano and is recommended for ORAL PROPOSAL DEFENSE.

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TABLE OF CONTENTS

Title Page	i
Recommendation for Oral Defense	iii
Recommendation for Acceptance	iv
Acknowledgements	v
Table of Contents	vi
Chapter 1 Introduction	1
1.1 Background of the Study.....	1
1.2 Technology Application Context.....	2
1.2.1 Configuration and Modification of Sahana.....	2
1.2.2 Tool for allowing computer to send and receive bulk messages.....	2
1.3 Objectives of the Study.....	3
1.4 Significance of the Study.....	3
1.5 Scope and Limitations of the Study.....	4
Chapter 2 Review of Related Works	6
Chapter 3 Project Design and Methodology	9
Chapter 4 Technology Background	12
4.1 Sahana Modules and Features.....	13
4.2 FrontlineSMS.....	15
4.2.1 FrontlineSMS Modules and Features.....	16
4.3 SMS Verifier Application.....	19
Chapter 5 Results and Discussions	20
5.1 Learning Phase.....	20
5.2 Implementation.....	21
5.2.1 Searching for Sahana Disaster Management System Client.....	21
5.2.2 Gathering Data of the Organization.....	22
5.2.3 Installing Sahana Disaster Management System.....	22
5.2.4 Installing FrontlineSMS.....	27
5.3 Customization of Sahana's Organization Registry.....	31
5.3.1 Creating and Processing the Forms.....	31
5.4 Integration of FrontlineSMS in Sahana's Missing Person Registry	62

5.5 User Acceptance Result from DCDCC..... 63

Chapter 6 Conclusions and Recommendations..... 64

Bibliography..... 65

Appendices..... 66

Appendix A – List of Mobile Phones Supported by FrontlineSMS..... 66

Appendix B – Relevant Source Codes..... 67

ABSTRACT

Disasters, be they man made or natural are events that put people's lives in danger and affects the society and the environment negatively. Disasters are usually unforeseen, but organizations can respond to them to prevent further loss of life. Thus, it is wise to have a disaster management to organize individual and organizational relief efforts.

Technology offers many benefits that we can utilize to improve the disaster management. We can help alleviate the suffering and the trauma caused by disasters through a comprehensive Disaster Management System that will synergize individual efforts and will make the relief actions faster and more efficient.

The proposal is an enhancement of the widely-used Free and Open Source Sahana Disaster Management System. Our project involved the configuration and customization of Sahana for Central 911. We also integrated FrontlineSMS to enable citizens to report incidents to the system.

Keywords:

Disaster management system, Sahana, Free and Open Source System

CHAPTER 1

INTRODUCTION

1.1 Background of the study

Sahana Free and Open Source Disaster Management System was a lesson learned from the Asian Tsunami that hit Sri Lanka last December, 2004. Thousands of people died, thousands of families were displaced, lost their homes and properties and many were lost and injured in the said tsunami. In response to this tragic incident, overwhelming humanitarian aid from all over the world came for relief operations. It was then realized that without Information Technology, it would be difficult to maximize the impact of the relief to all affected people. There should be an overarching system that will coordinate all humanitarian efforts and efficiently extend the help to all affected people. This is how Sahana was conceived.

The system is free and open source which means that it is distributed for free and available for everyone to customize. It is distributed under GNU Lesser General Public License. The current system has been known for its features and in fact has been deployed in several countries for their disaster management.

1.2 Technology Application Context

1.2.1 Configuration and Modification of Sahana:

We have coordinated with the Davao City Disaster Coordinating Council (DCDCC), the department of the City Government that is responsible of ensuring the protection and welfare of its people in times of disasters or emergencies. We had learned that the DCDCC does not have a Disaster Management System to use in times of city-wide disasters and incidents. We thought that the unavailability of an overarching system that will coordinate all information needed in times of disaster should be responded to.

We proposed of making a Disaster Management System for DCDCC using the platform of Sahana Disaster Management System. The customizations are set to us by DCDCC. We based our modifications that are specified to us during our meetings. We are supported with paper documents that will also be the basis of customizations for Sahana-Davao.

1.2.2 Tool for allowing a computer to send and receive bulk messages:

FrontlineSMS - is a PC-based software application written Java used for sending and receiving group SMS messages. It also allows you to conduct surveys and competitions, and run automated information services (such as market prices to farmers, for example). It does not require an internet connection and works with any GSM network. The software communicates using a mobile phone or modem, which you attach to your computer with a USB cable.

1.3 Objectives of the Study

This research aims to meet the following objectives:

- To create a Disaster Management System using Sahana as a platform
- To modify Sahana for Davao City's specific needs and requirements in coordination with Davao City Disaster Coordinating Council
- To provide online mapping (GIS) of developing disaster using Google Maps
- To present to the Davao City Disaster Coordinating Council the customized Sahana
- To integrate FrontlineSMS with Sahana Disaster Management System

1.4 Significance of the Study

The creation of the Sahana Disaster Management System is significant in itself. The world today is experiencing disasters, natural, man-made or both and we cannot predict the outcome of it. Nothing will reduce the effects of a disaster except when we are prepared for it.

First of all, Davao City Disaster Management System is significant because first it will uphold the vision and mission of Sahana which are: to alleviate human suffering, bring together the government and other humanitarian groups, empower and protect the people and provide an end-to-end solution available to everyone in time of disasters.

Sahana is a great application that provides different modules to aid disaster relief operations. But apart from Sahana, there are also other available tools like FrontlineSMS that are very much useful in a disaster incident. FrontlineSMS is a free open source

software that collects information via text messages (SMS). This software can work without an internet connection and with only a cell phone and computer.

Our proposal is to make FrontlineSMS effective in Sahana. We will integrate the reports that were processed in FrontlineSMS in to Sahana's database. The integration is significant because of the following:

- Lost and Found people during disaster incidents can now be reported via text message and will be posted in Sahana's Missing Person Registry.
- It has the least number of compatibility issues. Almost all cellular phones are compatible with FrontlineSMS.
- It does not need to be online. It works on any GSM network.

1.5 Scope and Limitations of the Study

The scope of the project is limited to configuration and modification of Sahana Disaster Management System for Davao City's requirements. The requirements will be set to us by Davao City Disaster Coordinating Council.

The online mapping using Google Maps will cover the entire territory of Davao City.

FrontlineSMS has compatibility issues due of the technical differences between makes and models of phones, not all devices are supported.

1.6 Definition of Terms

- Sahana Disaster Management System – is a Free and Open Source Disaster Management system. It is a web based collaboration tool that addresses the common coordination problems during a disaster from finding missing people,

managing aid, managing volunteers, tracking camps effectively between Government groups, the civil society (NGOs) and the victims themselves.

- FrontlineSMS – free, open source software that turns a laptop and a mobile phone into a central communications hub.
- Geographic Information System (GIS) - Is any system that captures, stores, analyzes, manages, and presents data that are linked to location. In the simplest terms, GIS is the merging of cartography and database technology. GIS systems are used in cartography, remote sensing, land surveying, utility management, photogrammetry, geography, urban planning, emergency management, navigation, and localized search engines.
- Google Maps - is a web mapping service application and technology provided by Google, free (for non-commercial use), that powers many map-based services, including the Google Maps website, Google Ride Finder, Google Transit, and maps embedded on third-party websites via the Google Maps API. It offers street maps, a route planner for traveling by foot, car, or public transport and an urban business locator for numerous countries around the world.