Journal of Digital Convergence
Vol. 18. No. 8, pp. 377-383, 2020

ISSN 2713-6434 / eISSN 2713-6442
https://doi.org/10.14400/JDC.2020.18.8.377

A Study on the Utilization of Projection Mapping in Personal Media

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Personal Media에서 Projection Mapping 활용성 연구

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Abstract This paper studies the current development of personal media and the development of project mapping technology. The speed of social life is speeding up, and information dissemination tends to be fragmented. With the rapid development of mobile technology in recent years, personal media has gradually attracted the attention of people. And now image production and video editing become more and more simple in mobile devices, which provide a basis for the active personal media. The emergence of video content with high creative which is producing by projection mapping. And also providing an attractive new content for the general public. With the popularity of home projector, and the development of mobile terminal projection mapping production application. In the future, it will be possible to use projection mapping to produce personal media contents on the basis of mobile media platform.

Key Words : Personal Media, Projection Mapping, Application, Video Contents, TikTok

요 약 본 논문에서는 모바일 미디어 플랫폼 기반의 personal media의 발전과 프로젝션 맵핑 기술의 벌전을 연구하였다. 사회 생활이 빠르지며서 정보 전파도 파편화되고 있다. 최근에 빠르게 발전하는 모바일 기술로 인해 personal media는 점차 사람들 사이에서 관심이 집중되고 있다. 모바일 디바이스의 그래픽과 동영상 처리 기술의 발달로 이미지 제작이나 동영상 편집제작이 간편해지면서 personal media의 활성화를 위한 제작 환경을 제공하였다. 동시에 프로젝션 맵핑 기술을 발전하므로 컴퓨터와 모바일 기반에 프로젝션 매핑을 제작한 전문 소프트웨어도 계속 발전하고 있다. 현재 프로젝션 맵핑을 활용한 창작성 높은 영상콘텐츠의 등장은 많은 대중에게 새롭고 매력적인 영상콘텐츠를 제공하고 있다. 인터넷 속도가 빨라지고 모바일 기기의 성능이 강화되면서 디지털 영상 콘텐츠에 대한 창작 및 전시가 더 많은 가능성이 있다. 프로젝션 맵핑의 혁신적인 영상제작 기법은 향후 모바일 미디어 플랫폼 기반에서도 널리 활용될 가능성이 높다고 사료된다.

주제어 : 개인 미디어, 프로젝션 맵핑, 애플리케이션, 영상 콘텐츠, 틱톡

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Received May 13, 2020 Revised June 15, 2020
Accepted August 20, 2020 Published August 28, 2020

1. Introduction

1.1 Research Background

Since the 21st century, as the Internet grows rapidly, Internet enters era of Web2.0. The network has been transformed into a platform for information aggregation although it was the provider of public information. The public can not only obtain information from the Internet, but also become a provider of Internet information. Since the time of Web2.0, users' participation in the Internet has been strengthened, and personal media has gradually come into people's sight and developed rapidly.[1] Personal media is different from traditional mass media. It uses individuals as communicators and uses Internet or wireless communication technology to spread content point-to-point. At present, the speed of social life is speeding up, and the public's information acquisition shows the phenomenon of fragmentation. The audition information contents can more vividly spread the information contents. This is also in line with the fragmented demand of the public for information acquisition in the fast-paced life. Direct and fresh audition content, often can quickly attract the attention of the public, catering to the current fast-paced, fragmented lifestyle[2].

1.2 Research Purpose

At present, mobile communication technology has opened the 5G time. With the development of mobile technology, the performance of audition contents is also changing. It can be expected that in the future, the audition contents of personal media will integrate more digital media technology. Projection mapping is an immersive digital art, which can quickly render the surrounding environment, and turn any object around into a screen for everyone to watch the visual video, with visual charm.

In this paper, the write will study the audition contents of personal media and the video contents of projection mapping respectively. And the write will study on the previous literature and related news reports. This paper will analyze the possibility of application of project mapping technology in personal media audition.

2. The Background of Theoretical Research

2.1 Definition of personal media

With the emergence of new media such as blogs, podcasts and mobile communication devices, "personal media" appears. "Personal media" can be defined as a kind of new media. It is a new media form of content dissemination with the help of Internet or wireless communication technology. The personal media creators can produce, edit and freely release the contents.[3] "Personal media" can be defined as a kind of new media form in which a person acts as a communication center and carries out contents communication with the help of Internet or wireless communication technology. The creators of personal media have the right to produce, edit and freely release the contents.

In 2001, American writer Dan Gillmor first proposed the concept of personal media when he defined "news media 3.0".[4] According to the content form, it can be divided into graphic media, such as blog, mic-blog, public address (China), etc. As well as video media, such as short clips, live broadcast and other media mainly for audition contents.

With the development of mobile communication technology, mobile terminals provide users with a rich social platform for image editing and video production. Let more non-professionals users can share their pictures or video contents. Today we have entered a time

when everyone is the media. Personal media contents have even become a part of people's lives.

At present, with the rapid development of mobile communication technology, digital art can be seen everywhere. Among them, short clips, with a short time from tens seconds to a few minutes, spread the information intensively. This form of communication content is in line with the current mass fragmented information acquisition habits. It meets the needs of the public's multiple emotions and caters to the current fast-paced lifestyle[5].

2.2 Definition of projection mapping

When people appreciate pictures or videos in their daily life, they usually use different sizes of screens as the main media broadcasting. Projection mapping, which takes objects around you as a media broadcasting, is a very interesting way to enjoy the pictures or videos.

Projection mapping, is a projection technique used to turn objects, often irregularly shaped, into a display surface for video projection.[6] It is a popular way to alter the appearances of real-world objects, and is used in a wide range of applications.[7] Accroding to projection objects, projection mapping can be divided into five categories: building projection: building external wall as projection object; human body projection: human body or face as projection object; product projection: product surface as projection object; indoor projection: for indoor devices, or stage effects. Presentation; and projection of other special materials: water and other non-solid substances as projection objects.[8]

3. The development of personal media in mobile terminals

With the continuous improvement of mobile phone performance, high-definition, high-speed mobile phones are everywhere. As long as you have a mobile phone, with the help of the image editing applications and video editing applications, you can complete professional photos or videos.

The image editing application, represented by the Meitu, reduces the difficulty of creating and editing images for the public.

In 2011, Meitu,Inc. launched a photo repair application on the mobile application store. It is providing a professional photo only function for the users. As well as convenient color matching, beautification, beauty and other functions. It enables non-professional users to edit and correct photos without professional skills. Up to now, Meitu application combines with AI technology to provide users with more intelligent functions to repair pictures[9,10].

Fig.1 takes Meitu application as an example, the following figure shows the functions of the mobile application of graph repairing.

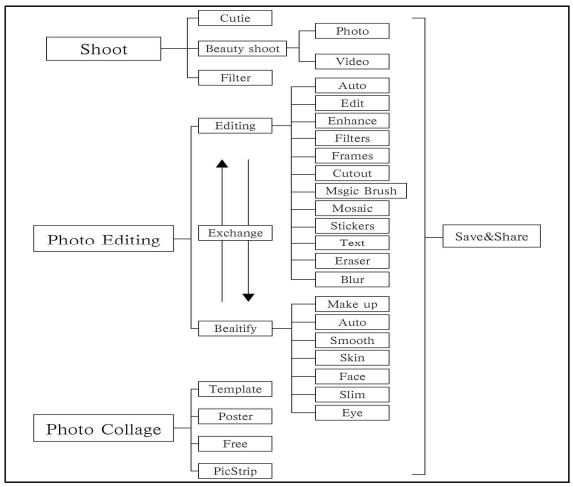


Fig. 1. The functions of the mobile application of graph repairing

In 2014, snapchat appeared. It is a social application which can shoot and edit short clips. Short clips came into the public's attention. After 2016, many kinds of mobile short clips social applications were launched, such as TikTok, Kuai Shou, Mei Pai, ect. Most of them are integrated with shooting, editing, social and other

functions[11,12].

Fig.2 takes TikTok application as an example, the following figure shows the functions of the mobile short clips social applications.

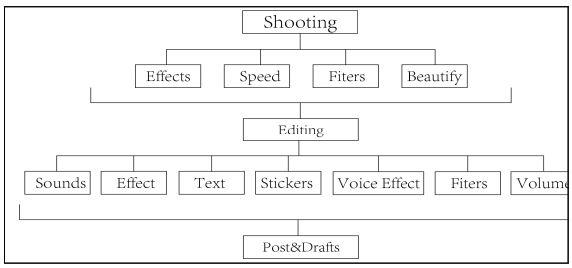


Fig. 2. The functions of the mobile short clips social application

3.1 The mainstream personal media applications

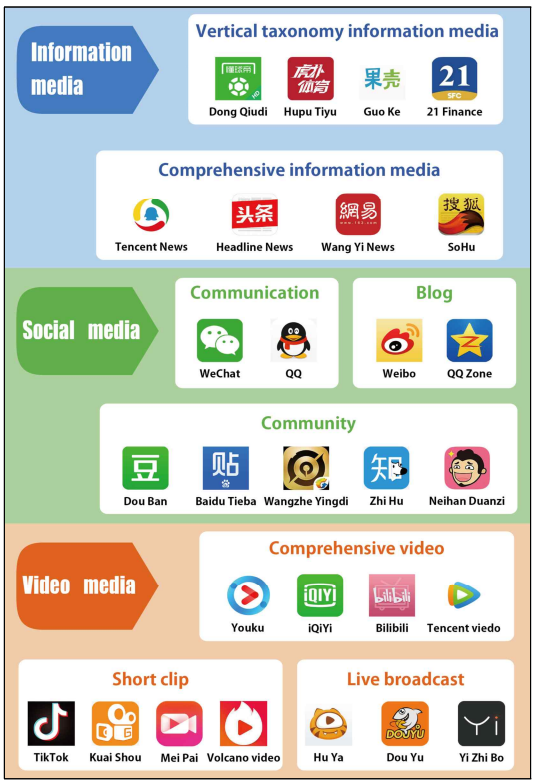
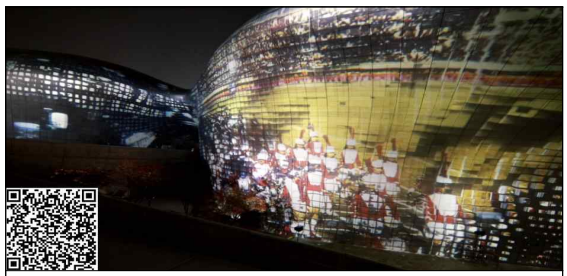


Fig. 3. **The categories of personal media application**

With the development of mobile Internet and Internet shopping, young consumers tend to choose mobile new media when they get information. As a result, many young people began to invest in personal media. At present, the main personal media platform of mobile terminal can be divided into three categories: information media, social media and video media. And it will be show in the following Fig.3. [13,14]

4. The development of projection mapping

Projection mapping was earlier used in commercial advertising campaigns. Nokia, Samsung, BMW and other large companies used. In the early stage, projection mapping used tall buildings as projection objects, using high-power projector, projecting dazzling 3D videos on the surface of the building, creating a dislocation of the building space, or the visual effect of the shaky structure of the building. Comparing with enjoying videos from ordinary screens, the vivid and shocking visual effect and immersion visual experience brought by projection mapping have become a popular way of propaganda[15].



https://www.youtube.com/watch?v=dMBwxNqm6J8&feature=emb_logo

Dongdaemun History and Culture Park 'Seoul light' exhibition ,in Seoul, South Korea, used projection mapping technology, as the main building to the object.

Fig. 4. Dongdaemun History and Culture Park Seoul Light Exhibition

Fig.4 shows the project mapping exhibition with the theme of "Seoul light" held in Dongdaemun History and Culture Park at the end of 2019.

With the development of projection mapping, it is not only on the surface of building, but also

on Indoor display, dining table, objects and even human body. The objects familiar to the public cooperate with visual animation, so that each appearance of project mapping can perform a wonderful visual feast. Fig.5 shows the creative projection mapping Exhibition.

https://www.youtube.com/watch?v=71L5uHcYZLo

It uses projection mapping to create a face real-time tracking creative makeup contents.

https://skullmapping.com/project/gallery-invasion

It is an experimental project named 'Gallery Invasion'. It uses projection mapping to transform the static exhibition into an interesting dynamic space.

Fig. 5. The creative projection mapping Exhibition

4.1 Production of projection mapping

With the development of projection mapping technology, there are many professional production software. Fig. 6 collates the mainstream computer software for projection mapping.

4.2 The development of projection mapping in mobile terminal

With the improvement of standards of consumption and living environment, the need for family audition life is also changing in people's daily life, Especially, at present, more young people are more inclined to watch video work through the Internet. At the same time,

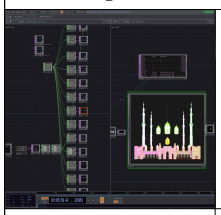
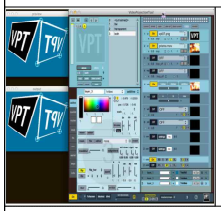
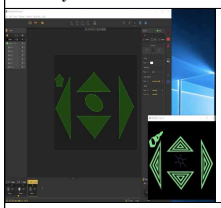
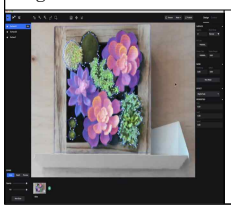
Touchdesigner	
	TouchDesigner is a visual programming. It can create interactive media system, architectural projection mapping, visual effect of live music
MadMapper	
	It is often used in various art performances, stage perfor -mances, and commercial exhibition projects.
VPT8	
	It is a multipurpose realtime projection software tool. It can be used for complex forms of projection, making projection adapt to specific space or surface, combining recording and live recording.
HeavyM	
	HeavyM focuses on "ready made" effects that don't require a lot of content creation, and are great for visuals in the club.
Lightform Creator	
	It is easy for anyone to create epic visuals for projection using content creation software powered by computer vision hardware.

Fig. 6. The mainstream computer software for projection mapping[16]

the computer or TV screen doesn't satisfy their need for visual experience. The concept of family projector, instead of television, projector into the family, letting people watch the video at home just like in a movie theater. The projectors market, good inexpensive projectors can be seen everywhere. With the advent of multi-screen interactive technology, projectors also can project images directly from mobile devices. Not only pictures and video, 3D art, animation and other digital art also can be creating by mobile devices. Fig. 7 collates the applications for

mobile phone production projection mapping. The projection mapping applications of the mobile terminal simplifies the creation difficulty of the projection mapping to let more people use projection mapping more conveniently.

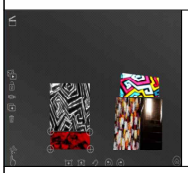
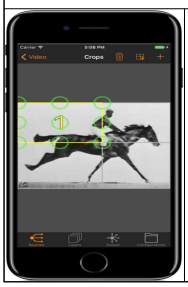
Optoma Projection Mapper	
	Images and videos can be projected to the object's surface. It is providing users with materials, and playing in real time, which is convenient for users to adjust and use.
Reality Augmenter	
	It imports any source texture as a maskr and supports. Airplay and Google Cast™. Projection and User Interface decoupled so app acts as remote control to projector.

Fig. 7. The projection mapping application

5. Conclusion

With the popularization of home projector and the continuous development of project mapping creation platform technology, project mapping can gradually penetrate into all aspects of life. For the most personal media creators, how to create more innovative contents in more ways or technical means is the main way for them to gain fans, traffic and revenue. Projection mapping is an attractive augmented reality visual art. Every public projection mapping display will cause a lot of audience and praise. Nowadays, the 5G era of mobile intelligent terminal has come. With the improvement of network speed and the performance of mobile devices, it is more possible to innovate the form of digital content in mobile platforms. In the future, it will be a new attempt to use projection mapping technology in the creation of personal media contents.

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