Kiosk System SRS

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Initials	Date	Reason for Change	Version
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1.0: Introduction

1.1 Purpose
The purpose of this document is to outline the feature set and provide a thorough description of the software requirements for the Discovery Kiosk project. This document aims to describe the complete feature set of our project, what our software should do, and any constraints under which it must operate.

1.2 Document Conventions
This document follows the standard outline for software requirements specification document conventions as outlined by IEEE. Sections headings have been typed in bold-face font and subheadings have been italicized.

1.3 Intended Audience and Reading Suggestions
This document is designed to inform the customer as well as those on the development team of the feature set and functional requirements for Discovery Kiosk. The document will provide an overall description followed by a full feature list and functional requirements. This information is the core of the document and should be read prior to other sections.

1.4 Project Scope
Discovery Kiosk is a software system and framework with an end goal of providing the means to easily create and maintain an informational kiosk. Discovery Kiosk will be designed with a modular backbone such that all end user features are to be independent. This means developing a proper framework for this modular system to allow for future implementation beyond the scope of this project. To accompany and showcase this framework we plan to release a core module set with the initial release which will include a slideshow module, a video module, a map module, and a schedule module.

Our software provides security for administrators to upload files and maintain content for their kiosk, as well as manage the kiosk settings via the administrator portal. The portal will also give administrators the ability to enable and disable modules as they please to better reflect the user experience they desire.

1.5 References
[1] Discovery Kiosk Team,”Vision and Scope”

2.0: Overall Description

2.1 Product Perspective

Discovery Kiosk is an interactive software package built for informational touch-screen displays. It is designed to be modular such that we can virtualize the unique and varying needs of different businesses and institutions who are interested in investing in a touch-screen kiosk. Our software is designed to be customizable such that we allow users to support, maintain and grow their kiosk to adapt to their varying needs.

Currently, the foremost purpose of our software is for use in Western Washington University's Computer Science Department, where we will be replacing the existing slideshow display at the head of the department. Here, our software will provide a similar but interactive slideshow that allows students, faculty, and visitors to pause, rewind and navigate through displayed media as well as support numerous different modules noted below in *Section 2.2*.

2.2 Product Features

FE-1: Interactive menu consisting of modules
FE-2: Administrator Portal
FE-3: Secure Platform for uploading content to kiosk
FE-4: Interactive Slideshow Module
FE-5: Video Module
FE-6: Map Module
FE-7: Department Schedule / Lab Schedule Module

2.3 User Classes and Characteristics

Computer Science Students	As our software will be providing content for the touch-screen monitor at the front of the department in the Communications Facility Building, many CS students will experience our software in passing where they can observe the rotating slideshow. Here students can interact with, pause, and seek through the slideshow. Students will also use our map and schedule module for guidance around the department.
Other Students	WWU students outside the department will be able to use our software to gain insight into the computer science department, including current research projects, department events, classes offered. They will also be able to view the rotating slideshow walking by or use the map module for help finding a room or professor.
Faculty	Faculty will be frequent users of our software which will located near many faculty members' offices. They will use our software to interact with the rotating slideshow and access related modules.

Visitors	Visitors to the CS department include student family members, friends, and outsiders touring or visiting the department. This user class will often be using our software via the events module that helps guide visitors on event days. On non-event days, they will be able to use our software to view pictures, events, and projects of interest to the department. They will also be able to interact with our software and access the maps module for help navigating their way across campus.
Administrators	Administrators are the sole user capable of accessing the administrator portal. This allows admins the ability to upload and manage content on their kiosk, as well as change settings on the device itself.

2.4 Operating Environment

Discovery Kiosk is planned to be implemented in java and able to run on a variety of machines with low system requirements. Our specific implementation was designed for use with a Raspberry Pi. Our software will also require a compatible touch-screen display and internet access.

2.5 Design and Implementation Constraints

CO-1: Required to be modular. We need to be able to use our software in different settings and be able to grow, support, and remove modules for future updates.

CO-2: Software must be lightweight for use with a raspberry pi. Our final product cannot be significantly memory, storage, or graphics intensive.

2.6 User Documentation

Along with our final product we will provide a user manual for administrators with instructions on how to use, maintain and grow our software.

2.7 Assumptions and Dependencies

It is assumed that the hardware used in conjunction with Discovery Kiosk is capable of interfacing with a touch screen display. It is also assumed that there will be a means of network communication between the kiosk and the device running the administrator portal (either via a ethernet or WiFi connection).

3.0: Features

- *3.1*: *Navigation Menu*
    - 3.1.1: Description: The software will have a navigation menu, for accessing different modules such as maps, videos, and slides.
    - 3.1.2: Priority: This is a high priority task.
    - 3.1.3: Stimulus and Response
        - Users want to access another module of the software
            - The software will load a module when one is selected by the user.
    - 3.1.4: Functional Requirements
        - The software shall take user input for selecting a module to run.
        - The software shall display modules for the user to open.
        - The software shall have the ability to load new modules easily.

- *3.2*: *Administrator Portal*
    - 3.2.1: Description: This will be a way for faculty to easily update and manage data being displayed on the kiosk system.
    - 3.2.2: Priority: This is a high priority task.
    - 3.2.3: Stimulus and Response
        - Adding new slides and videos to the kiosk
            - The software will update to have more slides easily added to those already there.
        - Removing old and outdated information
            - The software will update to remove those selected by an administrator.
        - Choosing specific information to be displayed at a given time
            - The software will automatically update to display for the set time.
        - Choosing how information is to be displayed and for how long
            - The software will automatically update to the new administrative preferences.
    - 3.2.4: Functional Requirements
        - The software shall allow administrators to add new slides and videos added to it.
        - The software shall allow administrators to delete slides and videos.
        - The software shall allow administrators to change the slides to be displayed at some time.
        - The software shall allow for administrators to change slideshow settings.

- 3.3: *Secure Platform*
    - 3.3.1: Description: The kiosk will be secure, so that anybody without administrative privileges cannot update the modules, videos, or slides.
    - 3.3.2: Priority: This is a medium priority task.
    - 3.3.3: Stimulus and Response
        - Users want to update the display
            - They will not have the credentials and will not be allowed access.
        - Administrative personnel want to update slides

            - They will be granted access
    - 3.3.4: Functional Requirements
        - The software will not all users access to modification or deletion of display materials.

- *3.3*: *Slideshow Module*
    - 3.3.1: Description: The kiosk will display a slideshow of images that users can view and interact with.
    - 3.3.2: Priority: This is a high priority task.
    - 3.3.3: Stimulus and Response
        - Users want to stop the slideshow
            - When a stop button is pressed, the slideshow will stop.
        - Users want to go to a previous slide
            - Users will be brought to the previous slide.
        - Users want to go to the next slide
            - Users will be brought to the next slide.
    - 3.3.4: Functional Requirements
        - The software shall show a slideshow of various images for users to view.
        - The software shall allow basic navigation of the slideshow.
        - The software shall allow the slideshow to continue playing after a period of inactivity.

- *3.4*: *Video Module*
    - 3.4.1: Description: The kiosk will be have video display capabilities, and users can interact dynamically with them.
    - 3.4.2: Priority: This is a medium priority task.
    - 3.4.3: Stimulus and Response
        - Users want to find an earlier part of the video
            - An earlier part of the video will be jumped to.
        - Users want to skip to another video
            - The next video in the queue will be played.
        - Users want to find another video to watch
            - A menu will indicated different videos for users to watch.
        - Users want to pause the video
            - The video will stop playing until started up again.
    - 3.4.4: Functional Requirements
        - The software shall support video playback.
        - The software shall support a queue of videos to watch.
        - The software shall have captions for users to read.
        - The software shall have a display for videos available to watch.
        - The software shall support basic video options.

- *3.5*: *Map Module*
    - 3.5.1: Description: The kiosk will have an interactive map to show where faculty and rooms are located.
    - 3.5.2: Priority: This is a low priority task.
    - 3.5.3: Stimulus and Response

        - Users want to find a specific faculty member
            - The faculty's location will be displayed on the map with other info.
        - Users are looking for a room in the building
            - The room will be displayed, with basic directions on how to get there.
    - 3.5.4: Functional Requirements
        - The software shall support searching for a professor.
        - The software shall support searching for a room.
        - The software shall display information relating to rooms and faculty on a map.

- *3.6*: *Department Schedules*
    - 3.6.1: Description: The software will feature a module for displaying the availability of different faculty.
    - 3.6.2: Priority: This is a low priority task.
    - 3.6.3: Stimulus and Response
        - Users want to see some faculty's availability
            - The faculty's hours will be displayed to the user.
    - 3.6.4: Functional Requirements
        - The software shall support searching for a professor's schedule.
        - The software shall show schedules in a simple format.

4.0: External Interface Requirements

4.1: User Interfaces

The end user upon interacting with the kiosk will greeted with a view referred to as the home screen which consists of a slideshow of image and video based content with a navigational menu on the bottom of the screen at all times. Within this navigational menu users will be able select one of the modules which will trigger the kiosk to switch to a different view.

Upon selecting the map module, users will be shown a view with an image of the buildings map which can be interacted with for more information by tapping different rooms to show more info on the individual room.

Upon selecting the schedules module, users will be shown a view with a list of known availabilities for labs and faculty.

To control, maintain, and curate the content available in these modules, the administrator user will interact with the administrator portal. Within the administrator portal there is two primary interactive menu systems. The first being for file management where the administrator is able to save and manage files to be used by the kiosk. The second being for module management where the administrator is able to toggle which modules are enabled and available on the kiosk. This menu system also will have module specific setting for the administrator to modify.

4.2: Hardware Interfaces

Discovery Kiosk software should be capable of interfacing with touch screen devices for input. However, the make and model of touch screen does not matter as the software should be highly compatible to software to comply and support multiple customers.

4.3: Software Interfaces

There will be a required connection of the device running the administrator portal to the software running the Discovery Kiosk primary application via either WiFi or ethernet connection. This is to maintain the operation of the kiosk through file transfer and module management.

4.4: Communications Interfaces

Communication between the administrator portal and the software found on the kiosk
Is high priority in terms of the systems functionality. However, how the communication is achieved is not important to the system and will rely on that interfaces of the softwares operating environment.

5.0: Other Nonfunctional Requirements

5.1 Performance Requirements
The Administration Portal application must load pages and perform admin requests without significant delays. The kiosk system must load and display content, and perform user requests without any significant delays. Updates to the file system must be reflected in real time on the kiosk display with minimal delay. Users should be able to browse the pages of the display smoothly with unnoticable time delays in the event of an update.

5.2 Safety Requirements
The kiosk system must not be distracting in its environment in a way that jeopardizes the user's safety; despite being able to play audio, the system should not emit loud noises that might startle users. The placement of the kiosk should also be taken into consideration; it should not be a walking hazard or placed in any way that puts users at risk of injury.

5.3 Security Requirements
The Administrator Portal must require admins to login for authentication to ensure that only authorized users are allowed access to the portal. This will protect against unauthorized changes and access to the file system. Users should not be able to access the portal from the kiosk device.

5.4 Software Quality Attributes
The modular structure of the portal will be easily maintainable and support ease of changes. Code will be neat and well documented for understandability and future maintenance, and new modules will be easy to add and incorporate.

Appendix A: Glossary

References: definitions adapted from Wikipedia, https://www.wikipedia.org/

- Admin/Administrator: System administrator who manages content that is shown on the kiosk through use of the Administrator portal.
- Administrator Portal: An application which allows the administrator to manage content displayed on the kiosk.
- Applications: An application, or application program, is a software program that runs on your computer
- Ethernet: A system for connecting a number of computer systems to form a local area network.
- File System: Controls how data is stored and retrieved.
- Kiosk: A small structure used for providing information often incorporating interactive display screen(s).
- Linux: An open-source operating system modelled on UNIX.
- Modular: A design that subdivides a system into smaller parts called modules.
- Module: A service or content provider that can be displayed through the kiosk. Modules are controlled and curated by the administrator.
- Raspberry pi 3: A small, low cost computer that plugs into a TV or monitor.
- WiFi: Allows devices to connect to the internet.
- Windows: A series of operating systems developed by Microsoft.

Appendix B: Analysis Models

Currently none at this time.

Appendix C: Issue List

Currently none at this time.