Project Plan

Project Name: VisuaLearn

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Danny Lam
Jonathan Caparino
Josephine Chew

Date: April 16th, 2013
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I. Revision History

<table>
<thead>
<tr>
<th>Version</th>
<th>Date</th>
<th>Author</th>
<th>Detail of changes</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.0</td>
<td>04/18/13</td>
<td>All</td>
<td>Creation/First Draft</td>
</tr>
<tr>
<td>1.1</td>
<td>4/26/13</td>
<td>Danny</td>
<td>Edited stakeholders, Edited team roles</td>
</tr>
<tr>
<td>1.2</td>
<td>4/27/13</td>
<td>Andrea</td>
<td>Updated stakeholders, proofread</td>
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<tr>
<td>1.3</td>
<td>4/30</td>
<td>All</td>
<td>Updated technical constraints, statement of work, WBS, Added References</td>
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<tr>
<td>1.4</td>
<td>5/1</td>
<td>All</td>
<td>Changes reflect feedback from comments</td>
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<td>1.5</td>
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II. BACKGROUND

Down Syndrome is a genetic condition in which an individual has a full or partial copy of
chromosome 21. This condition alters the development of an individual, both physically and cognitively. It can significantly affect an individual’s ability to learn, especially at a young age. Visual Learning is a teaching style that improves the learning experience for those with Down Syndrome through sight and interaction.

The Down Syndrome Foundation of Orange County (DSFOC) runs a learning program to help children with Down Syndrome. The program focuses on literacy, math, and speech therapy. The organization has also created learning materials that are used within their program and available online. However, these learning materials only exist in paper form and as PDF’s. Doing pure book work can be tedious and repetitive. These don’t appeal to visual learners as well as a piece of interactive technology would.

There are several existing learning applications that are catered to visual learners, but these do not align with the lesson plans the DSFOC has created. The teachers have expressed excitement about a few existing apps, but they lack the depth of their workbooks and are too simplistic. Students would be more encouraged to learn if the learning material was intuitive and the interactions resulted in the student having fun as well. The DSFOC proposed the creation of a supplemental mobile application to these workbooks where children are able to engage with technology and have a more immersive experience with reading, math, various activities, and learning as a whole.

III. STATEMENT OF WORK

Our project team will create an application for Android Tablets. The application will be the foundation of what will be a mobile library of the entire DSFOC’s learning material library. Their library consists of workbooks focusing on literacy and math. Other books focus on various topics, such as “I See Colors”, “Music”, and “Pets”. We will focus on developing the mobile version of the workbook titled “Going Places”. The physical copy of the workbook is available for purchase through DSFOC’s website, here. Our application will guide students through a set of basic activities including reading material, matching (which is broken down into matching word to word, picture to picture, and picture to word), and finally sentence building. The goal of the workbook is to help build vocabulary as well as reading comprehension through the activities. The student will be encouraged to learn by interacting with our application.

For elicitation, our project team will keep in close contact with our client to discuss project details. We’ve scheduled a weekly meetings to update each other. Each agenda for each meeting will be focused on updating our client and questions we need to be answered for the next phase of the project. Communicating through email, Google Hangout, and Skype will
serve as our communication mediums. We will use DropBox to obtain video files and pdf versions of the workbooks from Dana.

For our initial designs, we will create basic sketches on paper. As time moves on, we will begin to use Balsamiq, Photoshop, and other Wireframing tools. We will update our user interface mockups frequently. This will involve frequently sharing our designs with the client. We will also use our physical copy of “Going Places” as a reference. There is a consistency throughout all of the DSFOC’s learning materials, in terms of images used, colors, fonts, and formatting. To continue this consistency, we will base our design from these learning materials.

For development, we will begin reviewing Android Development. We will refer to previous assignments and online documentation, whether it is official or in forums. We will make sure to develop small things as the project progresses. We will start simple, testing basic functionalities such as dragging and dropping objects. Since each group member does not have their own tablet and there aren’t any tablets available that we could borrow at a low cost, we will use existing emulators and test the app’s functionalities on Android phones(which we have a number of already).

The future goal we hope this application will achieve is that each student will be able to access the entire collection of DSFOC workbooks on their device. Creating this app will not only help people with Down Syndrome, but visual learners worldwide too.

IV. Stakeholders & Goals

<table>
<thead>
<tr>
<th>Stakeholders:</th>
<th>Description and Goals:</th>
</tr>
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<tbody>
<tr>
<td>Down Syndrome Foundation of</td>
<td>● The organization and our sponsors for the project&lt;br&gt;● They are providing us with the learning materials needed to create the application&lt;br&gt;● They are heavily involved with children with Down syndrome and the creation of the learning materials&lt;br&gt;● Help students develop skills in literacy, reading, and math&lt;br&gt;● Inform parents of effective ways of teaching and assisting their child</td>
</tr>
<tr>
<td>Orange County (DSFOC) Dana</td>
<td>Halle</td>
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<tr>
<td>Children/Students</td>
<td>● The students who attend the DSFOC Learning Program</td>
</tr>
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### V. Technical Constraints

- Have fun while learning
- Need to understand what they are doing
- Students will be more engaged in the lesson
- Can interact in a more hands-on way
- Students should be able to learn and practice literacy, reading, and math

<table>
<thead>
<tr>
<th>Parents/Families in Orange County</th>
<th>They would want an application that can be used at home or on the go</th>
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<tbody>
<tr>
<td></td>
<td>Want the application to be engaging for their children</td>
</tr>
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<td></td>
<td>Needs to be affordable and easy to use/learn</td>
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<table>
<thead>
<tr>
<th>Professors/Teachers</th>
<th>Both the teachers at DSFOC as well as people locally, nationally, or internationally who teach children in school</th>
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<tr>
<td></td>
<td>Can provide input on how to improve our application</td>
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<td></td>
<td>Can be used for user testing to get feedbacks</td>
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<td></td>
<td>Provide helpful insight for any problems we may face</td>
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<table>
<thead>
<tr>
<th>Partners &amp; Donors of DSFOC</th>
<th>Organizations that DSFOC work with and/or receive funding from</th>
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<tr>
<td></td>
<td>Expect learning materials, such as the app, and supportive techniques to be distributed</td>
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<tr>
<th>Online Community</th>
<th>Thousands of remote users who are affiliated with DSFOC and use their products</th>
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<tr>
<td></td>
<td>Rely on the Foundation’s distributed materials for their loved ones with Down Syndrome</td>
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<tr>
<th>UCI</th>
<th>University the team attends</th>
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<td></td>
<td>Goal is to have the team present a well developed project and give back to the community</td>
</tr>
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<tr>
<th>Ourselves (21Consonance)</th>
<th>The developing team</th>
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<tbody>
<tr>
<td></td>
<td>Want to create a fully functional application that can be used by the students of DSFOC’s Learning Program</td>
</tr>
</tbody>
</table>
Software Constraints

As a whole, our group lacks prior experience with app development. Learning the appropriate languages will require a large amount of time and effort on our part. As mentioned above, since not every group member has a tablet, we will also need to become familiar with each device we plan to test with, especially those that will be used in the classroom at DSFOC.

When developing for Android devices, Android Fragmentation is important to keep in mind. There are hundreds of devices that run on different versions of Android. These devices also vary in screen size and screen densities. Deciding to develop our application strictly for a tablet will certainly narrow down the number of devices we must account for, but it will still be challenging.

Hardware Constraints

None of our group members currently have an Android Tablet, however, one of our group members is planning to buy one soon. Development will be challenging if each member doesn’t have their own device. It will also be expensive to purchase, rent, or even access these devices. We can make use of existing emulators, such as the Galaxy Tab emulator, and Android phones (our own or those provided by the school) to help us with development in the absence of tablets.

Our sponsor, Dana Halle, works with Apple products and is not familiar with Android. In addition, she has limited knowledge of the technical aspects that the app needs. Therefore, our job is to help fill in the gaps, especially for requirements, in order to develop the app that our sponsor envisions.

Design Constraints

Since we are developing a mobile version of “Going Places”, we will need to stay consistent with the existing workbook. We will need to use similar colors, fonts, images, and formatting. DSFOC heavily emphasizes visual learning, and our audience is targeted towards children, so we must make sure our design coincides with visual learners needs. This will involve making sure there is minimal text on the screen at once, images are large, and the action required for the user is clear.

Data Constraints

There are relatively few data constraints since the majority our content is provided to us by DSFOC. In a sense, this limits us as to what new content we can create and put into the app. We will need to follow the book step by step and make sure everything is included. Most of the information is fairly simple so there is not much data to play around with. Our sponsor, Dana has provided us with both physical workbooks and PDF versions of the workbooks to look at, which allows every member of the team to access it.

Time Constraints

All of our group members have different schedules and commitments (work, other classes, research). Our client also has a busy schedule. We have schedule weekly meetings to dedicate to our project. Also, although we have 3 quarters to complete the entire project, we
must manage our time wisely and stay ahead whenever possible. We will run into obstacles, both known and unknown, and will have to adjust to overcome those. Summer will provide a great opportunity for us to get ahead and develop a solid plan for the rest of the project and hopefully avoid certain obstacles we were anticipating.

Publishing Constraints
Since the organization would like the application to be available for purchase, we must look into the Google Play Store and making it available through their website. Making the application available through their site would require setting up a safe and secure transaction system within their existing website, such as Paypal or Shopping Cart.

Preparing for release on the Google Play store requires configuring the application for release, building and signing a release version of the application, testing the release version, updating the application resources for release, and preparing any remote services or servers that the application may rely on.

Publishing the app involves preparing promotional materials, configuring options and uploading assets, and publishing the release version of the application. With Google Play, selling the app would require the organization to set up a Google Wallet merchant account. The application will already include “Going Places”, but for future workbooks that may be sold within the app, the organization will have to deal with In-app Billing.

VI. Work Breakdown Structure
1. Initiating
   1.1 Determine project roles (Rotated quarterly) (April 16)
      1.1.1 Assign Roles - Danny Lam ; ~1 hour
      1.1.2 Project Manager (Spring quarter) - Jay Caparino
      1.1.3 Lead Researcher(Spring quarter) - Andrea Lau
      1.1.4 Lead Designer (Spring quarter) - Danny Lam
      1.1.5 Lead Specifications(Spring quarter) - Josie Chew
   1.2 Figure out meeting times (April 8-10) (~2 hours)
      1.2.1 Complete Individual Gantt Charts - Danny Lam, Andrea Lau, Jay Caparino,
       Josie Chew
      1.2.2 Schedule weekly meetings - team effort
      1.2.3 Schedule time meetings with sponsors - team effort with sponsor
   1.3 Prepare Communication Covenant (April 12-14)
      1.3.1 Create outline of the Communication Covenant (~2 hours)
      1.3.2 Discuss information to be included (3-4 hours)
      1.3.3 Add Contact Information ( < 1 hour)
      1.3.4 Add meeting times ( < 1 hour)
      1.3.5 Finalize and proofread document - Danny, Andrea, Jay, Josie
   1.4 Prepare Stakeholder Communication Plan (April 16)
      1.4.1 Create list of questions to ask during the meeting (2-3 hours)
   1.5 Prepare Business Case Information (April 14 - 16)
1.5.1 Phase I (3-5 hours)
   1.5.1.1 Setup the basic layout of the Business Case - Jay
   1.5.1.2 Brief Project Statement - Jay, Danny
   1.5.1.3 Brief Stakeholders - Andrea

1.5.2 Phase II (10-15 hours)
   1.5.2.1 Project Statement - Jay and Andrea
   1.5.2.2 Stakeholders - Josie and Danny
   1.5.2.3 Brief Cost/Benefit Analysis - Josie
   1.5.2.4 Brief Comparative Analysis - Danny
   1.5.2.5 Brief Market Analysis - Jay
   1.5.2.6 Proofread Document - Jay, Josie, Andrea, Danny

1.5.3 Phase III (April 28-30) (~20 hours)
   1.5.3.1 Final Project Statement - Jay
   1.5.3.2 Final Stakeholders - Danny
   1.5.3.3 Final Cost/Benefit Analysis - Andrea
   1.5.3.4 Final Comparative Analysis - Josie
   1.5.3.5 Final Market Analysis - Josie
   1.5.3.6 Proofread Document - Jay, Josie, Danny, Andrea

1.6 Prepare Project Plan Information (April 16-18)
   1.6.1 Phase I (3-6 hours)
      1.6.1.1 Setup outline for the Project Plan - Danny
      1.6.1.2 Brief Statement of Work - Josie
      1.6.1.3 Brief Stakeholders - Andrea
   1.6.2 Phase II (5-10 hours)
      1.6.2.1 Statement of Work - Jay
      1.6.2.2 Stakeholders - Josie
      1.6.2.3 Brief Technical Constraints - Danny, Jay
      1.6.2.4 WBS - Jay, Josie, Andrea, Danny
      1.6.2.5 Gantt Chart - Jay, Josie, Andrea, Danny
      1.6.2.6 Brief Team roles - Danny
   1.6.3 Phase III (April 28-30) (~20 hours)
      1.6.3.1 Final Statement of Work - Andrea, Jay
      1.6.3.2 Final Stakeholders - Josie
      1.6.3.3 Final Technical Constraints - Jay, Andrea
      1.6.3.4 Final WBS - Danny
      1.6.3.5 Final Team roles - Danny, Jay
      1.6.3.6 Proofread document - Danny, Andrea, Jay, Josie

1.7 Research about potential users (April 24 - May 11)
   1.7.1 Research about Down Syndrome (10-15 hours)
   1.7.2 Discuss potential users with sponsor (2-3 hours)

1.8 Research about platforms (April 24 - May 1)
   1.8.1 Cost of platform (1-2 hours)
   1.8.2 Tablet size to develop for (~ 1 hour)
2.0. Planning

2.1. Define project (1 week)
   2.1.1 Meet with potential stakeholders (April 16) (~2 hours)
   2.1.2 Visit the center (April 16) (~2 hours)

2.2. Elicit requirements (1-2 weeks)
   2.2.1 Skype meeting with sponsor (April 23) (2 hours)

2.3 Prepare Requirements Document (April 22-23) (3 hours)
   2.3.1 Determine what requirements are feasible - Danny, Jay, Andrea, Josie
   2.3.2 Phase I (3 hours)
      2.3.2.1 Requirements outline - Danny
      2.3.2.2 Brief statement of Work - Jay
      2.3.2.3 Brief Assumptions - Andrea
      2.3.2.4 Brief Document Overview - Jay
      2.3.2.5 Brief Functional Requirements - Danny, Josie
      2.3.2.6 Brief Non-Functional Requirements - Danny, Josie
   2.3.3 Phase II (5-10 hours)
      2.3.3.1 Statement of Work - Jay, Andrea
      2.3.3.2 Document Overview - Jay
      2.3.3.3 Assumptions - Andrea
      2.3.3.4 Definitions - Andrea
      2.3.3.5 Functional Requirements - Danny, Josie
      2.3.3.6 Non-functional requirements - Danny, Josie
   2.3.4 Phase III (10-15 hours)
      2.3.4.1 Final Statement of Work - Andrea
      2.3.4.2 Final Document Overview - Jay
      2.3.4.3 Final Assumptions - Jay, Danny
      2.3.4.4 Final Functional Requirements - Danny, Josie, Andrea, Jay
      2.3.4.5 Final Non-Functional Requirements - Danny, Josie
      2.3.4.6 Final Definitions - Andrea, Jay
      2.3.4.7 Proofread Document - Danny, Andrea, Josie, Jay

2.4 Determine required resources (5 hours)
   2.4.1 Download Eclipse and needed SDKs (~2 hour)

2.5. Develop use cases (3 days)

2.6 Develop personas (3 days)

2.7 Create scenarios (2 days)

2.8 Research (ongoing)
   2.8.1. Research, analyze, evaluate existing learning materials on apps
   2.8.2. Research existing code, analyze problems from previous 191 group and find solutions/alternatives
   2.8.3 Work with students, research tendencies
   2.8.4 RESEARCH VISUAL LEARNING

3.0. Execution
3.1 User Interfaces
  3.1.1 Develop User Interface (ongoing)
    3.1.1.1 Meet with Stakeholder to discuss UI designs (May 1)
    3.1.1.2 Create mockups and prototypes (2 weeks)
      3.1.1.2.1 Paper prototype
      3.1.1.2.2 Software prototype
  3.1.2 Get Approval from Client (ongoing)
  3.1.3 Test User Interface (2–3 days)
    3.1.3.1 Conduct user studies on interactions (3–4 days)
  3.1.4 Evaluate User Interface from test results
  3.1.5 Edit User Interface, Repeat 3.1.1–3.1.4 until final version is confirmed
  3.2 Implement already existing code (2 weeks)
    3.2.1 Use available code as basis for app
    3.2.2 Alter code to fit within scope of project
  3.3 Continue incrementally adding functionality agreed upon in the project scope

4. Monitoring & Controlling (ongoing)
  4.1 Weekly group meetings: Tuesdays and Thursdays at 6:30pm
  4.2 Weekly Meetings with sponsor (Dana Halle): Wednesdays at 1:30pm either on Skype or in-person at DSFOC
  4.3 Progress Reports
    4.3.1 Send emails to client regarding new updates to the project
  4.4 Sprints: every 2 weeks
  4.5 Peer Evaluations

5. Closing
  5.1 Prepare final presentation

VII. Team Roles

Throughout the project, each team member rotate roles. Each member of the team will act as project manager, liaison to the client, notetaker, etc. We will rotate once certain milestones are completed or during transitions between each major project phase.

Project Manager (Jay Caparino)

- Make sure assignment deadlines are met and that there is enough time to complete the assignment
- Keep in close contact with the sponsor and relay the information to the team
- Make sure group members know about upcoming meetings, and that each meeting has a specific agenda to increase productivity.
- Assign work to group members along with deadlines and any additional resources that may be needed to complete the work.
Ensure that the team stays on schedule

Lead Researcher (Andrea Lau)
- Gather any required information about the project
- Summarize findings to team members and make sure everyone knows about the situation.
- Apply ideas taken from information gathered into the project.

Lead Designer (Danny Lam)
- Responsible for the UI design of the system
- Work closely with other members to make sure that the design is well documented
- Responsible for explaining design principles to the rest of the team (ex: why specific colors were chosen, etc. HCI guidelines)

Lead Specifications (Josie Chew)
- Responsible for finalizing documents
- Creates initial skeleton of documents
- Collaborate with the team to work on the documents
- Take notes during sponsor meetings
- Summarize and explain to the team about the meeting to make sure that the information you wrote down is correct to what they have heard

VIII. Gantt Chart
IX. References

Down Syndrome Foundation of OC website
- http://dsfoc.org/

Down Syndrome Info

“Going Places” Workbook

Android Fragmentation:
- http://www.gsmnation.com/blog/2013/03/13/android-fragmentation-is-still-a-huge-problem/

Android Publishing:

13