Vision Document

Project Phase 2

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Revision History

Date	Version	Description	Author
11/30/10	<1.0>		Kirk Smith

Table of Contents

1 Introduction

1.1 Purpose

The purpose of this document is to collect, analyze, and define high-level needs and features of the Helping Old People Easily (HOPE) Cellular Phone Application. It focuses on the capabilities needed by the stakeholders and the target users, and why these needs exist. The details of how the HOPE Cellular Phone Application fulfills these needs are detailed in the use-case and supplementary specifications.

1.2 Scope

This Vision Document applies to the HOPE Cellular Phone Application (HCPA), which will be developed by Obiwan Consulting. Obiwan Consulting will develop the HCPA to work on the Android platform. The HCPA will provide a way for the elderly or people with stated disabilities to more easily communicate with others, and support functions that help alleviate some of the communication problems experienced by the elderly with specific communications disorders, which are detailed elsewhere in this document.

1.3 Definitions, Acronyms, and Abbreviations

- HOPE - Helping Old People Easily
- HCPA - HOPE Cellular Phone Application
- Android: The Google operating system running on the smart phone. It is the target smart phone OS for use in subsequent development effort.
- Assistive person: A person who assists the elderly or disabled person. A person with whom the elderly or disabled person is communicating.
- AAC: Augmentative and Alternative Communication

Consult the glossary for further terms.

1.4 References

1. WRS Document. Team Obiwan
2. Project II Specifications. Dr. Lawrence Chung
3. Vision Document Template
4. “Android Market: 70,000 Apps, 1 Billion Downloads”, http://www.informationweek.com/news/hardware/handheld/showArticle.jhtml?articleID=225800262, accessed 11/25/2010
5. “Android Market rules mobile app stores with highest proportion of free apps”, http://www.intomobile.com/2010/07/05/android-market-rules-mobile-app-stores-with-most-free-apps/, accessed 11/25/201
6. “iPad drawing interest as device for disabled”, http://www.dailynews.lk/2010/04/20/bus36.asp, accessed 11/25/2010

2 Positioning

2.1 Business Opportunity

As people get older, it becomes harder for them to communicate with others. There is currently no easy-to-use, cheap, mobile solution to solve these problems created by old age or disabilities. Many currently used devices like communication boards, hearing aids, etc. are costly, bulky and difficult to use and in addition to having bad aesthetic appeal. Smart phones and the mobile applications they host are cheap and 'easy to carry and use'. Hence, they form an excellent platform for hosting such an application that addresses the communication problems of people with hearing, speech and memory disorders.

Many software vendors are eager to offer such a system. In particular, HOPESoft, Inc aims to pioneer such an application in this highly burgeoning market by developing the HCPA. The HPCA expands from the initial definition of AAC and takes into consideration the elderly or the disabled who suffer from speech, hearing, memory impairment up to varying degrees. It would provide users with means of expressing themselves, and more easily understanding others. This could involve text-to-speech and speech-to-text functionality. The product would also support efficient means of reaching emergency contacts. The HPCA would provide these features and more to satisfy the needs of the elderly. The system can be easily installed on any Android based phone.

2.2 Problem Statement

The problem of	people not being able to communicate properly as they get older
affects	the elderly and people with speech, hearing, and memory disabilities
the impact of which is	difficulty communicating with other people and difficulty in seeking help in emergency situations
a successful solution would be	a simple, mobile application with a low learning curve that can be easily used by the elderly. The product would provide users with means of expressing themselves, and more easily understanding others. The product would also support efficient means of reaching emergency contacts.

2.3 Product Position Statement

For	elderly or disabled persons with speech, hearing, and memory disabilities
Who	have difficulty communicating with others
The HOPE Cellular Phone Application (HCPA)	is a software application
That	provides the ability to communicate more effectively with others, and swiftly contact emergency responders through a simple, intuitive interface
Unlike	currently available systems that have a steep learning curve and do not provide a detailed system for emergency services.
Our product	provides users with means of expressing themselves, and more easily understanding others. This is accomplished by text-to-speech and speech-to-text functionality and other features. The product also supports efficient means of reaching emergency contacts and emergency responders.

3 Stakeholder and User Descriptions

3.1 Market Demographics

Android currently recently reached a milestone of 1billion downloads of its 70,000 mobile applications [4]. Of these, the average price for all paid applications downloaded was $3.29 compared with $4.01, $4.65 and $6.97 for the i-phone, i-pad and blackberry respectively [5]. This shows that the Android platform offers a significantly cheaper alternative than some of it's biggest competitors. This fact becomes even more relevant when it is considered that Prologuo2Go, the main assistive mobile application in the market today costs $189.99 and is developed solely for the iPhone [6]. The alternative being developed by HOPESoft Inc would be more easy to use that it's main rival while being cheaper at the same time (based on the average costs stated above). Also, there is a dearth of assistive mobile technologies targeted at the Android platform, making HOPESoft Inc a pioneer in this area. All these factors should, hopefully, easily make the HCPA the leading assistive mobile application in the nearest future.

The target market segment includes the elderly, defined as anyone who is old enough to have experienced speech, hearing, or memory issues that come as we age. Also in the target market segment are people with disabilities that affect them in the areas mentioned above.
The users are anticipated to be consumers who have cell phones, and any assistive personnel who interact with the elderly on a regular basis.

3.2 Stakeholder Summary

Name	Description	Responsibilities
Requirements Engineers	This stakeholder works with customers and stakeholders to translate needs into requirements.	Specifies domain, non-functional, and functional requirements. Refines requirements as needed.
Software Architect	This stakeholder is a primary lead in the development of the HCPA.	Responsible for overall architecture of the system, and guides overall design and implementation of system.
Project Manager	This stakeholder leads development of the HCPA.	Plans, manages and allocates resources, decides priorities, coordinates interactions with customers and users, and keeps the project team focused.

3.3 User Summary

Name	Description	Responsibilities	Stakeholder
The Elderly	Primary End user of the system	Uses application to communicate with others and contact emergency services/contacts	Self
People with disabilities	Primary End user of the system	Uses application to communicate with others and contact emergency services/contacts	Self
Assistive People	End user of the system	Configure application for the Primary End users. Communicate with the Primary End users with the application	Self

3.4 User Environment

1. The HCPAapplication will be used by people (henceforth called the elderly), regardless of age, with speech disorders, hearing disorders and memory impairments as defined below:
    a. Speech disorders: dis-fluency, articulation deficiency, voice disorder
    b. Hearing disorders: partial or total hearing loss
    c. Memory Impairment: Normal age-related, partial memory loss which is not associated with any other disease such as Alzheimer's
2. The HOPE application should aid communication by the elderly living in the following locations:
    a. In a home (living alone or with a family)
    b. In a hospital/nursing-home setting.
3. The elderly shall communicate their daily needs for the following activities to an assistive person (a non-disabled person with whom the elderly wants/needs to communicate) using the HOPE application:
    a. Washing
    b. Taking a bath
    c. Restroom
    d. Eating
    e. Drinking
    f. Walking
    g. Going to bed

    h. Help in Emergencies
4. Assistive persons should not need to use the HOPE system to communicate with the elderly.
5. The system shall allow for communication with an assistive person.
    a. The elderly person shall be able to request an action of the assistive person using the device.
    b. The user shall be able carry on a conversation with an assistive person.
6. The system shall provide an interface for users to communicate using common greetings salutations and decisions. Decisions are short phrases designed to respond to a simple question (e.g. yes, no, maybe, “It depends.”).
7. The system should provide sensory aids (visual and audible) to the user when communicating with an assistive person.
8. The elderly shall initiate communication by navigating among various categories that will consist of the multi-dimensional vocabulary items having a similar meaning, relation and/or purpose.
9. The system should be easily usable by the assistive person, by providing a good search interface through which that person needs not know the entire system and can bring up any part by just visiting the search page.
10. The assistive person should be able to perform any actions on the application that the elderly can.

3.5 Stakeholder Profiles

The Elderly

Description	An elderly person who uses our HCPA.
Type	This is a casual user who may not have any experience using cell phone applications before.
Responsibilities	Uses the HCPA to communicate with others in their environment, communicate with assistive people when they need help and request emergency services from emergency contacts in the application
Success Criteria	The success is defined as the customers continuing to use our system.
Involvement	We will have sample customers to evaluate our system which will guide our vision.
Deliverables	None
Comments / Issues	None

Person with Disabilities

Description	An person with some disability that hinders communication, speech, or memory who uses our HCPA.
Type	This is a casual user who may not have any experience using cell phone applications before.
Responsibilities	Ensure that the necessary functions exist in the HCPA to allow effective communication and emergency service support.
Success Criteria	The success is defined as the customers continuing to use our system.
Involvement	We will have sample customers to evaluate our system which will guide our vision.
Deliverables	None
Comments / Issues	None

Assistive Person

Description	An assistive person who uses our HCPA
Type	This is a casual user who may not have any experience using cell phone applications before, but is experienced communicating with the elderly.
Responsibilities	Ensure that the necessary functions exist in the HCPA to allow effective communication and emergency service support. Ensure that functions exist to support the assitive person in setting up the phone for the elderly.
Success Criteria	The success is defined as the customers continuing to use our system.
Involvement	We will have sample customers to evaluate our system which will guide our vision.
Deliverables	None
Comments / Issues	None

3.6 User Profiles

See Previous Section.

3.7 Key Stakeholder or User Needs

Need	Priority	Concerns	Current Solution	Proposed Solutions
Easy to use	High	Ability for users with little to no previous phone usage to navigate and use menus easily	See proposed	Provide large menu icons with intuitive categories for communication.
Flexible(configurable)	Low	Ability to customize menu and functions based on different user needs.	See proposed	Allow HCPA to be configured on initial running too allow user to choose needed functions and menu layout.

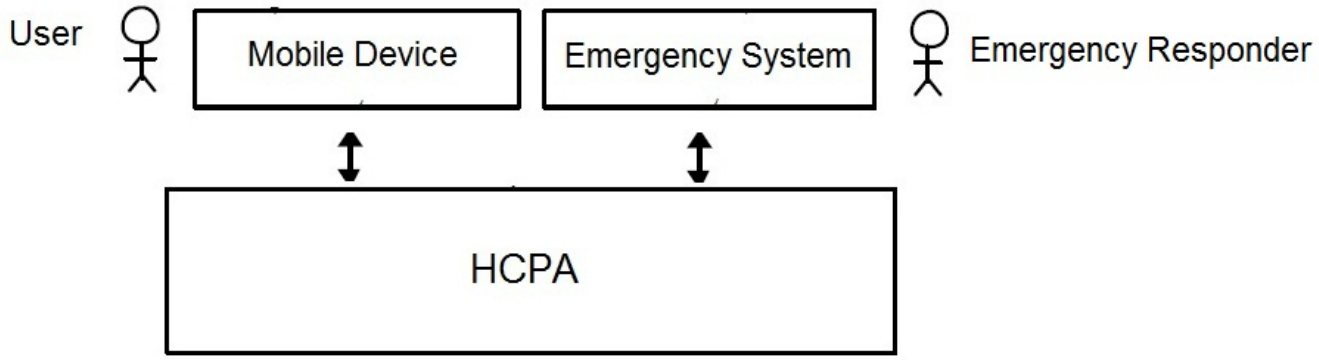
3.8 Alternatives and Competition

3.8.1 Prologuo2go

3.8.2 Other competing HOPE teams

4 Product Overview

4.1 Product Perspective



Overview of the HCPA system

4.2 Summary of Capabilities

Customer Benefit	Supporting Features
Enhanced ease of communication.	Speech-to-text, text-to-speech, sentence generation.
Help in emergency situations	Emergency contacts, Grouping based on emergency, Call emergency responders.

4.3 Assumptions and Dependencies

1. In using the onscreen keyboard, it is assumed that the user is literate and can type.
2. It is assumed that speech impaired users will not be using the speech to text feature
3. The default language for the HCPA shall be US English. It is assumed that users who cannot speak and write in English will not be using the text to speech features in the system, at least initially.
4. It is assumed that the Standby Contact has constant access to a means of receiving SMS
5. It is also assumed that the network on the users phone will be available in everywhere a user may go so that emergency messages may be speedily delivered

5 Product Features

5.1 System Features

1 Start application
2 Exit Application
3 Accept Touchscreen input
4 Accept Keyboard input
5 Change language shown

5.2 Communication Features

1 Text-to-Speech
2 Speech-to-Text
3 Sentence Generation by navigating through categories
4 Create new sentences
5 Modify existing sentence
6 Delete Sentence
7 Search for menu/vocabulary item
8 View list of common greetings
9 View recently used sentences
10 Customize layout of menu items

5.3 Emergency Features

1 Place emergency call
2 Place calls to hierarchy of care providers
3 Customize emergency hierarchy and contacts
4 Send SMS to emergency contact

6 Precedence and Priority

Priority	Feature (By Number Above)
High	1,2,3,4,6,7,9,16,17,19
Medium	10,12,13,14,15,18
Low	5,11

7 Constraints

7.1 Usability

Clear and intuitive vocabulary organization
Provide disjoint categories
Help system
Breadcrumb
Customizable user icons

7.2 Performance

Accuracy of emergency calls
Minimal number of clicks
Minimal time between click and system response

8 Other Product Requirements

8.1 Applicable Standards

The HCPA must comply with existing standards in the emergency services field for contacting emergency responders of situations.

8.2 System Requirements

The system must run on an Android OS based phone.

8.2.1 Performance Requirements

None specified.

8.2.2 Environmental Requirements

None specified.

9 Documentation Requirements

9.1 User Manual

A short user manual will be provided with the application. Please see the User manual document for more information.