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Vu: Integrating AR Technology and Interaction into an Event Planning App

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Integrating AR Technology and Interaction into an Event Planning App

Yun Liu

A Thesis submitted in partial fulfillment of the requirements for the degree of:
Master of Fine Arts in Visual Communication Design
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Rochester, NY

13 Dec 2017
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Abstract

Planning a social event can be expensive and time-consuming. To minimize the risk of event problems, the organizer can consult professional event planners. However, a consultant can also be costly. Therefore, purchasing decor, food, and other items, without knowing if they look right or fit the venue, is a guessing game, and the game could be an expensive one.

If the original plan cannot be completed efficiently, then modifying or improving these works are likely to cost extra time and funds. However, testing the revised plan may also increase the likelihood of risk in future.

By integrating Augmented Reality (AR) into an event planning App, the App will allow users to arrange virtual items onto environment captured by the device. Thus, users can envision their plan and make changes before actually making purchases, calling in construction teams and doing the decorations.

The goal of this thesis is to integrate AR into an App design that allows users to design, view, and make budgets for their event plan in advance, optimizing their design beforehand.

Keywords: AR, interaction, event plan, budget saver, visualize
Introduction

Problem Statement

Integrating interaction design, AR technology, information design, and 3D modelling can allow users to plan events more effectively.

Designing the prototype of the wedding based on the concept of the App can show the actual application and design for the App itself. The design process would be choosing style, color, server, cake, plus schedule and service program.

Using the technology of AR (Augmented Reality) to design an App that allows users to have an overview before they buy the decor and start decorating the site. The App will work as a virtual fitting room. Users can take whatever they want, and place them wherever they want. It allows users to check if their expectations can be met beforehand. Users can always change the objects they don’t like before finalizing their purchase.

This App saves not only a lot of time and money but also help designers to modify their plans when necessary.

This study is based on concepts of interaction design, along with AR technology, information design, and 3D modelling to achieve this App.
Introduction

Situation Analysis

Current event planning apps show only pictures and suggestions for selections such as color and styles. Users can just see images, filter with given keywords. More like a Google search for images for specific occasions. These apps work well in providing suggestions but do not help users to finalize their visual plan with the items they have chosen.

For example, the wedding planner App called The Knot shows numerous wedding photos and provides users with advice on styles. However, it cannot give specific advice based on personalized requirements. Other event planning Apps provide schedules and checklist of what to do and buy, much more like a butler but not helpful in finalizing the design.

What if a couple already have their ceremony decoration plan, but they want to see its visual effect before actually renting the venue, buying the balloons and flowers, or even getting the guests together. What if the groom’s 95-year old grandmother needs to fly from London, just for an audition might be asking too much of her. An app that can help the couple to realize their plan virtually, so they can see how it would look like really is of great help to them with improving and finalizing their plan, without costing them a great deal of money and time.
Introduction

Thesis Statement

Integrating interaction design, AR technology, information design, and 3D modeling can allow users to plan events more effectively.

Designing the prototype of the wedding based on the concept of the App can show the actual application and design for the App itself. The designing process would be choosing style, color, server, cake, plus schedule and service program.

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This study is based on concepts of interaction design, along with AR technology, information design, and 3D modelling to achieve this App.
Research

Research Approach

The integration of AR Technology is key to the concept of this thesis. Research into AR helped to associate the technology with the App concept and achieve the thesis goals.

At the same time, since the App is designed for event planning, also researched launched event planning Apps to refine more improved functionalities.

At the beginning of the research, communications with several design professionals, educators, and other non-design experts helped to understand the opportunity and effectiveness of the concept, and many insightful opinions were gleaned from so many incredible people that amazed the power of design during this process. The initial goal was to understand the methodologies and concepts through practice.
Augmented Reality

“On the spectrum between virtual reality, which creates immersive, computer-generated environments, and the real world, augmented reality is closer to the real world. Augmented reality adds graphics, sounds, haptic feedback and smell to the natural world as it exists. Both video games and cell phones are driving the development of augmented reality. Everyone from tourists, to soldiers, to someone looking for the closest subway stop can now benefit from the ability to place computer-generated graphics in their field of vision.”

----Kevin Bonsor, How Augmented Reality Works, 2016

https://computer.howstuffworks.com/augmented-reality.htm

Augmented-reality can change the way we see the world. Imagine you are walking down the street, wearing augmented-reality devices, which will look like standard glasses in the future, information will pop up in your sight, and audio will in sync with what you see. These enhanced experiences keep refreshing to reflect the movements of your brain. AR devices and applications already exist, mostly on smart-phones.
Research

The future is here.

“AR on smartphones and tablets may revolutionize mobile computing with Apple at the driver’s seat, according to market analysts. Google introduced its own AR development platform called ARCore after Apple announced ARKit would bring similar apps to the Android marketplace.”----by Seung Lee, The Mercury News, The future is here: Augmented reality apps to use on your iPhone or iPad, October 19, 2017.


With newly released iOS 11, Apple’s new augmented reality platform, ARKit, is ready for take-off. Through the new platform, new AR apps can provide useful, real-time information, and the tracking technology can create graphics that stay in place even as the users move. AR on smartphones and tablets may revolutionize mobile computing. Some of the best ways to experiment with augmented reality on your iPhone or iPad are checking the fit for new furniture, measuring any object with pinpoint accuracy, and gaming. These apps use camera to learn the surroundings, providing smooth, seamless experiences.
Research

Augmented Reality

“Augmented reality, a set of technologies that superimposes digital data and images on the physical world, promises to close this gap and release untapped and uniquely human capabilities. Though still in its infancy, AR is poised to enter the mainstream; according to one estimate, spending on AR technology will hit $60 billion in 2020. AR will affect companies in every industry and many other types of organizations, from universities to social enterprises. In the coming months and years, it will transform how we learn, make decisions, and interact with the physical world. It will also change how enterprises serve customers, train employees, design and create products, and manage their value chains, and, ultimately, how they compete.”

----by Michael E. Porter


The reality is three-dimensional, but the data we are informed remains trapped on two-dimensional pages and screens. This is the disconnection between the digital data and the physical world. It limits our ability to take more benefit from the flow of information.
Research

Augmented Reality

Augmented reality is likely to close this gap. The key capabilities of AR include visualization because the apps can provide an X-ray like vision, allowing users to see the internal features that would be difficult to see otherwise. Also includes instruction, thanks to the real-time, on-site, step-by-step visual guidance provided. AR can create business value in two broad ways, becoming part of products themselves, and improving performance across the value chain. We see AR as a historic innovation.
Research

Augmented Reality Apps

It has been like a futuristic concept in the past, but AR has actually been in our life for a long time. It becomes better and more seamless, providing extraordinary images generated by computers atop users’ view of reality, thus creating the composition of views contain both reality and virtual world. AR apps range from interactive map overlays and virtual exhibition rooms to massively multiplayer games, and each software cooperates with smartphone GPS and camera functionality to provide even more immersive experiences.

AR apps are available in a variety of genres, offering both premium and freemium apps from a variety of developers, but sometimes, it is even tougher to choose from so many apps available than to use one. Here are the top picks for the best and most popular AR apps available, offering both iOS and Android versions.

Research

Augmented Reality Apps

Pokémon GO
By Satoru Iwata of Nintendo and Tsunekazu Ishihara

If Niantic's Pokémon Go didn't make to this list, it wouldn't even worth to look at. It is a game that caught everyone’s attention immediately after the announcement. This game gives people perfect reason and motivation to go out and explore our world. The game uses GPS to track your location, showing your avatar on the game-styled map. Your camera is used to show Pokémon in the real world. The game also runs smoothly most of the time with no crashes.

WallaMe
By Wallame Ltd. 2015

WallaMe is an app that allows you to leave hidden messages in different locations all over the world. These messages can only be discovered by other WallaMe users. To leave messages, you can take a picture of a street, sign, or just a wall, then use the built-in drawing tools to leave any special information.

SnapShot Showroom
By SnapShop Inc.

In this app, users can see the potential look when selected furniture are put in their living room, kitchen, bedroom, or any other desired area of their home.
Augmented Reality Apps

Ink Hunter
By Oleksandra Rohachova, Pavlo Razumovskyi

If you are trying to decide what kind of tattoo you want and where to put it, Ink Hunter is the app you may want to check out. It allows you try out pre-made tattoos, and even your own designs, then you can put it wherever in your body you would like using a camera. Tattoos placed on the body look as close to they are in real life as you’re going to get. That's all thanks to the built-in editor and how Ink Hunter renders tattoos.

Google Translate
By Google

Google Translate (Android, iOS) is already a popular translation tool, and its AR real-time visual translation features even give people more options and convenience.
Augmented Reality Apps

IKEA Place
By IKEA

IKEA Place gives us a look at how augmented reality could change shopping. It allows users to preview products right at home before they buy them by simply scanning the floor and picking a product.

“The app includes 3D and true-to-scale models of everything from sofas and armchairs to footstools and coffee tables,” the app’s description reads. “IKEA Place gives you an accurate impression of the furniture’s size, design, and functionality in your home so you can stop wondering and start doing.”
Research

Review of Literature

The Real-Life Dangers of Augmented Reality

Augmented reality can damage our perception, but good design can minimize the threat. There are devices like Google Glass, Sony’s SmartEyeglass, or Microsoft HoloLens that present contextual information transparently or in a way that obscures little, seemingly letting you navigate the world safely, in the same way, head-up displays enable fighter pilots to maintain situational awareness.
Research

Review of Literature

How Augmented Reality Is The Next Big Social Experience
By Michael Poh, 14 May 2015.
http://www.hongkiat.com/blog/augmented-reality-next-big-thing/

We often don’t associate such commonplace technologies with what we normally assume as ‘high-tech’ AR, but AR apps exist on mobile devices in so many ways already like shopping, navigation, education, and video gaming.

Eventually when AR technology develops to its apex, information, experience and reality will merge to become a whole. However, if we can discard switching between apps to get something done with seamless information flow, AR will truly alter the way we experience reality.
Research

Review of Literature

Integrating Info, Experience and Reality
By Michael Poh, 20 May 2015 in Concept.
http://www.hongkiat.com/blog/augmented-reality-next-big-thing

We often don’t associate such commonplace technologies with what we normally assume as ‘high-tech’ AR, but AR apps exist on mobile devices in so many ways already like shopping, navigation, education, and video gaming.

Eventually when AR technology develops to its apex, information, experience and reality will merge to become a whole. However, if we can discard switching between apps to get something done with seamless information flow. AR will truly alter the way we experience reality.
The 10 things you need to know about augmented reality
June 2014
http://www.cwjobs.co.uk/careers-advice/it-glossary/the-10-things-you-need-to-know-about-augmented-reality

There are many things we should know about AR. Augmented reality can merge the reality and the virtual world by overlaying digital data and graphics on to real-world views. AR apps work in two ways, marker-based and location-based. Developing AR apps requires realistic and properly aligned imagery and a deep understanding of user interfaces. The biggest time of AR probably will come when it doesn’t rely on the screen.

App Icon Design
By Martin Leblanc, 21 Aug 2013 in Design&Dev
http://thenextweb.com/dd/2013/08/21/six-tips-from-apple-on-how-to-create-better-app-icons/#gref

An Apple UX Evangelist shared some opinions on designing good icons, including focusing on a unique shape, carefully selecting colors, avoid using a photo, avoid using a lot of text, accurately portraying materials, and to be creative. After all, that test the app icon on different wallpapers to better evaluate how it looks.
Research

Review of Literature

Essential Elements to a Comprehensive Brand Identity
By Natalie Emily, 1 April 2010.

A logo is a good place to start; you should also consider building "visual position" to be something larger. Building a system for your brand allows you to meet the demands of different media, while still presenting a cohesive identity. Other than a logo, there are different logo “lockups”, key colors, additional color palette options, corporate typefaces, standard typographic treatments, consistent style for images, and a full library of graphic elements.
Methodological Design

The thesis project explores interaction, user interface and experience design to build a digital media platform the event planner to use.

In addition to digital design elements, an identity for this service was also be designed in order to support someone doesn't have a design background.

Target Audience

1. People who are planning wedding ceremonies but don't know if their design can meet their anticipated effect, or can use some improvement.

2. People who will organize an event, but they need to visualize their decoration of the scene beforehand. Thus, reducing the possibility of wasting budget on unwanted effects.

3. People who want to know if they can get the results they want before they carrying out the plan, which might be too risky to realize the design and then found the effect is not as expected.
Methodological Design

Persona

1. John, 28 years old. He is going to get married, but he is still hesitating with the wedding ceremony plan, for which items to purchase and how to decorate the venue.

2. Chris, 35 years old. He is going to throw a birthday party for his 5-year old son. He wants to make it perfect and meaningful for his son, but he has no experience of designing such an event, he needs to be enlighten with some ideas.

3. Aisha, 25 year old. Her company is holding a big event, but she had no experience in organizing such event before. She wants to see the visual effect of her decoration plan for the venue before she actually sets them up.

Age
28

Country
USA

Major
IT

Housing
Off Campus

Car
Has a car

Language
English

“I wish I’m a design guy, then I can design my wedding and make her happy.”

Biography
John is going to get married, but he is still hesitating with the wedding ceremony plan, for which items to purchase and how to decorate the venue.

Personality

<table>
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<th>Introvert</th>
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Tech Skills

<table>
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<td>Mobile App</td>
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<tr>
<td>Social Networks</td>
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</tbody>
</table>

Age
28

Country
USA

Major
IT

Housing
Off Campus

Car
Has a car

Language
English
Methodological Design

Persona

Biography
Chris is going to throw a birthday party for his 5-year old son. He wants to make it perfect and meaningful for his son but he has no experience of designing such an event, he needs to be enlightened with some ideas.

Age 35
Country USA
Major Lawyer
Housing Off Campus
Car Has a car
Language English

Personality
Extrovert
Thinking Feeling
Judging Feeling

Tech Skills
IT and Internet
Mobile App
Social Networks

“I want to build a perfect birthday party for Dan, I know how he likes the cartoon stuff, but how can I set all item at home.”

Biography
Aisha’s company is holding a big event, but she had no experience in organizing such event before. She wants to see the visual effect of her decoration plan for the venue before she actually sets them up.

Age 25
Country USA
Major Marketing
Housing Off Campus
Car Has a car
Language English

Personality
Extrovert
Thinking Feeling
Judging Feeling

Tech Skills
IT and Internet
Mobile App
Social Networks

“I really need someone help me with plan a event.”
Methodological Design

Anticipated Project & Components

Design an App with the technology of AR (Augmented Reality). This App can be used as the implementation of visualizing their designs. Users may know the effects of the design before bringing them to reality.

This includes designing a mobile application that was be prototyped to show the various features of the interactivity.

The project's brand identity and user interface were designed using Adobe Illustrator. The functionality of features was then be prototyped using Adobe XD. Moreover, the AR part of the application was created using Aurasma.
Design Ideation

Logo Sketches

See it, the first name for this app. The idea is use this app to see the result.

Figure 1-1
Design Ideation

Logo Sketches

Another way to depict communication is Preview that means use this app to preview what they imagine about the plan.

Figure 1-2
Design Ideation

Logo Sketches

Moving forward the idea of traveling was tried to use two letters as VU. After those two letters combined, the pronunciation was like View. Also the camera mark gives the idea about AR.

Figure 1-3
Design Ideation

Logo Sketches

Figure 1-4
Design Ideation

Logo Sketches

Figure 1-5
Design Ideation

Logo Sketches

Figure 1-6
Design Ideation

Final Logo Design

The concept below was the final logo, and color will change depend on the different situation.

Figure 1-7
Design Ideation

Typography

Sans serif fonts are good font choices for on-screen type.

Figure 2
Design Ideation

Potential Color Palettes

- #9ABCDE
- #6B80A7
- #49537D
- #6A99BD
Design Ideation

Flowchart Sketch

Flowchart was created for understanding the function of the mobile app.

Figure 3
Design Ideation

Flowchart

START

Sign up
Info.

Account
Guest

Log in
Email
Facebook

Main

Package

Custom
Event
Build
Save
Share

Created

Figure 4
Design Ideation

Low Fidelity Wireframes

Figure 5-1
Design Ideation

Low Fidelity Wireframes

Figure 5-2
Design Deliverables

High Fidelity Prototype

Start.
Background images will change accordingly based on the season and holiday. Logo and fonts color will also change to fit the background colors.

Returning users can choose “log in”, new users can choose “sign up”. “Guest” choice is also available for directly browsing the App.
Design Deliverables

High Fidelity Prototype

Users can log in with partnered social networks, such as Facebook, Instagram, Twitter, and WeChat.

New users will answer some questions. The system's database will give recommendations according to the information provided.
Design Deliverables

High Fidelity Prototype

Basic information asks about users’ favorite color. Users can choose the color provided or press the “+” button to add the color they like.

The system can analyze users’ taste based on the options they chose. Users can also skip this step by pressing “NEXT”.

Figure 6-3
Design Deliverables

High Fidelity Prototype

There are three main sections on the homepage. In “Package” section, it provides examples of different kinds of events. The icons above section options are genres of an event, user can add more genres by pressing the “+” button.

Clicking an example directs users to the pictures of details, including colors and items used for this event. User can save this example to “Created” section, or directly apply the design to their own.

Figure 6-4
Design Deliverables

High Fidelity Prototype

Pressing the button on the top-left corner will show the menu. Users can edit their profiles, check tutorial and information about this App. They can also log out on this menu.

Figure 6-5
Users can edit personal information on this profile page.

Figure 6-6
Design Deliverables

High Fidelity Prototype

The search bar will pop out by pressing the search button on the top-right corner.

After searching the item, the results will show both in the “Package” section and the “Item”.

Figure 6-7
Design Deliverables

High Fidelity Prototype

In the “Custom” section, users can choose what type of event they are planning.

Users can create a new type of event by pressing the “+” button.
Design Deliverables

High Fidelity Prototype

Before starting the plan, the system will collect some information about the event and sort it accordingly.

Figure 6-9
Design Deliverables

High Fidelity Prototype

On the AR design screen, the background is the real-time environment. Users can add items by choosing the options on the left side. They can also adjust the brightness and contrast by pressing the button on the top-left corner.

By choosing the bouquet option, the right side of the screen will recommend different colors of flowers based on the information users provide.
Design Deliverables

High Fidelity Prototype

After choosing the species of flowers, there are color options.

After users make their choices, the system will automatically recognize the environment and give advice on where to put such items. Users can follow the recommendation or put item wherever they want.
Design Deliverables

High Fidelity Prototype

The bouquet will be added to where users click on the screen. Users can see if the results meet their expectation.

Repeat these processes to apply other items. The history of added items will appear in the top-left area.
Design Deliverables

High Fidelity Prototype

Double click an item allow users to make adjustments to it.

Adjusted ribbon’s size matches better with user’s expectation.
Design Deliverables

High Fidelity Prototype

Finished design can be saved as images. Users can share these images with others and can always resume the design in the future.

Users can save multiple pictures at one time.
Design Deliverables

High Fidelity Prototype

The saved plan will be saved in “created”, and can be shared with others.

Figure 6-15
Design Deliverables

High Fidelity Prototype

Users can find their saved plans in “Created” section. Clicking one will show the basic information about it. Pressing “continue” can keep designing.

If the user is no longer on the scene where they make designs, they can click the saved images to resume design. They can also create a new scene by using AR with camera.
Design Deliverables

High Fidelity Prototype

The user can search an item by using the search button on top-right corner.

When finished designing one plan, the user can slide the camera button to switch it to saved button, then the information of this plan will be saved as a package.
Design Deliverables

High Fidelity Prototype

Location of the event can be added to the plan, users can make this package an invitation and send it to friends.

Figure 6-18
Evaluation

User Feedback

Figure 7-1

1. How old are you?
   A. 10-17  B. 18-25  C. 26-40  D. Older than 40

2. Do you like the overall design of my Thesis?
   A. Yes  B. Okay  C. No  D. I have something to say:

3. Do you like the colors of my Thesis?
   A. Yes  B. Okay  C. No  D. I have something to say:

4. Do you think there are texts hard to read or hard to understand?
   A. Yes, for example, __________________________

5. Do you like the idea of my Thesis?
   A. Yes  B. Okay  C. No  D. I have something to say:

6. Would you like to use this APP if you are planning a wedding for birthday party?
   A. Yes
   B. Would like to try first
   C. No

7. Any suggestions on improving this APP?
   __________________________

bigger library / more options
Evaluation

User Feedback

Figure 7-2
Evaluation

User Feedback

1. In the Package section, change the three columns to two columns, because the user thinks that a three-column layout fails to show images in one page clearly.

2. Change the gray background to white background can give user clearer feeling. Also this change can enhance contrast between image and background.

3. Move search button to top-right corner. Leave more space for main information.
1. Change the layout from vertical to horizontal can give the user more space to apply items to the scene.

2. Move search bar to the top-right corner for symmetric of the app, move the light control button to the top-left.
Dissemination

For future audience interaction the thesis showcased at:

QiaoWang’s Wedding 2017,
Xi’an China

Adobe Student Design Competition
Online

Imagine RIT 2017
Rochester Institute of Technology

Thesis Show - May 2017
Rochester Institute of Technology
Pragmatic Considerations

Since the App will help users finalizing their plan, users need to implement various items to fit for various needs of multiple users. For example, one user might want to see what it looks like with a couch, while the other one prefers a loveseat. Therefore, the app must have two items, as well as multiple colors and designs for one class of items. Items can be saved locally, which will cause the App to be of an enormous size, consuming more storage; Or let users pick their favorite items through the internet. For example, directly pick a couch from IKEA catalogs, which requires the App to have access to items from other designers. Another solution is to allow users to take picture of what they want to use, do some image processing such as matting the user needed item from background, however, the quality of matted image will have critical effect on visualizing the design, therefore, requiring the strong computing capabilities of hardware. This might be too much for a mobile device.

Another consideration is the function of dynamic simulation. The designing and decoration of an event might include the effects of lights. Various colors, intensity, and motion of lightings can bring various moods to the participants. The App should be able to simulate the variation, lighting and dimming, as well as the motion of light. In fact, this function usually occupy much computing resource, which raises another challenge for mobile devices.
Conclusion

Augmented Reality applications are gradually becoming a part of people’s daily life, and people are more familiar with this technology than ever before. Recently, Apple announced that the new iPhones would fully support AR apps, which also proves that AR will play a critical role in future.

The purpose of the research is to make AR step into people’s lives even further and let people know AR is not just a PC game. In fact, user-experience of event planning could be improved by this technology, and people’s daily life will have some changes as well.

There is no doubt that some technical challenges are facing the App development, for example, App developers have to conduct real-time analysis on how smart-phones analyze the depth of field and how to precisely combine the generated virtual items with reality. However, the truth is that with the rapid development of technology, these challenges will be resolved in few years. Meanwhile, AR will be applied to numerous situations.
Appendix

Copy of Proposal
Reference of Photos
See it: Integrating AR Technology and Interaction into an Event Planning App
by Yun.liu
October 18, 2016
Thesis Committee Approvals

__________  __________
Signature   Date

Chief Advisor
Professor Nancy A. Ciolek
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Professor Chris Jackson
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Graphic Design
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  - Situation Analysis
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Abstract

Planning a social event can be expensive and time consuming. In order to minimalize the risk of event problems, the organizer can consult professional event planners. However, a consultant can also be costly. Therefore, purchasing decor, food, and other items without knowing if they really look right or fit the venue is a guessing game, and the game could be an expensive one.

If the original plan can not be reached effectively, modifying or improving them requires extra time and expenses. However, testing the improved plan may also increase the risk of further improvement.

With digital technology, the process of event planning can be more visually driven, helping the planners make appropriate decisions for the venue. By using Augmented Reality (AR) users can envision their plan and make changes before actually making purchases, calling in construction teams and doing the decorations.

The goal of this thesis is to integrate AR into an App design that allow users to design, view, and make budgets for their event plan in advance, optimizing their design beforehand.

Keywords: AR, interaction, event plan, budget saver, visualize
Introduction

Problem Statement

Preparing for a large event can be expensive and time consuming. Professional consulting provides assistance, but can also be very costly. Therefore, improper planning before holding a large event can cause potential waste of money and time resources.

For example, a young couple are planning for their wedding. They want their wedding ceremony to be perfect and beautiful, but they don’t know what style of ceremony they prefer. Their current way of planning is to watch Youtube videos of other people’s weddings, and going through specific items, such as bouquet, wedding cake, balloons, etc. But the venue is an integration of specific items. Perhaps a bouquet looks pretty nice by itself, but when it shares the frame with wedding dress when being held by bride, it may be not perfect. Also, watching videos of other people’s wedding ceremony can provide some ideas, but also limited the design from original to adaptation of existed versions.

Therefore, the risk of finding items that are actually inappropriate or at least not meeting the demands of the couple is increased, since they can only realize the discordant when everything is purchased and in place.
Introduction

Situation Analysis

Current event planning apps show only pictures and suggestions for selections such as color and styles. Users can only see images, filter with given keywords. It’s much more like Googling images for certain occasions. These apps are much more like giving suggestions from what they’ve already had, but not helping users to finalize what they want to have.

For example, there’s a wedding planner App called The Knot shows numerous wedding photos and provides users with advice on styles. But it cannot give specific advice based on personalized requirements. There are other event planning Apps that provide schedules and checklists of what to do and buy, much more like a butler but not helpful in finalizing the design.

What if a couple already got their own ceremony decoration plan, but they want to see its visual effect before actually renting the venue, buying the balloons and flowers, or even getting the guests together. What if groom’s 95-year old granny needs to fly from London, just for an audition might be asking too much of her. An app that can help the couple to realize their plan virtually, so they can see how it would look like really is of great help to them with improving and finalizing their plan, without costing them too much money and time.
Introduction

Thesis Statement

Integrating interaction design, AR technology, information design, and 3D modeling can allow users to plan events more effectively.

Designing the prototype of the wedding based on the concept of the App can show the actual application and design for the App itself. The designing process would be choosing style, color, server, cake, plus time schedule and service program.

Using the technology of AR (Augmented Reality) to design an App that allow users to have an overview before they actually buy the decor and start decorating the site. The App will work as a virtual fitting room. Users can take whatever they want, and placing them wherever they want. It allows users to check if their expectation can be met beforehand. Users can always change the objects they don’t like before finalizing their purchase. This App saves not only a lot of time and money, but also help designers to modify their plans when necessary.

This study is based on concepts of interaction design, along with AR technology, information design, and 3D modeling to achieve this App.
Research

Review of Literature

The Real-Life Dangers of Augmented Reality
By Eric E. Sabelman and Roger Lam, 23 June 2015.

Augmented reality can impair our perception, but good design can minimize the hazards. These devices present contextual information transparently or in a way that obscures little, seemingly letting you navigate the world safely, in the same way head-up displays enable fighter pilots to maintain situational awareness.

How Augmented Reality Is The Next Big Social Experience
By Michael Poh, 14 May 2015.
http://www.hongkiat.com/blog/augmented-reality-next-big-thing/

We often take such existing technology for granted because they are so prevalent and commonplace that we don’t associate them with what we normally assume as ‘high-tech’ AR.

App Icon Design
By Martin Leblanc, 21 Aug 2013 in Design&Dev
http://thenextweb.com/dd/2013/08/21/six-tips-from-apple-on-how-to-create-better-app-icons/#gref

Tips for design icon:  Focus on a unique shape, Carefully select colors, Avoid using a photo,  Avoid a lot of text, Accurately portray materials, Be creative.
Research

Review of Literature

Integrating Info, Experience and Reality  
By Michael Poh, 20 May 2015 in Concept.  
http://www.hongkiat.com/blog/augmented-reality-next-big-thing

Information, experience and reality will merge to become one as AR develops to its pinnacle and become the next revolution in information technology. Switching from one app to the next to get something done may need to be discarded and replaced with a unifying system for that seamless information flow. When that can influence our decision-making and interaction with the world at large, is when AR will truly alter the way we experience reality.

Essential Elements to a Comprehensive Brand Identity  
By Natalie Emily, 1 April 2010.  

While a logo is a good place to start, you should consider building your “visual position” to be something larger. Building a system for your brand allows you to meet the demands of different media, while still presenting a cohesive identity.
Research

Review of Literature

The 10 things you need to know about augmented reality
Accessed: June 2014
http://www.cwjobs.co.uk/careers-advice/it-glossary/the-10-things-you-need-to-know-about-augmented-reality

Augmented reality is a way of fusing the real and the virtual world by overlaying digital data on to real-world analogue views. Augmented reality applications are appearing in products as diverse as T-shirts on fashion catwalks, interactive games, CVs designed Literally to speak to the future employer and job seeking tools.

Pokémon GO
By Satoru Iwata of Nintendo and Tsunekazu Ishihara

It wouldn’t be a list of the best AR apps without mentioning Niantic's Pokémon Go, a game that has quickly captured everyone’s attention and given them a reason to go out into the world, walk around, and catch Pokémon. The game uses GPS to mark your location, and move your in-game avatar, while your smartphone camera is used to show Pokémon in the real world. For the most part, it works, provided the game hasn’t crashed or frozen.

WallaMe
By Wallame Ltd. 2015

WallaMe lets you leave hidden messages in various locations around the world that can only be read by other people using the WallaMe app. When using the app, you can take a picture of a nearby wall, street, or sign, and then use the in-app drawing and painting tools to create your own special messages.
Research

Review of Literature

**Google Translate**
By Google

Google Translate (Android, iOS) is already a handy text and audio translation tool, and it gets even better with its augmented reality real-time visual translation features.

**SnapShot Showroom**
By SnapShop Inc.

With SnapShot showroom, users can see what potential furniture may look like in the comfort of their living room, kitchen, bedroom, or any other desired area of their home.

**Ink Hunter**
By Oleksandra Rohachova, Pavlo Razumovskyi

Ink Hunter is the app you should use when deciding on a tattoo and where to put it. The app lets you try out pre-made tattoos, as well as your own designs, and they can be oriented in whatever position you like and placed on any part of the body. Tattoos placed on the body using the camera look as close to real life as you’re going to get — without actually going under the needle that is — and that’s all thanks to the in-app editor and the way Ink Hunter renders tattoos.
**Research**

**Review of Literature**

**Augmented reality: The good, the bad, and the ugly (part one: the good)**


By Combining Software Such as Google Street View with Navigation Programs, and Then Coupling That with the Compass and GPS Available in Your Mobile Phone, You Will Be Able to Hold up Your Phone in Front of You and View Your Needed Directions on Top of What You Are Seeing. Finding Your Nearest Tube Station or Bus Stop, Department Store or Art Gallery, Will Be as Simple as Selecting Your Destination and Then following the Trail. In the near Future This Will Be Done through Your Mobile Phone, but in the More Distant – but Still Foreseeable – Future This Will Likely Be Done through a Worn Headset of Some Description.
Design Ideation

Flowchart

Start

Account

Yes

Log in

No

Email
Facebook
Instagram

Sign up (Email)

Guest

Information

Main

My Profile

Choose Event

Birthday Party

Wedding

Holiday Party

Wedding Example
Make you own

Continue

Past

Event Example

Search

Color

Favorite

History

Venue

Color

Culture

Theme

Set Up in real space

Save the setting

Indoor/Outdoor

Selection

Save Photo

Save in drive

Share

List of all set up

Make you own
Design Ideation

Sketches
Design Ideation

Sketches
Design Ideation

Moodboard
Design Ideation

Wireframe
Methodological Design

The thesis project explores interaction, user interface and experience design to build a digital media platform for event planner to use.

In addition to digital design elements, an identity for this service will also be designed in order to support someone doesn’t have design background.

Target Audience

1. People who are planning wedding ceremonies but don’t know if their designing can meet their anticipated effect, or can use some improvement.

2. People who will organize an event, but they need to visualize their decoration of the scene beforehand. Thus, reducing the possibility of wasting budget on unwanted effects.

3. People who want to know if they can get the results they want before they actually carrying out the plan, which might be too risky to realize the designing and then found the effect is not as expected.

Persona

1. John, 28 years old. He is going to get married, but he is still hesitating with the wedding ceremony plan, for which items to purchase and how to decorate the venue.

2. Chris, 35 years old. He is going to throw a birthday party for his 5-year old son. He wants to make it perfect and meaningful for his son but he has no experience of designing such an event, he needs to be enlightened with some ideas.

3. Aisha, 25 year old. Her company is holding a big event, but she had no experience in organizing such event before. She wants to see the visual effect of her decoration plan for the venue before she actually sets them up.
Methodological Design

Persona

**Biography**
John is going to get married, but he is still hesitating with the wedding ceremony plan, for which items to purchase and how to decorate the venue.

“I wish I’m a design guy, then I can design my wedding and make her happy.”

**Age** 28
**Country** USA
**Major** IT
**Housing** Off Campus
**Car** Has a car
**Language** English

**Personality**
- Extrovert
- Introvert
- Thinking
- Feeling
- Judging
- Feeling

**Tech Skills**
- IT and Internet
- Mobile App
- Social Networks

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**Biography**
Chris is going to throw a birthday party for his 5-year old son. He wants to make it perfect and meaningful for his son but he has no experience of designing such an event, he needs to be enlightened with some ideas.

“I want to build a perfect birthday party for Dan, I konw how he like the cartoon stuff, but how can I set all item at home.”

**Age** 35
**Country** USA
**Major** Lawyer
**Housing** Off Campus
**Car** Has a car
**Language** English

**Personality**
- Extrovert
- Introvert
- Thinking
- Feeling
- Judging
- Feeling

**Tech Skills**
- IT and Internet
- Mobile App
- Social Networks
Methodological Design

Persona

Anticipated Project & Components

Design an App with the technology of AR (Augmented Reality). This App can be used as implementation of visualizing their designs. Users can have a visual on the effects of the designings before bring them to reality.

This includes designing a mobile application that will be prototyped to show the various features of the interactivity.

The project’s brand identity and user interface will be designed using Adobe Illustrator. The functionality of features will then be prototyped using Adobe XD. And the AR part of the application will use Aurasma.

"I really need someone help me with plan a event."
Methodological Design

Deliverables

Graphic Design: Logo and Icons

UI Design: Prototype of the App

3D Modeling: Create the 3D model in the App

Implementation Strategies

From the experience of using Illustrator and Photoshop, as well as the understanding of the graphics. We can draw the conclusion that the designing of logo should not only be conspicuous in order to grab people’s attention immediately, but also express its meaning explicitly.

The knowledge of interaction help understand how the app will interact with users. A prototype of design will be realized to see if the interaction can provide users with expected functions, while being user-friendly.

Maya and 3D designs can help build 3D models of items used in the app, such as the lighting, items, scenarios. These models will be used further to decorate the venue, visualizing their design plan.
**Dissemination**

For future audience interaction the thesis will be showcased at:

- RuiKe’s wedding 2017,
- Xi’an China

- Adobe Student Design Competition
- Online

- Imagine RIT 2017
- Rochester Institute of Technology

**Evaluation Plan**

The interactivity of the prototype of this mobile application will be tested on various people from different nationalities. Then the results will be implemented to revise the design and/or service accordingly.

Many RIT graduate student have agreed to do testing on user interface design of prototype and will provide feedback.

Many friends who want to plan an event in the area have agreed to do testing on the functionalities of the App and give feedback.

Keep a record of feedback and leave enough time to implement any necessary changes into the final project.
Pragmatic Considerations

Since the App will help users finalizing their plan, they need to implement various items in order to fit for various needs of multiple users. For example, one user might want to see what it looks like with a couch, while the other one prefers lovechair. Therefore, the app must have two items, as well as multiple color and designing for one class of items. We can put the items into local, which will cause the App have an enormous size, consuming much storage; Or we can let users pick their favorite items through internet. For example, directly pick a couch from IKEA catalogs. This asks the App have access to items from other designers; Another solution is to allow users to take picture of what they want to use, do some image processing such as matting the needed item from background, however, the quality of matted image will have critical effect on visualizing the design, therefore, requiring the strong computing capabilities of hardware. This might be too much for a mobile device.

Another consideration is the function of dynamic simulation. The designing and decoration of an event might include the effects of lights. Various colors, intensity and motion of lightings can bring multiple moods to the participants. The App should be able to simulate the variation, lighting and dimming, as well as the motion of lighting. This function will take much computing resource, which raise another challenge for mobile devices.
Bibliography


By Combining Software Such as Google Street View with Navigation Programs, and Then Coupling That with the Compass and GPS Available in Your Mobile Phone, You Will Be Able to Hold up Your Phone in Front of You and View Your Needed Directions on Top of What You Are Seeing. Finding Your Nearest Tube Station or Bus Stop, Department Store or Art Gallery, Will Be as Simple as Selecting Your Destination and Then following the Trail. In the near Future This Will Be Done through Your Mobile Phone, but in the More Distant – but Still Foreseeable – Future This Will Likely Be Done through a Worn Headset of Some Description. “Augmented Reality: The Good, the Bad, and the Ugly (part One: The Good).” Futurist Blog: What Do We Want to Be? Accessed October 09, 2015. http://www.futureconscience.com/augmented-reality-applications-good-bad-ugly/.


Reference of Photos

In this thesis, the photos that introduce examples in App “Package” Section and photos that introduce AR functions of the App are all taken by myself. Other photos are all royalty-free.


   hunlibeijingtupiansucai-0-0-5.html


5. https://blog.beautheme.com/5-cool-free-wedding-themes-ideas-summer/
