# Social Device For Non-Technical Users

# Group 29

# Samuel Bonner, Austin Kwong, Haolin Han

# CS 461 - Fall 2017

## 1.    Introduction

### 1.1    Purpose
**(Indicate purpose of this document)**
This document is intended to provide a both a high level overview, and a more detailed, specific description of the requirements necessary for completion of the Sharing Station project.

**(Specify the intended audience of this document, not the device)**
This document is primarily intended for the sponsor and development team associated with the Social Device For Non-Technical Users ("Sharing Station") project.

### 1.2    Scope
**(Identify software products to be produced by name)**

The software products to be optimized include the Sharing Station application and the Sharing Station Social website.

**(Explain what the products will do and not do)**

The Sharing Station application will provide social interaction features with a closed circle of other users limited to friends and family of the associated Android device user. The Sharing Station application will block access to default Android device functions on the device it is run on, and limit most system notifications. The application will provide a home screen, allow reception of and provide two-way video calls, allow reception of images from the family circle, provide a viewable image gallery, provide reminders, allow recording and sending of voice messages to the family circle, and provide local weather forecasts.

The Sharing Station application will
● not allow users to take photos or send images outside the device,
● not provide access to internet browsers,

- not provide access to the underlying Android OS,
- not provide access to other applications that may be installed on the device,
- not allow users to initiate video calls,

**(Describe the application of the software being specified, including relevant benefits, objectives, and goals)**

### 1.3 Definitions, acronyms, and abbreviations

Sharing Station application - refers to the Cordova-based application that will be run on an Android touchscreen device.

Sharing Station Social website - refers to the Bootstrap website that provides social functions and remote management of an associated Sharing Station application account.

### 1.4 References
**(Provide list of all documents referenced elsewhere in the document)**

**(Identify each document by title, report number (if applicable), date, and publishing organization)**

**( Specify the sources from which the references can be obtained)**

### 1.5 Overview

**(Describe what the rest of the SRS contains)**

**(Explain how the SRS is organized)**

### 2. Overall Description

### 2.1 Product Perspective
**(System Interfaces)**
The Sharing Station application will allow elderly users who are physically and socially isolated away from their families to be able to connect with loved ones through a simplified touchscreen device. The dedicated application will allow close friends or family members to send text-based messages, share images, and initiate video communications with the owner of the main Sharing Station device.
**(User interfaces)**
On the dedicated device, the user will only be able to access a power button, the volume, and the touch screen. For family members trying to send messages and set up video calling, there

will be an app available for download as well as a website. The manager of a family will be the only user able to access the web-based management application.

**(Hardware interfaces)**

The dedicated device will be a touch screen device approximately 10" diagonally like most touch screen tablets and similar devices.

**(Software interfaces)**

We will be using a combination of Cordova, Angular, and Ionic as the main software of our application. For video calls, we will be using WebRTC and SignalR for two way communication with our server.

**(Communications interfaces)**

A wifi connection is required for our dedicated Sharing Station device. Users of the Sharing Station Application and Web-interface will communicate over http and https.

**(Memory constraints)**

The Android device intended for use with the Sharing Station application will have 2GB of memory and 32GB of storage space. There will be images and music (mp3) data saved locally on our dedicated device. Other data will be remotely stored on our server and will be pulled when the application is launched or is active.

**(Operations) (Maybe how the device is started and launched?**

**(Site adaption requirements)**

## 2.2    Product functions

**(Provide a summary of the major functions that the software will perform)**

The application will provide a home screen, allow reception of and provide two-way video calls, allow reception of images from the family circle, provide a viewable image gallery, provide reminders, allow recording and sending of voice messages to the family circle, and provide local weather forecasts.

The Sharing Station application will provide a home screen with a slideshow of images present on the device. This home screen will provide access to all the other features of the app.

The Sharing Station application will provide WebRTC-based, two-way video calling between the Sharing Station app user and a family member using the Sharing Station Social web interface or social app.

The Sharing Station app will provide an image gallery composed of images sent to the device user by family contacts using the Sharing Station Social website or mobile app. The image gallery will present a single image on screen with two half-views of images they may scroll to using left and right arrow buttons.

The Sharing Station app will provide a reminders feature accessible from the home screen, and visible as a short list. Device users and family administrators using the web-based management interface will be able to add and remove text reminders.

The Sharing Station app will provide a voice message recording feature, that will allow the device user to record a short voice message limited to (duration) seconds and send that audio message to a family member in the user's contact list.

The Sharing Station app will provide a weekly weather forecast featuring weather information provided by weather.gov. The forecast will feature a concise weather icon set different from the one utilized by weather.gov.

The Sharing Station app will provide a "Radio" feature that is a music library viewer and player. Family administrators using the Sharing Station Social web interface will be able to purchase music titles as mp3s for the associated Sharing Station application to download. This feature will not be allowed to play music in the background, all music will stop playing when the user chooses to exit the Radio feature.

## 2.3    User characteristics

**(Describe those general characteristics of the intended users of the product including educational level, experience, and technical expertise)**

Intended users of the Sharing Station application will generally be the elderly, who are expected to have essentially no technical expertise. Users in this group may be operating the device from within a care center, and will not be living with the family members they interact with using the Sharing Station application. Intended users may also have poor touch precision and poor eyesight that may make reading and touching precise screen elements difficult. These users will not feel comfortable utilizing a virtual keyboard to enter text, and will not feel confident at managing app settings or responding to pop-up notifications.

Intended users of the Sharing Station Social website are family members of the elderly Sharing Station application users. Users of the Sharing Station Social website may belong to one of a wide range of age groups, from 12 to 65. These users are expected to have at least minimal familiarity with modern mobile applications and websites. They are expected to be comfortable selecting images to upload, initiating video calls, and navigating touch or click menus. These users are comfortable seeing and clicking or touching pop-up notifications that may appear on screen. These users are comfortable changing simple application settings and editing profile information.

## 2.4    Constraints

**(Provide a general description of any other items that will limit the developer's options)**

The Sharing Station application will make use of only touchscreen buttons for navigation between features. No virtual or physical keyboard will be available for use on the Sharing Station application. No tap-to-interact functionality or tap-and-hold will be available for use in Sharing Station application functionality. No modifier buttons, hidden buttons, or action-dependent buttons will be present in the Sharing Station application, all buttons must be clearly presented to the user. Menu screens will be limited to up to 8 destinations, and non-menu screens will be limited to up to 4 actions.

## 2.5 Assumptions and dependencies

**( List each of the factors that affect the requirements stated in the SRS)**
The development team is assuming that the Android device hardware will be able to meet the performance requirements of the Sharing Station application. Research will be performed to examine the capabilities of the associated Android device hardware for performing the functions of the Sharing Station application.

## 3. Specific requirements

## 3.1 External Interfaces

**(Detailed description of all inputs into and outputs from the software system. Format:)**
**(a) Name of item;**

**b) Description of purpose;**

**c) Source of input or destination of output;**

**d) Valid range, accuracy, and/or tolerance;**

**e) Units of measure;**

**f) Timing;**

**g) Relationships to other inputs/outputs;**

**h) Screen formats/organization;**

**i) Window formats/organization;**

**j) Data formats;**

**k) Command formats;**

**l) End messages.**

Web Management Interface
Azure?

## 3.2 Functions

**(Define the fundamental actions that must take place in the software in accepting and processing the inputs and in processing and generating the outputs. These are generally listed as "shall" statements starting with "The system shall…")**

## 3.3 Performance Requirements

**(Specify both the static and the dynamic numerical requirements placed on the software or on human interaction with the software as a whole)**

The Sharing Station application will load and perform its basic startup within 15 seconds. Visual images displayed within the Sharing Station application will render and be fully visible within 2 seconds after appearing on screen, assuming optimal network status and speed.

## 3.4 Logical database requirements

**(This should specify the logical requirements for any information that is to be placed into a database. This may include the following: a) Types of information used by various functions; b) Frequency of use; c) Accessing capabilities; d) Data entities and their relationships; e) Integrity constraints; f) Data retention requirements)**

## 3.5 Design Constraints

**(This should specify design constraints that can be imposed by other standards, hardware limitations, etc.)**

## 3.6 Software System Attributes

## 3.6.1 Reliability

Software errors, interrupts, and transaction failures on the Sharing Station application will be handled in such a way that device features almost never close unexpectedly or prevent access.

The Sharing Station application will not disrupt basic functionality in the event of a network disconnection or other unexpected network error.

### 3.6.2   Availability
The Sharing Station application will only run on the device, so without the device, the user can not access the app features. In addition, the device will only be available for a monthly fee. Without a main device and a managing account, downloading the mobile application has no purpose.

### 3.6.3   Security

Private information, including passwords and user submitted information stored or transmitted by the Sharing Station application or on the Sharing Station Social website will not be publicly available or be accessible to outsiders. All passwords will be encrypted and individually salted.

### 3.6.4   Maintainability
The Sharing Station application will have automatic updates completely in the background of the application. If Android device updates are required, the device will automatically update at a late night hour. After performing system updates, the device should shutdown to ensure the Sharing Station application is reloaded. The user will never be able to see anything else aside from the features of the dedicated application.

### 3.6.5   Portability

The Sharing Station application will be developed for Android devices and will run on the Android operating system.

### 3.7      <Specific Requirements>
*3.7.1 System Features*
*3.7.1.1 Web API*
*3.7.1.2 User Interface*
The Sharing Station app user interface will be as simple as possible, making use of touchscreen buttons with no gesture functionality.
### 4.1      Table of contents and index

### 4.2      Appendixes