CIS 4911 – SENIOR PROJECT

Picture Marketing’s Social Wall

Feasibility Study and Project Plan Document

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**Abstract**

The Social Wall is an IOS mobile application that allows registered users to show their images as a slideshow on any display using a Chrome cast device. The purpose of this document is to outline the Feasibility study of our proposed system compared to other alternatives and it discusses the project plan for the Social Wall system.

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**1. Introduction**

This chapter introduces the project and defines the purpose, scope, terms, and background on the system. It also deals with describing how the rest of this document will unfold using the chapter and section structure of the document.

**1.1 Problem Definition**

The Social Wall system aims to solve the inability of our users to easily and efficiently display their online photo albums in a slideshow format on any large screen they desire without the hassle of a complicated setup process. The system should also allow users to seamlessly customize their slideshows on the fly without hindering user experience. With todays highly accessible software and hardware, the Social Wall project combines the latest innovations in mobile and web technologies to help users free and view their media wherever they want.

**1.2 Background**

Our Sponsor for this mobile application Picture Marketing Inc. specializes in creating applications such as FotoZap a social marketing platform that allows companies the ability to promote their brand through customized images and videos. The FotoZap application allows companies to take customer photos on their mobile devices, brand them with their custom logos and send them to their clients through social media, email and other forms thus promoting the companies brand. The, Social Wall we will help them in aggregating images from FotoZap and repurpose them for event slideshows, website galleries and other events so that Picture Marketing has another form of delivering the images to their clients.

**1.3 Definitions, Acronyms and Abbreviations**

Picture Marketing – Picture Marketing Inc. the projects sponsor

Social Wall – The mobile application that allows users to display media on large screens using a Chrome cast device

Cordova – Native mobile application platform.

h/w – Hardware

s/w – Software

OS – Operating System

App – Application

Sencha Touch - Mobile development Framework

Chrome cast device – Google media streaming device.

JavaScript – JavaScript web programming language

ConnectSdk - framework for connecting to Chrome cast device

AngularJS – MVC Javascript web framework

MVC – Model-View-Controller Architectural Pattern

**1.4 Overview of Document**

In this document, we discuss the Feasibility Study and Project Plan of the Social Wall project. For the Feasibility Study we will discuss the current system in place today, the purpose of the new system we are implementing, define our user requirements, describe the alternative solutions, and offer recommendations. In the Project Plan, we discuss how we will organize our project, which includes personnel organization, the h/w and s/w resources for the system, and identify the tasks, milestones, and deliverables for the entire Social Wall project.

**2. Feasibility of Study**

**2.1 Description of Current System**

Currently, there are two major ways of displaying an image slideshow on a large screen: the local solution, which uses applications such as Microsoft PowerPoint to display a image slideshow from a computer and the web solution which uses a web application such as Tintup to show the slideshow. The local approach requires the user to download the images on their computer and connect to the screen or connect a flash drive device to the screen, which requires some initial setup and limits the control of the slideshow. This approach forces companies to dedicate time and resources for the creation of an appealing final product.

The second option using web applications such as Tintup or Postano which offer similar functionalities as the Social Wall System however, these, services while useful, can be rather costly, and can cost upwards of $1,000 a month (or more). This option may be viable for some companies, however it may not be a viable solution for smaller companies and some individuals.

Moreover, there are mobile applications available that can accomplish slideshow streaming to screens such as AllCast or Photocast. These are open source solutions that offer similar features however they are limited in the sources that can be used for the slideshows, they do not offer FotoZap users to view their pictures and their limited in the actions that can be performed on the image slideshow.

Finally, the Social Wall system version one used a web application instead of a mobile application, which offers very similar functionalities that the mobile system provides but the mobile system is more intuitive and easier to use since most people have mobile devices and are used to using mobile applications.

**2.2 Purpose of New System**

The purpose of the new system is to allow for the automation of an image slideshow through a user-friendlier and completely dynamic system. It involves the creation of a mobile application that can connect to a Chrome cast device and display the images on any screen. The new system should also integrate seamlessly in the Picture Marketing suite of applications giving them yet another delivery method for their client’s media. The expensive and unintuitive alternatives discourage individuals from using this service, and force companies, both large and small, to spare hundreds and even thousands of dollars for a service they may only use a handful of times. The new system will eliminate this by making the mobile application open-source and reinventing the user interface of the Social Wall so that the user can easily use the application.

**2.3 High-Level Definition of User Requirements**

1) The system shall allow the user to login to the system using their FotoZap account.

Security/Privacy:

a) System network communication should be encrypted.

b) System should encrypt users username and password.

2) The system shall allow the user to logout from the system.

3) The system shall allow the user to connect to a Chrome cast device.

4) The system shall allow the user to select a campaign to display on the screen.

Security/Privacy:

a) System network communication should be encrypted.

b) System should encrypt users username and password.

5) The system shall allow the user to disconnect from the connected Chrome cast device.

6) The system shall allow the user to switch the campaign being displayed on the screen.

Security/Privacy:

a) System network communication should be encrypted.

b) System should encrypt users username and password.

**2.4. Alternative Solutions**

**2.4.1. Description of Alternatives**

Many solutions were considered for this project. One of them was a native desktop app for Windows machines. In this alternative, the consumer would enter in his/her FotoZap credentials; the app would store it, and generate a slideshow in the application itself. Also the application would have features to customize he slideshow in any way. The application would encompass all of the features of the Social Wall in a single application. This desktop app can be developed using Microsoft Visual Studio using C# and .the NET framework.

Another possible solution is a web application, which can be utilized by any OS and mobile OS through their respective web browsers, giving SW the largest possible user base. The application will allow users to login and view heir images in the browser his alternative also provides the option to cast to Chrome Cast, which allows the user another simpler way to display their slideshow. The web app would be developed in Javascript, CSS, and HTML, using the AngularJS framework.

A third solution is to have a native apps for iOS, Android, and/or Windows Phone using the Cordova framework. This provides an even simpler alternative for consumers to generate their desired slideshow through a simple select interface. It would also be an inexpensive alternative for the SW users, since the app would be open source and could be downloaded from any mobile device app store. A Cordova app would cast the image slideshow to a Chrome Cast, which would make presenting the slideshow even easier. This solution can be developed like a web app using (JS, HTML, CSS, and AJS) and converted into a mobile app with the aid of s/w like Cordova.

**2.4.2. Selection Criteria**

Below are the various criteria used to rate the candidate solutions to the Social Wall project, explained in the alternative solutions section of the document. See the section below for the candidates considered.

**Functionality**: A description to what degree the candidate would benefit the organization and how well the system would work.

**Political:** A description of how well received this solution would be from the user managements, users, and organizations perspective.

**Technology:** An assessment of the maturity, availability (or ability to acquire), and desirability of the computer technology needed to support this candidate.

**Expertise**: An assessment of the technical expertise needed to develop, operate, and maintain the candidate system.

**Economic Feasibility:** The estimated cost to develop the candidate system.

**Scheduling Feasibility:**  The estimated time needed to develop the candidate system.

**2.4.3. Analysis of Alternatives**

Alternative 1 (Desktop Windows app) is feasible in the functionality, political and technology criteria. It meets the functionality criteria because the application will most certainly function well since the application will run on the desktop computer and this will certainly benefit Picture Marketing and their customers. The political condition holds because a desktop app would be well received from potential users since many users use desktop applications regularly, which of course pleases Picture Marketing management. In the technology criteria it succeeds because the s/w and h/w needed to develop this app is easily attainable through various vendors. Economically, it is fairly attainable since most of the s/w needed is inexpensive. Where it fails to be feasible is in the expertise and scheduling criteria. The developer is unfamiliar with developing an app for Windows machines, so that would require extra time to learn the technologies, something that negatively affects the scheduling feasibility as well.

Alternative 2 (web app) is feasible in all criteria. It’s feasible in functionality because a web application would be able to do all the functionalities for the Social Wall and many people will be able to use it even more so than Alternative 1. The political criterion is met because a web app can be accessed by anyone on any device, pleasing Picture Marketing and the users of the application. The technology criteria is met and the economical as well because, like Alternative 1, all of the s/w and h/w that is needed is both easily attainable, and relatively inexpensive. It passes the Expertise criteria because the developers have previous experience using web technologies and wont have a long development time.

Alternative 3 (mobile application) is feasible in all criteria. It’s feasible in functionality because a mobile application would be able to do all the functionalities for the Social Wall and many people will be able to use it even more so than Alternative 2. The political criterion is met because a mobile app can be accessed by anyone on their IOS device, pleasing Picture Marketing and the users of the application. The technology criteria is met and the economical as well because, like Alternative 1, all of the s/w and h/w that is needed is both easily attainable, most users already have mobile devices and relatively inexpensive. It passes the Expertise criteria because the developers have previous experience using Cordova and web technologies and wont have a long development time.

**2.5 Recommendations**

For Social Wall, we recommend making a mobile application (so that it is intuitive and easy-to use) that retrieves photo albums from the users FotoZap account, and displays it on a slideshow engine running on a Chrome cast device. This was chosen because it provides the best usability and ease of use for our users .The Cordova framework will allow for the development of the application as a web application and then port it to the mobile device allowing for a cross-platform application.

**3 Project Plan**

**3.1.1. Project Organization**

Team Member Roles:

Steve Noel – Scrum Master, Document Editor, UML Diagram Creator, Interface designer, and lead Developer.

Carlos Ocampo- Mentor

**3.1.2. Hardware and Software Resources**

Hardware:

* Mac Computer (OS X or higher)
* Chrome Cast device
* Television with HDMI port

Software:

* StarUML (version 2.0.0)
* Mingle (Project Management Tool)
* Google Chrome Cast IOS Framework
* Google Drive
* GitHub (version 2.0 for Mac)
* Apache Server
* Xcode IOS Development Environment
* Cordova Native App Framework
* Sencha Touch Mobile App Framework
* Sublime Text 2 (Text Editor)
* AngularJS MVC Javascript Front-End framework

**3.2. Identification of Tasks, Milestones, and Deliverables**

**Tasks:**

* Build and run IOS project on Device
* Run Chrome cast receiver application
* Implement ConnectSdk bridge on IOS and receiver app
* Implement image Slideshow on receiver app
* Develop Connect and Disconnect device logic
* Handle Message from sender application

**Milestones:**

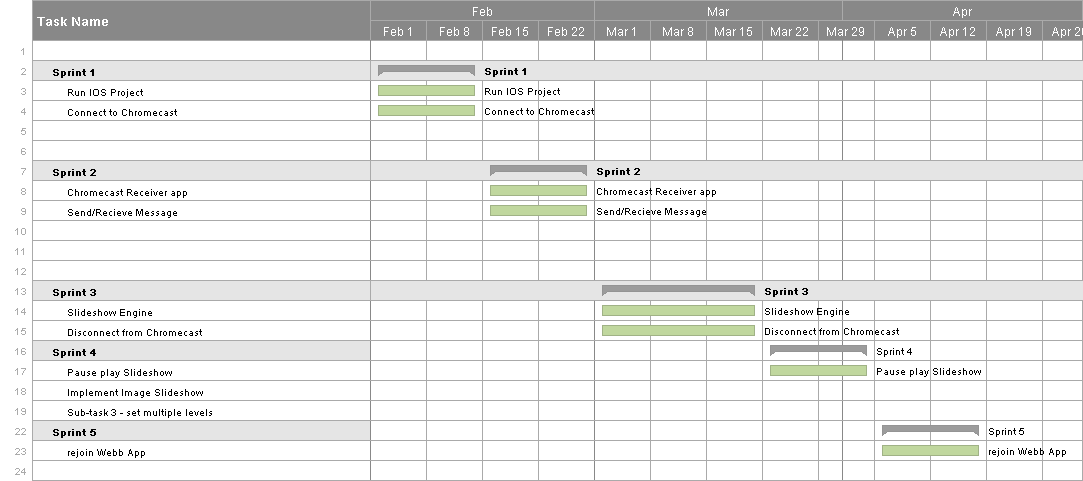
* Create Hybrid IOS Application
* Develop Slideshow Engine
* Connect/Disconnect from Chrome Cast device
* Launch Chrome cast receiver app on Chrome cast
* Send Messages to Chrome cast receiver app
* Rejoin receiver App from Mobile Application

**Deliverables:**

* Feasibility and Product Plan Document
* Design Document
* Software Requirement Document
* User Manual
* Installation Guide
* Social Wall Source Code
* Project Poster
* Social Wall Videos

**4. Appendix**

**4.1 Appendix A - Project Schedule**

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**4.2 Appendix B - Feasibility Matrix**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Feasibility Criteria** | **Wt.** | **Candidate 1** | **Candidate 2** | **Candidate 3** |
| **Operational Feasibility**    **Functionality. A description of to what degree the candidate would benefit the organization and how well the system would work.**    **Political. A description of how well received this solution would be from both user management, user, and organization perspective.** | **30%** | **15**        **13**        **Score: 28** | **14**        **13**        **Score:27** | **15**        **14**        **Score:29** |
| **Technical Feasibility**    **Technology. An assessment of the maturity, availability (or ability to acquire), and desirability of the computer technology needed to support this candidate.**    **Expertise. An assessment to the technical expertise needed to develop, operate, and maintain the candidate system.** | **30%** | **15**          **12**        **Score:27** | **15**            **10**            **Score:25** | **15**            **12**            **Score:27** |
| **Economic Feasibility**    **Cost to develop:**    **Payback period (discounted):**    **Net present value:**    **Detailed calculations:** | **30%** | **Score: 30** | **Score: 30** | **Score: 30** |
| **Schedule Feasibility**    **An assessment of how long the solution will take to design and implement.** | **10%** | **Score: 10** | **Score: 9** | **Score: 10** |
| **Ranking:** | **100%** | **86** | **91** | **96** |

**4.3 Appendix C - Cost Matrix**

|  |  |
| --- | --- |
| Resource | Price (USD) |
| Mac Laptop running OS X or better, 4 GB RAM, Intel i5 processor or better | $1300 |
| HDTV with HDMI port | $107.50 |
| Chrome Cast device | $34.99 |
| iPhone 5s | $600 |
| Total (taxes and fees included): | $3449.99 |

**4.4 Appendix D - Diary of Meetings**

Diary Entry 1:

Date: February 8, 2015

Location: Picture Marketing Offices

Start time: 12:00 pm

End time: 1:30 pm

In Attendance: Carlos Ocampo , Louis Zuckerman

Late: N/A

Agenda:

* Introduction and initial meeting
* Learn about Picture Marketing.
* Explanation and details of the project
* Go over requirements of the system.
* Talk about expectations of the project.

Summary of Discussion:

Introduced to the Picture Marketing Developers and Management. Discussed the Social Wall project, what is needed, what tools to use and what is expected.

Diary Entry 2:

Date: February 13, 2015

Location: Picture Marketing Office

Start time: 12:00 pm

End time: 1:30 pm

In Attendance: Carlos Ocampo , Louis Zuckerman

Late: N/A

Agenda:

* Talk about implementation so far.
* Discussed use cases.
* Discussed requirements and constraints

Summary of Discussion:

Discussed the implemented user stories thus far and the issues that have been discovered during development.

Diary Entry 3:

Date: February 19, 2015

Location: Picture Marketing Offices

Start time: 12:30 pm

End time: 1:30 pm

In Attendance: Carlos Ocampo, Louis Zuckerman

Late: N/A

Agenda:

* Discuss Login Bug.
* Demo of current system.
* Discuss application control flow and current

Summary of Discussion:

A demo of the current system was shown. Discussed how to fix the login use case problem. Discussed the performance of the slideshow engine. Decided to change the slideshow to a canvas implementation.

Diary Entry 4:

Date: February 27, 2015

Location: Picture Marketing Offices

Start time: 12:00 pm

End time: 1:30 pm

In Attendance: Carlos Ocampo , Louis Zuckerman

Late: N/A

Agenda:

* Fixed Logout Use Case
* Discuss current user stories implemented.

Summary of Discussion:

Demoed the current version of the system. Discussed the implementation of the fotozapService and how the images are loaded from the server. Decided the development of the image slideshow most critical user story.

Diary Entry 5:

Date: March 6, 2015

Location: Picture Marketing Offices

Start time: 12:00 pm

End time: 1:00 pm

In Attendance: Carlos Ocampo , Louis Zuckerman

Late: N/A

Agenda:

* Slideshow engine

Summary of Discussion:

Discussed different canvas frameworks that can be used for the project especially the react-canvas framework for a crisp looking hardware- accelerated slideshow.

Diary Entry 6:

Date: March 20, 2015

Location: FIU ECS Computer lab

Start time: 12:00 pm

End time: 2:00 pm

In Attendance: Carlos Ocampo , Louis Zuckerman

Late: N/A

Agenda:

* Discuss progress
* Slideshow engine and Disconnect Chrome cast demo

Summary of Discussion:

Talked about the new slideshow engine and the Disconnect Chrome cast features. Demoed the current system. Talked about the efficiency of using a sliding animation on the Chrome cast device and decided to change the animation used to a hard cut animation.

Diary Entry 7:

Date: April 1, 2015

Location: Picture Marketing Offices

Start time: 12:00 pm

End time: 2:00 pm

In Attendance: Carlos Ocampo , Louis Zuckerman

Zuckerman

Late: N/A

Agenda:

* Demo current version of system
* Discuss bugs

Summary of Discussion:

Demoed the current system, added some functionalities that the system should have, discussed the aspect ratio bug and also discussed the joining the web app bug.

Diary Entry 8:

Date: April 9, 2015

Location: FIU SCS Computer Lab

Start time: 12:00 pm

End time: 1:30 pm

In Attendance: Carlos Ocampo , Louis Zuckerman

Late: N/A

Agenda:

* Discussed Refactoring Code
* Discussed future developer setup instructions
* Discussed UI fixes

Summary of Discussion:

Made sure developer setup instructions were clear so future developers can follow it. Also, made sure code was readable and self-documenting.

Diary Entry 9:

Date: April 17, 2015

Location: Picture Marketing

Start time: 12:00 pm

End time: 2:00 pm

In Attendance: Carlos Ocampo , Louis Zuckerman

Late: N/A

Agenda:

* Demo of Final Product
* Discussed submitting App to store

Summary of Discussion:

Demoed the final version of the system. Also discussed the submittal of the app store but where not able to finally submit to store. Explained the setup Instructions to Picture Marketing Developers.

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7. <https://www.npmjs.com/> - Package manager for receiver web application
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9. <http://newegg.com/> - Prices for hardware and software requirements
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