Requirements Document 1.0
Disaster Continuity Planning System

Angle Engineering

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Revision History

Name	Date	Reason for Changes	Version
Tristan Giles	September 18th	Created document	1.0
Tristan Giles	September 26th	Updates to aid center list and map requirements	1.0
Emma Johnson	September 26th	Updates to user classes and operating environment	1.0
Jalila Jalila	September 26th	Updates to non-functional requirements	1.0
Riley Raso	September 26th	First draft of System Features	1.0
Anish Shenwai	September 26th	First draft of introduction and glossary	1.0
Scott Andreen	September 26th	First draft of Overall Description	1.0
Tristan Giles	September 29th	Updates to non-functional requirements to include	1.0
Riley Raso	September 29th	Updates to non-functional requirements, glossary, and System Features	1.0
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Jalila Jalila	September 29th	Updates to system features	1.0
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Riley Raso	September 30th	Review and edit glossary, consistency checks	1.0
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1 Introduction

1.1 Purpose

This document refers to the requirements for a Disaster Continuity Planning (DCP) system, last updated to version 1.0. The purpose of the proposed DCP system is to provide each end user with the ability to identify and locate aid centers in the event of a disaster. The proposed DCP system will allow administrative users to communicate information about their respective aid center to the end user before and during a disaster.

1.2 Project Scope

The proposed DCP system is targeted at any individual trying to locate an aid center. The proposed DCP system must receive aid center status information from each aid center, and provide the aid center status information to each end user in a clear and concise fashion. The proposed DCP system must allow any administrative user to disperse relevant information about their respective aid center. The client company for the proposed DCP system is AidConnect, a non-profit organization whose mission is to quickly and efficiently direct each user of the proposed DCP system to the aid center that best suits that user's needs [1].

1.3 Glossary of Terms

Administrative User 	A volunteer or employee of an aid center. This individual handles entering aid center status information into the proposed DCP system.
Aid Center	Buildings or rooms managed by aid center organizations. An aid center contains supplies for disaster victims.
Aid Center Status Information	Information consisting of levels of supplies (such as food, water, beds, and medical), levels of available medical staff, relative distance from the end user to each aid center, last updated time, and whether the aid center is operational or not.
Authentication	The process of verifying the identity of an individual through the use of an assigned username and password.
Computational Device	A piece of hardware with a central processing unit and at least one gigabyte of random access memory.
Consumer-Grade Hardware	Devices that can be purchased at moderate to large retail technology stores.
DCP	Abbreviation for Disaster Continuity Planning.
Device	A smartphone, tablet, or personal computer.
Disaster	An event that causes great damage to the environment or economy.
Display Radius	The maximum distance from an end user that an aid center will be displayed.
End User	An individual looking for aid center status information during or before a disaster .
Last Updated Time	The time at which the aid center status information was entered into the DCP system.
Levels	A descriptive label indicating the amount of a specific type of supply available at an aid center. Will be one of low, medium, high, or none.
Personal Computer	A computational device capable of running an

	operating system released in the last 10 years that is not a tablet or smartphone.
Primary Network	Infrastructure that facilitates access to the internet, including cellular, ethernet, and wi-fi.
Search	The ability for a user to view aid centers that match aid center status information criteria specified by the user.
Secondary Network	A backup networking layer that allows end users to receive information from aid centers within the end user's display radius
Smartphone	A computational device with a display smaller than or equal to 7 inches diagonally that runs an operating system released in the last 10 years.
Supplies	Food, potable water, medical equipment, first aid equipment, and medical staff.
Tablet	A computational device that has a diagonal display size of greater than 7.0 and runs an operating system released in the last 10 years.

1.4 References

[1] AidConnect, 'Request for Proposal', 2019. [Online] Available: https://trusting-montalcini-84102f.netlify.com/Mission-Vision. [Accessed Sept. 23, 2019].

[2] AidConnect, *Disaster Continuity Plan*: Request for Proposal. Victoria, 2019, p.1-7.

[3] W3, 'Web Content Accessibility Guidelines', 2019. [Online] Available: https://www.w3.org/TR/WCAG20/. [Accessed Sept. 30, 2019].

1.5 Overview

This document contains six sections and an appendix. Section 2 consists of an overview of the current system, the main features of the proposed system, constraints to development, and any assumptions made. Section 3 includes the functional requirements of the proposed system. Section 4 includes the external interface requirements of the system. Section 5 includes other non-functional requirements, including performance requirements, safety requirements, security requirements, and software quality requirements. Finally, section 6 includes all other requirements.

2 Overall Description

2.1 Product Perspective

AidConnect currently maintains a system that "connects disaster victims with aid organizations' information," but has deemed the existing system "unreliable in post-disaster situations" since a disaster may cripple primary networking infrastructure which the existing system is dependent upon.

The replacement DCP system that Angle Engineering will be developing is a replacement for the existing system at AidConnect. The design for the proposed DCP system will have emphasis placed on reliability and information accessibility.

2.2 Product Features

The primary feature of the proposed DCP system will be an interface that enables each end user to view each aid center within the end user's display radius from the end user's device. Each end user will be able to select an aid center to view aid center status information relevant to the selected aid center.

The other main feature of the proposed DCP system will be a method for each administrative user to update aid center status information. Each administrative user must be able to update each individual aspect of the aid center status information for each aid center.

The proposed DCP system will require a secondary network in the event of a failure in the cellular network. Utilizing a secondary network will allow each user to receive data from the proposed DCP system when primary networks have ceased to function.

2.3 User Classes and Characteristics

The two primary user classes associated with the proposed DCP system are administrative users and end users, with characteristics of both these classes detailed below.

2.3.1 Administrative User

An administrative user is an employee or a volunteer at an aid center who has access to all functionality of the proposed DCP system. Each prospective administrative user must authenticate themselves to the proposed DCP system before the administrative user is given complete access. At each aid center, an administrative user associated with that aid center will access the proposed DCP system hourly to update the aid center status information of their respective aid center. Technical expertise and education levels will vary greatly, but each prospective administrative user will have received training to use the proposed DCP system.

2.3.2 End User

An end user is a member of the general public who will use the app to access information about aid centers during a disaster. Technical expertise and education levels will vary greatly, and each end user is unlikely to have experience with the proposed DCP system before a disaster occurs. An end user is expected to use the proposed DCP system multiple times an hour on their way to an aid center, and about once a day while at an aid center.

2.4 Operating Environment

The proposed DCP system must support each device that is running an operating system released after 2009 in order to mitigate the chance that a user will be denied service due to their device's make or model.

2.5 Design and Implementation Constraints

The proposed DCP system must not rely solely on the presence of any primary network. In the event that all primary networks have been damaged or disabled, each user must still have a means of accessing aid center status information.

Additionally, no end user must be required to purchase specialized hardware in addition to their device in order to access the proposed DCP system. Therefore, the proposed DCP system must function on smartphones, tablets, and personal computers.

2.6 Assumptions and Dependencies

It is assumed that access to the proposed DCP system is restricted to each end user that owns a smartphone, tablet, or personal computer. It is also assumed that each end user will have access to the internet prior to a disaster, in order to allow the system to download and store aid center status information for each aid center within the end user's display radius.

3 System Features

3.1 Data Access

3.1.1 Description and Priority

Priority: HIGH
The primary function of the proposed DCP system is to allow each end user to see the location of each aid center and its associated aid center status information within the end user's display radius. The ability to search for applicable aid centers by aid center status information criteria is an important function, since each end user may have their own set of requirements that an aid center must fulfill for it to be a viable option.

3.1.2 Functional Requirements

DA-1: Each end user must be able to visually locate each aid center as a dot on a map.
DA-2: Each end user must be able to access the aid center status information of each aid center.
DA-3: Each end user must be able to search for all applicable aid centers that match a set of user-defined aid center status information criteria.

3.2 Data Entry

3.2.1 Description and Priority

Priority: HIGH
Each administrative user must have a means to provide new aid center status information for their aid center to the proposed DCP system. Each end user must be able to manually provide their location to the proposed DCP system, so that in the event that the end user has no ability to automatically locate themselves, that they may still be able to locate aid centers relative to their respective location.

3.2.2 Functional Requirements

DE-1: Each administrative user must be able to enter aid center status information to the proposed DCP system through a primary network.
DE-2: Each end user must be able to manually enter their location to the proposed DCP system.
DE-3: Each administrative user must be able to enter aid center status information when all primary networks are inoperable.

3.3 Networks

3.3.1 Description and Priority

Priority: MEDIUM
In addition to functioning with current primary networks, the proposed DCP system must have a backup networking layer. This backup networking layer will allow each end user to receive up-to-date information from aid centers within their display radius in the event of the failure of a primary network.

3.3.2 Functional Requirements

CM-1: Each end user must be able to access the proposed DCP system through primary networks.
CM-2: Each end user must be able to access the information provided by the proposed DCP system when all primary networks are inoperable.

4 External Interface Requirements

4.1 User Interfaces

4.1.1 Description and Priority

Priority: MEDIUM
Each end user must have a means of viewing each aid center within the end user's display radius as a dot on a map, ensuring that each end user will be able to quickly locate the aid center that best fits their requirements. Each end user must be able to select each aid center from a list. Selecting an aid center from the list of aid centers will display aid center status information for the chosen aid center, and will allow the end user to make an educated decision on which aid center they should visit.

4.1.2 Functional Requirements

UI-1: Each end user must be able to locate each aid center as a dot on a map.
UI-2: Each end user must be able to locate themselves as a dot on a map.
UI-3: Each end user must be able to view a collection of aid centers in a list format.

4.2 Hardware Interfaces

4.2.1 Description and Priority

Priority: HIGH
The proposed DCP system must be compatible with a variety of devices to preserve usability. If the proposed DCP system is restricted to a specific device type, many end users will be left without a means of accessing the proposed DCP system.

4.2.1 Functional Requirements

HI-1: The proposed DCP system must be compatible with smartphones, tablets, and personal computers.

4.3 Software Interfaces

4.3.1 Description and Priority

Priority: HIGH
The proposed DCP system must be compatible with a variety of operating systems to preserve usability.

4.3.1 Functional Requirements

SI-1: The proposed DCP system must operate on any version of Android, iOS, Windows, macOS, or GNU/Linux released after 2009.

4.4 Communications Interfaces

4.4.1 Description and Priority

Priority: HIGH
The proposed DCP system must be accessible through a web browser to ensure that the proposed DCP system will maintain functionality with the internet.

4.4.1 Functional Requirements

CI-1: Each end user must be able to access the proposed DPC system through a web browser while using a primary network.

5 Other Non-Functional Requirements

5.1 Performance Requirements

5.1.1 Speed

PR-S-1: An end user must be able to receive aid center status information from each aid center within the user's display radius within 20 seconds while their device is connected over a primary network.
PR-S-2: An end user must be able to receive aid center status information from each aid center within the user's display radius within 1 hour while their device is connected over a secondary network.

5.1.2 Capacity

PR-C-1: The end user must be able to access 30 megabytes of geographical data without a primary network connection.
PR-C-2: The end user must be able to access aid center status information for up to 25 aid centers without a primary network connection.

5.1.3 Reliability

PR-R-1: The end user must have access to the proposed DCP system 99.999% of the time.

5.2 Safety Requirements

SAR-1: Each end user must be shown a release of liability before the first use of the proposed DCP system.
SAR-2: Each end user must be shown a release of liability after each update of the proposed DCP system.

5.3 Security Requirements

SER-1: Each administrative user must be authenticated to modify any information related to their aid center in the proposed DCP system.

5.4 Software Quality Requirements

AC-1: The proposed DCP system must meet the *Web Content Accessibility Guidelines* [3].

6 Other Requirements

OR-1: The proposed DCP system must support internationalization.

OR-2: The proposed DCP system must not violate the digital privacy laws of any country where the proposed DCP system will be used.

Appendix: Issues List

A1: Elicitation Clarification

- The proposed DCP system will not "find relevant information" [1] about a disaster. It was confirmed during the elicitation meeting that information about a disaster will be provided by an external government organization.

- The proposed DCP system will not distribute information about an incoming or outgoing disaster. It was confirmed during the elicitation that information about a disaster will be distributed by a government organization, and not by the proposed DCP system.

- The proposed DCP system will not have a unique interface for "disaster response communication centres" [1]. It was confirmed during the elicitation meeting that an administrative user, not an external centre, will be responsible for manually updating the aid center status information.

- The proposed DCP system is inherently distributed, and so must not rely on a single communication system or database to permanently store aid center status information before it is broadcasted to an end user (i.e. no centralized communication location required, and no "centralized" database for the proposed DCP system).