Enhancing Tourist Memories with Augmented Videography Technology

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Abstract: The development of Internet technology has witnessed much interpersonal communication change from paper-based into digital form. Although the advent of Internet has led to the decline of paper-based communication, it also brings opportunities to revive traditional forms of communication. To revive traditional postcard sharing, I present here FilmLocker, a mobile application allows users to link a digital video to customize physical postcard. This project aims to enhance user's interpersonal communication, keep their travel memories and improve emotional expression by combining permanent physical postcard with impermanent digital augmented videos.

1. Introduction

As a form of interpersonal communication, the photo postcards are collected to memorise or document the past. For tourists, it is a tangible medium to share their experience with distant loved ones and friends when traveling [1]. With the rise of information technology, mobile communication is becoming increasingly prevalent among people. Texts, images, voices, and live videos can be shared with friends or communication circles timely via different media platforms, such as the Facebook, E-mail, and instant message.

Figure 1: Postcrossing Statistics.

Digital multimedia is convenient and immediate, yet people still send traditionally printed postcard. For example, the Postcrossing, an online platform where people can share postcards with

each other in physical forms, now has thousands of members from more than 200 countries in the world [2]. People, places, and cultures around the world are connected in this platform, more than 64 millions of real postcards have been received through the community (see figure 1).

It allows members who do not know each other to send and receive postcards, and the statistical data I presented above is accumulating constantly. Although the traditional postcard still circulate massively even though digital technology allows people communicate with distant others in real-time, it also have limitations. On the one hand, they are too small to for senders to write long messages and all these messages are totally open [3]. On the other hand, compared to customised postcards, normally, the postcard bought from the market is not unique as they are mass produced by factories.

In order to revive the traditional postcard in an innovative way to enhance tourist interpersonal communication, I proposed FilmLocker, an IOS application which helps users link a digital video to a customised physical postcard using augmented reality technology. FilmLocker is designed to be used by people who are familiar with digital technologies, mainly for the young generation who likes travel around the world, and people who may not be young but still actively engage with new technology won't be excluded.

FilmLocker is easy to use. If you want to create a new card, at first, you just need to select a video from your camera roll or record a new one, and then type in your basic information such as your recipient's name, address and message. The system of FilmLocker will automatically set the first frame of your video as the photo of your postcard, and create four different types of postcards for you to choose from. Once you decide which one to use, you can go to the post office to print it out and sent it out physically. You can also share it to your friends online. If you want to watch the embedded video, you only need to scan the card with your phone and FilmLocker will recognize the image on the card and play the hidden video upon your screen automatically.

The main objective of this project is to enhance user's interpersonal communication, keep their travel memories and enhance emotional expression by combining permanent physical postcard with impermanent digital messages.

The literature part consists of reviews of postcard, augmented reality and videography in tourism. I will illustrate how augmented reality can be applied in the tourist industry both for communication and commercial use, the features of tourist videography will be analyzed as well to explain why I combine videos with photo postcards. Also, I will contemplate the ways augmented reality postcards have been developed until now. In the second chapter, I will describe the process of designing and developing my project in detail, feedback from users and present future improvements will be concluded in the final chapter.

2. Literature Review

2.1. Augmented Reality in Tourism

With the rise of augmented reality technology, the tourism industry is altering in great ways. For instance, a number of the marker or location-based AR applications have been developing to immerse the virtual and real world to enhance visitors travel experience. The current status of those AR integrated applications are varied, many of them which proposed by scholars are pilot applications or research projects, while some of them are mature enough and have been applying in the market for commercial use.

In order to investigate the appliance of augmented reality in the tourism field, I tested some applications that are being widely used nowadays. Among all applications I found, the following stand out: Lonely planet, TripAdvisor, and projection-based Disney theme parks. Those cases presented here functions totally different from each other, but more importantly, these three

different examples all aim to satisfy tourists' demands. I divided them into 2 different types according to their functions, one for guidance, and another for enhancing tourists' experience.

Before discussion, two relating augmented browsers need to be introduced at first, as most of the cases illustrated in the section are based on them. One of the most widely used augmented reality mobile browsers is Layar, Layar plays as a platform which provides organisations with tools and service for augmented reality, using a combination of camera and GPS on smartphones, data that user retrieves in the Layar browser will be displayed in the camera view based on user's geographical information. Another application is Wikitude, it is considered as the first publicly available application that using location-based AR technology. Similar to Layar, Wikitude is an augmented reality browser allows developers to generate augmented content easily. In addition, the content in the Wikitude World Browser is mostly generated by users, thanks to its millions of developer accounts registered in this browser, many interesting user-generated contents are being created at the same time.

The first type of AR applications is specifically designed to guide tourists by providing timely information regarding hotels, restaurants, stations and of course places of interest. Cooperating with Layar, the massive popular Lonely Planet guides millions of visitors while traveling nowadays.

So far, more than 8,000 cities such as Paris, London, Rome, now have AR services with guide books respectively which have been augmented by Lonely Planet. With the Lonely Planet mobile app, tourists can simply point the camera to scan the pages of the city guidebook to get access to multiple information ranging from weather forecast to local museum reviews, from restaurants and hotel to local events freely, and this required information will be overlaid on the real guide books in real-time (see figure 2).
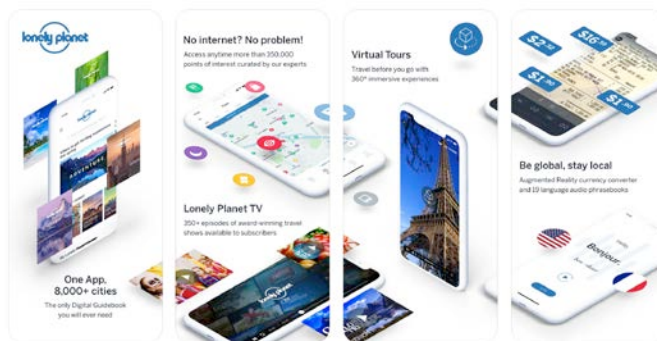

Figure 2: Interfaces of Lonely Planet App.

Another relating example which should be presented in this part is TripAdvisor. As the largest travel site in the world, TripAdvisor is now experiencing a partnership with Wikitude (see figure 3). Through the combination of Wikitude's interactive augmented reality view and TripAdvisor's millions of reviews and recommendations, perfect publishing solutions can be quickly presented to users and allow travellers enjoy their trip in a new and innovative way. For example, if you want to find the nearest place to have a break when traveling, you can turn to TripAdvisor and Wikitude, a detailed user-generated plan will be listed on your phone immediately.

Another different type is projection-based AR theme park. Projection mapping technology is used in parks to attract tourists and create AR experience for its users by enhancing existing attraction through projecting images onto physically visible surfaces. The world-famous Disney theme parks are now using projection-based AR as shown in figure 4, the entire castle was covered with colourful "projected wrapping paper", this beautiful castle seems to be activated, while actually, it didn't have any changes in its structure or facilities[4].
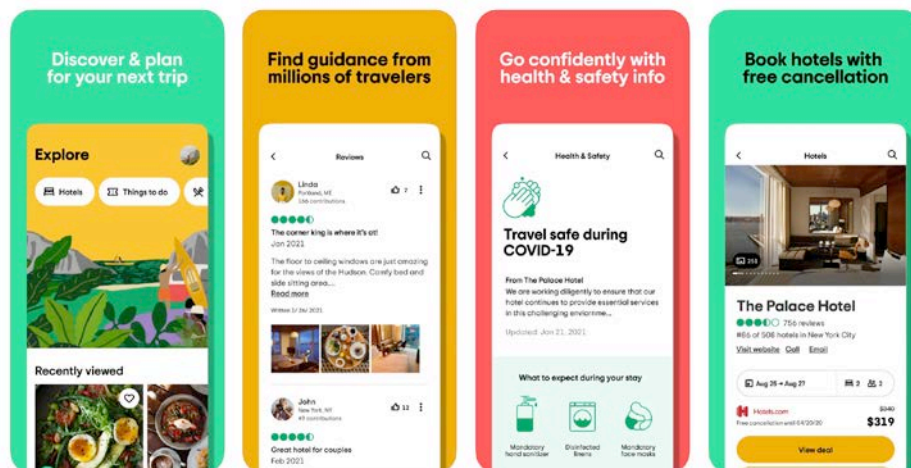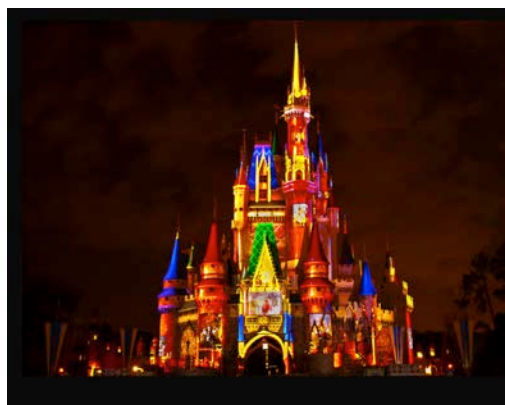
Figure 3: Interface of TripAdvisor App.

Figure 4: Disney castle projection show.

2.2. Videography in Tourism

Except for photos and text, people tend to document their life with videos. Compared to photography, videography is considered to be a better way to express tourists' real feelings and recreate their experience during vacation, so I choose to add a video as one of the main features in my project to improve the traditional photo postcard and promote interpersonal communication. I will illustrate my reasons in detail in this part.

From the technical point of view, tourist videography has a richer form of media than tourist photography [5], and as a result, it allows a higher level of a feeling of immerse to a tourist place. There are three key differences in media richness between photography and videography in tourism, namely "displays of visual continuity", multiplicity of content (video normally including sounds) and the ability to show the movement in vacation [6].

As a dominant visual media form in tourism, videography is helping tourists recreate and represent their travel experience in a different way. As we all know, photos are always captured in a specific moment rather than a period of time, therefore it can only emphasise individual scenes during visitors' vacation, while through visual continuity, video allows tourist to contain multiple moments to represent an overview of their travel experience [7]. More importantly, videos, different from photos, commonly include audio and images at the same time. With sound included, more information can be transmitted, such as the audio of tourist's activities and background music that added in the editing process. The former can help viewers become more immersed in the presented

environment, and the latter can make the video more interesting or adding a certain mood to video to engage its audience [8].This is how videography changes its audiences' feelings of their tourist experiences.

Video can be edited after being captured such as slowing down time and adding a background music, therefore visitors have much more interesting ways to tell their travel story. What's more, the editing process can bring visitors more joy than the existing travel experience itself [6]. As such, because of the effort tourists put into when editing the video, tourism videography becomes more meaningful and memorable than tourism photograph, especially for people who received the video.

Many people argue that video may lose communicating immediacy through editing processes, it is the case for some types of videos such as videos of sports competitions, but in tourism, it's more important to present a complete and polished video for tourists. In addition, by editing and sharing, tourists consider themselves as both authors and viewers [9], which means that tourists now may think about how best to prepare for making documentation of their experience before sharing to their friends or relatives. When they record videos, they may engage themselves in videography performative, as a result, they will experience their vacation in a new way. And they will have chances to reflect on their experiences in the editing posting and sharing phases as well. This is how videography enriches tourist experience.

In recent years, there is an increasing number of consumer-generated video shared on the Internet. Thanks to the development of electronic technology, equipment for tourists to record video during vacation starting to become more and more available nowadays. An increasing number of people now have video-recording device ranging from the ordinary mobile phone to high-tech products such as GoPro and drone. According to Statista (2021), as "the most versatile camera" around the world, GoPro generated a revenue of over 2.3 billion U.S dollars in 2020. Various of video editing apps, such as VUE, which can help users to integrate nice visual effect to their videos automatically, are emerging and making the creation of high-quality videos become possible for people who do not have any video editing skills. Meanwhile, video-sharing platforms, such as Snapchat and Vine, are facilitating the production of "light weight videos" [10] or say short films, these widely used consumer-generated video platforms have contributed to a larger consumption of video online. Further, existing social media platforms, such as Facebook, are stimulating the circulation of videos online.

In conclusion, as a dominant visual media, videography has greater advantages over photography in tourism. The rapid development of video-recording devices online also indicates the value of videography. In addition, video has richer performances of media, it allows tourists recreate and represent their experience in a different and interesting way. On the other hand, traditional photo postcards also have limitations. As I mention before, traditional postcards are small and open, senders could not feel free to write private messages on postcards. Hence, in order to improve the traditional photo postcard and promote interpersonal communication, it is worthwhile to combine videos with photo postcards in my project.

2.3. Augmented Reality & postcard in tourism

The postcard is one of the interpersonal communication media that originated from letters. Because interpersonal communication is considered to happen between two person, paper-based postcards are mainly one-to-one communication, whereas communication on the digital social media platforms is generally one-to-many [11]. For instance, a postcard sent by a tourist is normally associated with a specific recipient, such as the best friend, while the photographs on Facebook or WeChat are meant for a relatively general audience including friends, relatives and even strangers.

Printed picture postcards physically exist in the real world, they are collected as a photographic

archive of memories permanently, while digital media with multimedia information can only be exchanged in the network world, they could easily pass with time in such an increasingly digitised world. The digital communication service is not able to satisfy all the emotional needs of human [12]. For example, through the ritualised process of exchanging postcard, a feeling of appreciation would be derived. Additionally, the non-digital elements on the postcard, such as the handwriting, the evidence of a postcard journey also enhance people's experience of paper-based mail that is difficult to be achieved through electronic media [13].

Postcards have been developed and used in a variety of industries. For instance, in the medical industry, the postcard can help researchers to collect survey data to gain a better understanding of reasons for patients' distress in psoriasis [14]. And in the field of education, picture postcards have been used as advertisements and propaganda by educational institutions. For the purpose of my article, I want to focus on the tourist industry as I am interested in interpersonal communication particularly in relation to the young generation who like travel. As a cheap commercial souvenir, postcards are widely purchased and collected for its local cultural values which make them become a tangible proof of the travel. Besides, sharing postcards is a way of recreating and reliving their experience during travel with others, people could also experience joys from the feedback and subsequent conversation arising from the postcards they have sent [15].

However, postcards also have limitations. On the one hand, the size of standard postcards which are found regularly in the market is smaller than one-half the A4 paper, because this size of postcard ordinary includes important information, such as the recipient's name and postal address, a postage stamp and also a space for writing personal messages, the area for senders to write messages is very limited and all these information are totally open[3].On the other hand, one of the main concerns of travellers, when they visited a local postcard shopping malls, is that pictures on the card might be stereotyped as they are mass-produced by printing factories.

There are some ways to promote traditional postcard with new technology, one of the few mature technologies that have been used in the postcard system is the augmented reality (AR) technology. Augmented reality is widely known as an interactive technology which can integrate virtual objects into the real-world environment, in terms of the virtual objects, they range from sound and image to live video, 3D models to hyperlinks that may direct users to another useful website [16].

A number of AR applications have been developed and widely used in different industries recently. In the tourism industry, the appliance of augmented reality technology can help enhance visitors travel experience, it has changed the way for tourists to experience and gather information while traveling, and allows users to interact with the attractions and destinations by superimposing digital content layer over the real environment surrounded. AR also started to be picked up by many commercial industries as a tool to provide useful information and create enjoyable interactive experience as example such as the IKEA shopping app which allows users try out virtual furniture at home before buying it, and the Prynt Pocket app, which can print the photo from camera roll and embed a live video in it.

Inspired by these Augmented Reality applications, I start to think about how to develop non-digital photo postcards in an innovative way to enhance interpersonal communication. Thinking of the limitations of the postcard which I mentioned above, I came up with an idea that maybe travellers could record a live photo or a video locally and embed it into the physically printed postcard by augmented reality technology before sending it out to their friends. Postcard senders are allowed to say something secret through the embedded video, thus they don't need to worry that their interpersonal messages would be seen by other unrelated people such as the postman. In this way, we can't only keep all the advantages of the traditional postcard but also revive it with digital technology to enjoy the exchange of paper-based media in an innovative way.

3. Project Design and Development

FilmLocker is an IOS application which can help users add a video inside a photo postcard to bring a static card to life. To watch the embedded video, the receiver needs to scan the card, the app will recognise the image automatically and play the linked video through the screen using Augmented Reality. The main tools I used to develop my project are Adobe Illustrator, Adobe Experience Design CC, Xcode, and Adobe Premiere.

3.1. Prototype Design

In order to make it easier for me to design the overall wireframe, I sketched out the structure of my project layout on paper at first, and then use Adobe Experience Design to convert my paper wireframe to a digital one. Take the guide page as an example, I design my application to start from a guide page after launching which gives instructions for users to choose from scanning or creating a postcard.

As shown in figure 5, I placed the scan icon at the top of the screen and added a tagline (More than a card) below to tell users to scan the printed card to experience the hidden content. In consideration of the major function of FilmLocker is to scan postcards to access videos, I set the 'scan' button to be larger than the 'create my postcard' button in order to make it stand out against the background.
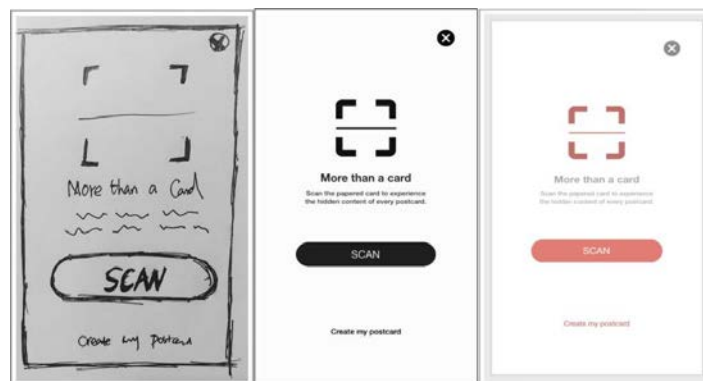

Figure 5: Wireframe design process.

The wireframe below (see figure 6) shows the first draft of the overall user flow of FilmLocker. I consider my target users to be the younger generation, so I choose a warm and positive colour, red, to paint this draft. In order test my interface ideas and gather feedbacks for the next stage, I add interactions and transitions before share it online using the prototype tool in Adobe Experience Design.
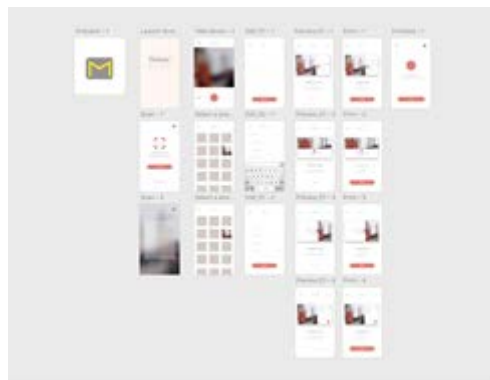

Figure 6: First draft for wireframe design.

Most of the users think the idea of FilmLocker is interesting and the interfaces work well and harmoniously, some of them suggests me to use another universal background colour, even black, to make FilmLocker more like a camera app. As for a mobile application, too much white space might reduce the visual experience, white colour makes my application look beautiful and harmonious, at the same time, it also reduces the readability of other elements. In addition, the environment of the outdoor or bright place should also be considered, the white background could cause screen glare. So I redesigned the interface by changing its background.

In terms of the button design, the colour is set to be the same with the icon to maintain consistency. And I designed two different buttons, but I find it difficult for me to choose which one is better, so I placed them on the same page to test their visual effect. By comparison, the button with a yellow background is much better, therefore I decide to use the yellow one.

The texts on the screen are much more distinguishable now. Compared to interfaces with the pure colour background, background with an image looks more interesting and impressive, thus I tried to keep on design other pages based on the style of the bottom left one. And here comes my prototype of FilmLocker (see figure 7).
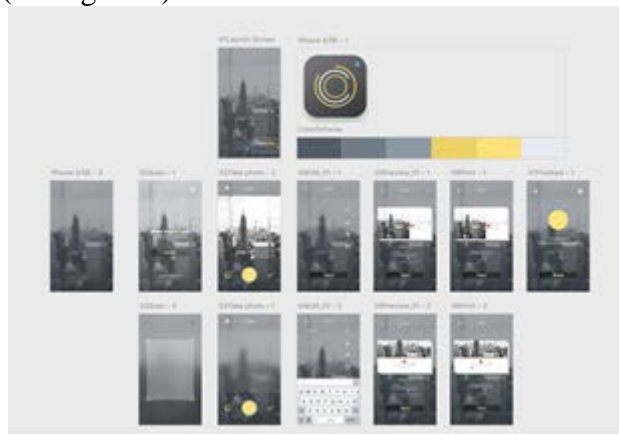

Figure 7: FilmLocker prototype.

3.2. Template Design

"Because with physical products, we have to feel we can dominate them. As you bring order to complexity, you find a way to make the product defer to you" [17]. Live in such an era where the information we are receiving are many and complex, the young people tend to return to the true nature and begin to advocate the objects' original simplicity. In terms of a postcard, the fewer elements it has, the more attention on each element will get. As an interpersonal communication medium, the important elements for a postcard should be the picture and the writing on it. However, most of the postcards in the market are cluttered with other contents such as symbols and icons. In order to keep other unnecessary elements on the postcard from distracting the reader, I design my postcards to be cleaner and less congested by using white space. However, It's a fact that too much white space could result in a feeling of boring and tedious, so I tried to add something small but interesting on the postcard. I found that the Chinese red seal could be a good choice. In ancient China, seals were stamped on the letter to represent people's identity, and every seal is unique. By combining the ancient Chinese red seal with the modern white-spaced postcard, we can't only keep the postcard's simplicity but also avoid monotony. I designed 4 templates for them to choose from based on the simplicity principle (see figure 8).

Figure 8: Postcard templates.

3.3. Feedback

After finishing the prototype design, I asked some volunteers about their opinions on my application. I found most of the users like the idea of sharing their experience in a place with a friend as a physical presence in a digital way, the video makes the postcard more interesting and creative. However, people who do not familiar with digital technology might not bother trying it, because normal postcards already fulfil their needs. People who are more familiar with normal postcards do not want to download a new app and spend time learning how to create a postcard.

4. Conclusions

The purpose of this project is to enhance tourists travel experience and interpersonal communication by reviving traditional postcards with videography and augmented technology. According to users' feedback, we can come to the conclusion that this project is interesting for users who are familiar with new technologies, most of them like the idea of linking a video to a paper-based postcard, and being able to customise their own postcards. But to some extent it's not convenient to use, because it is not easy for users to find a printer to print the postcards out. In general, as a prototype, this project is a good start. It's worth being developed into a practicable mobile phone application in the future.

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