Redefining the Use of
Augmented Reality

Status Report

Version 1.1

29 July 2015

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Contents

0.0 Version History

VERSION 1.0

Version 1.0 is the original version of the Status Report. This version of the document was submitted to the BCIS team ahead of the mid-project review.

VERSION 1.1

Version 1.1 updates the styling of the status report to better align it with the Style Guidelines.

Section	Overview of Changes	Date
Title Page	Version number added, design changes made.	06/08/15
0.0	Version History section added.	06/08/15

1.0 Brief Project Description

1.1 Overview of Project

1.1.1 PROJECT BACKGROUND

Luminary Promotions, a New Zealand based advertising agency, specialises in experiential promotions. Luminary have a number of clients using their Augmented Reality (AR) technology. The model Luminary currently employs requires the creation of a standalone application for each client.

The propriety application model has hindered Luminary's ability to make any serious headway in the AR sector. Each application is very limited in features and usability, leading to a serious lack of longterm interest by users. The apps are typically deleted shortly after their first use.

1.1.2 PROJECT OBJECTIVES & SCOPE

Luminary have requested an AR platform application to address the user engagement issue of standalone applications. The aim of the application is to group together a range of AR content, with an ever-increasing library of media.

The platform must utilise an appropriate data-deployment method that allows for new data to be added to the users' device without requiring a large amount of storage space, or consuming a large amount of cellular data.

A proposed extension to the project (dependant on time) is the inclusion of a location-based service. The service would allow users to experience GPS positioned 'markers' surrounding their location. These markers would provide contextual information, e.g., movie showtimes at the cinema and information about the Sky Tower. The inclusion of this extension is not essential as it can be later added to the platform by Luminary's development team.

We will not be developing any 3D content to populate the platform. It is also foreseeable that the platform created will act as a proof-of-concept, rather than a fully functional and deployable application. Our primary focus is proving the viability of creating the platform.

1.2 Proposal Recommendations

We were provided with the two following recommendations for our proposal:

> 1) It is unclear from proposal that development using XP is iterative. You need to define things like duration and iterations. Your plans needs additional details to clarify your approach and activities.

> 2) Your proposal should define quality assurance approach and the practices that will be applied during the project phases. The practices need to match the tasks being undertaken.

We addressed these recommendations with a revised version of our proposal (version 1.1). For recommendation 1, we clarified the durations and iterations of the XP development methodology. Changes were made to the methodology section and work breakdown structure to better explain and demonstrate the iterative development model.

For recommendation 2, a quality assurance section was added to the proposal. This section outlines standard practices that have been put in place to ensure the quality of our documentation, research and development.

1.3 Variations from Proposal

1.3.1 AUCKLAND CITY COUNCIL APP

Luminary were in talks with the Auckland City Council about the possibility of creating a 'wayfinding' application. This app would use AR and location-based services to help tourists and locals navigate through Auckland City.

Luminary asked the group to change the scope of the project to instead focus on developing the 'wayfinding' application for the council. After weeks of failed negotiations with the council, Luminary decided that it would not be viable for the group to develop the application as it would not be possible to provide the low-level requirements of the app.

1.3.2 PROJECT APPROACHES

Following the failure to change our plan to developing the Auckland Councils' application, Luminary decided that they would like to rule out Approach B from our original proposal. Approach B was to instead create an AR plugin that could be retrofitted to pre-existing apps, rather than a standalone platform.

Luminary decided against further considering Approach B as they wish to use the AR platform as a proof-of-concept to further the negotiations with the Auckland City Council regarding the 'wayfinding' application. The development of the platform, even as a non-fully-functional proof of concept, would give Luminary the ability to demonstrate the potential of the technology to the Council.

1.3.3 PROJECT PHASES

Phase One of the project allowed for a significant research period around the potential utility uses of AR. It was originally proposed that the AR platform needed a utility purpose in order to be useful to the user, maintaining user engagement. This phase has been cancelled as Luminary wish for us to instead focus on the deployment of content from their servers to users' devices. Phase Two of the project was based around deciding which approach to continue with. As we are no longer considering Approach B, this phase is no longer required.

Two new phases have been decided. The new Phase One is a brief research period. During this period, each member of the group will explore the world of AR technology from a development perspective. We will gain an understanding of current technologies, limitations and standard practices. The insight gained from this research period will determine the development focus of the project.

The new Phase Two is an extensive requirements gathering process. We will work directly with Luminary to determine the requirements of the AR platform. We will leverage our insight from Phase One to shape the requirements of the project within the feasible time and technical restraints.

Phase Three remains the primary development phase that will run for the remainder of the project.

1.3.4 PROJECT TIMEFRAMES

The project timeframes have changed to reflect the new phases. Several weeks have been shaved off the development phase (Phase 3) to accommodate for lost time during change 1.3.1 and to allow for the revised phases explained in change 1.3.3.

2.0 Current Project Status

2.1 Work Completed

2.1.1 PHASE ONE RESEARCH

Research was performed in line with the previous Phase One of the project. This research focused on discovering potential utility uses for AR technology. Some potential uses discovered included car park finding, word translating, wayfinding and manipulation of 3D object in a real world space (E.G., placing furniture in a room).

As we no longer require a utility use for the AR platform, the research performed during the old Phase One will unfortunately not be used in our development.

2.1.2 PROTOTYPING

Each member of the group has created a prototype AR application using Luminary's current technology and processes. We have explored development in Unity, using the open-source Vuforia Augmented Reality platform.

These prototypes have given the group a valuable insight into the limitations of the current technology, particularly in terms of data deployment methods.

2.1.3 PLANNING

A large majority of our focus has been around re-planning the project. We have made several major alterations to our project plan, essentially overhauling it entirely from our original proposal. Our new plan is more concrete, and our gathered requirements will give us a complete scope of work, with no ambiguity around expectations and final deliverables.

2.2 Work Outstanding

2.2.1 BACKGROUND RESEARCH

Building upon our general prototyping in 2.1.2, we will perform extensive background research around current AR technologies. We will learn about the abilities, features and limitations of current AR development, giving us a clear understanding of our capabilities under our given constraints.

2.2.2 REQUIREMENTS GATHERING

The background research from 2.2.1 will allow us to work directly with Luminary to develop a full set of requirements for the AR platform. We will be able to have an informed discussion about the possibilities, limitations, features and drawbacks of the specifications that Luminary wish for us to work around.

2.2.3 DEVELOPMENT

The complete set of requirements from 2.2.2 will determine our development phase. We will break the development into subtasks with frequent deliverables. Working closely with Luminary, we will develop the AR platform.

The platform will act as a proof-of-concept that Luminary may wish to further develop in-house. It is essential that we maintain frequent communication with Luminary to ensure that we are creating the platform solution that suits their needs.

3.0 Project Team Recommendations

3.1 Frequent Communication

Communication with the client has been somewhat constrained. Luminary's main representative, Ahmed, has been unavailable for meetings on a number of occasions. We have proposed and set up a weekly meeting schedule, where we will meet with the client every Thursday.

3.2 Continued Unity Research

We will continue to learn how to develop in Unity. We will explore the areas of development which the group are not currently strong in, and focus our learning around our approach for the client/server model.

3.3 Continued AR Research

Augmented Reality is a very new field of technology. It is ever-changing, so we must continue researching the technology in order to remain ahead of the curve with our development. It is important that we continually explore the advancements of this field.

3.4 Better Group Collaboration

Communication via Facebook, email and meetings alone has proven to be inefficient. We plan to research into online repositories that allow us to frequently communicate, share ideas and files and track our progress. We will start using the new communication platform before our next meeting with Luminary on 6 August 2015.

3.5 Reconsider Methodologies

We have recently had a serious change to our project plan. It is important that we ensure that our research and development methodologies are optimal going forward with our new plan.

3.6 Compile Portfolio

With our mid-project review interview coming up next week, we need to ensure that all of our files are intuitively compiled into our digital portfolio. We will maintain this portfolio on a weekly basis to ensure that it is always up to date.

3.7 Create Quality Assurance Templates

Standardised templates will help us to follow good quality assurance practices. We need to research pre-existing templates, and craft our own versions around the dynamic of our group, client and project.

3.8 Record of Decisions Made

We will start maintaining a record of decisions made. We will add to it the major decisions that have been previously made, as well as the rationale for each decision. Recording these decisions will help us to understand the intention for the project.

3.8 Record Hours Contributed

The hours contributed (derived from our log books) will be compiled into a graph form. The graph will be used to visually display the contribution of each group member.

4.0 Individual Members' Work

4.1 Jason Gerbes

As group leader, I take on the admin roles of the project. I manage communication, ensure collaboration, organise meetings and enforce deadlines. Recently, I have worked directly with Ahmed to create a clear new plan for the project moving forward. I report to Anne and Roopak, taking on their advice and communicating it to the group.

I am responsible for compiling the groups' work into clear, consistent and well organised documents. I work alongside Paul to ensure the quality of all deliverables, emails and other communications.

I worked with Josh and Paul to perform a usability test on Luminary's M2 application. We found there to be a number of serious usability concerns, and many users commented that the app took away from the magazine experience. It was largely considered a gimmick, and people did not think they would use it a second time. The results from our test will be referenced when designing our AR platform app to avoid the same pitfalls.

I have experimented with Unity and Vuforia development environments. I have learnt that the deployment model that Vuforia offers is not particularly suitable for Luminary's requirements. Vuforia stores AR content solely on the device, which is not ideal for a large database of media. I will continue considering alternatives to Vuforia as our research phase continues.

Working with an external client can be difficult. Luminary have other projects continuously in development, and we cannot always expect a rapid response from them. Setting up a dedicated weekly meeting should help alleviate some of the communication berries we have faced thus far.

4.2 Joshua Son

I have been a part of the group through the development of this project. The project's changes have affected our group's objectives and I've helped to realise that.

Recently, I've explored basic app development with Unity; and augmented reality with the Vuforia platform. Prior to this, I was a part of a research project, looking into the usability of Luminary's previous application for M2 magazine. I have also contributed in the production of artefacts and documentation such as the proposal and this status report.

I've learned the basics of the Unity platform and how we may use it to achieve our goal. I've learned the art of performing a usability test and how to collating a simple report through our research topic. Like many of my team members, I've also learned the ups and downs of group collaboration and working for a client.

4.3 Paul Lee

Initially, our research was supposed to let us have an informed decision between creating a platform that contains AR content and creating a plugin which can be implemented in to existing applications to add AR content. This changed and now our focus is to create a 'wayfinding' application that uses a devices camera to show pinpoints of a location (made on a server) around the user.

I have downloaded and experimented with Unity/Vuforia. I need to get familiar with the user interface and how it all works. I have created a basic AR application that scans a pamphlet and displays a character/model standing on it. There are many tutorials on how to use Unity but still creating this application will be a very challenging task.

I have learnt that working with clients can be difficult. Luminary especially have many projects going on and are unable to dedicate lots of time to us, therefore meetings have been postponed and communication has been hard at times. I have learnt that the client should always been informed of any decisions that will be made, even if they don't respond they should be notified about how something will be done.

4.4 Sean Young

During the project I have researched the topic of augmented reality/virtual reality market and what uses it may have for the 21st century. Although some more research is to be done to find the true value for its use in our projects development. I have also worked with Unity and Vuforia applications which I have obtained online. I have created a couple entry level augmented reality applications based of YouTube tutorials for example a webcam detecting a specific surface in the real world and outputting an animation on the computer screen.

I still need to practice and acquire more knowledge about the software tools before I can make progress with project development. I have also started drafting mock-ups of possible user interfaces for the luminary application by using an online tool called www.moqups.com. I then allowed my team to give feedback as to the possible functionality that may be added into the application by posting the mock-ups to the group Facebook page.

I have learnt up until this point that working with a real client in a real company can be very challenging. This is because our client at Luminary has other commitments within their company and it means that constant communication is not always available on a regular basis. So therefore one on one time with the client is quite valuable during the project. If the client is unavailable, emails and cellphone texts are also a great way to keep the client informed. I have also learnt that team communication is also a key element as it encourages the projects progress and allows the other members to give feedback on team work and progress.