CQ SUBMARINE
The Interface for Searching and Visualizing Videos based on Feelings of Distance and Direction

Takeru Yoshihara
Graduate School of Media and Governance, Keio University, 5322 Endo, Fujisawa, 252-8520, Kanagawa, Japan

Michiaki Yasumura
Faculty of Enviroment and Information Studies, Keio University, 5322 Endo, Fujisawa, 252-8520, Kanagawa, Japan

Keywords: Video, Feeling of Distance, Feeling of Direction, Ubiquitous Computing.

Abstract: In consequence of the progress of globalization in information technology, all information have been uniformized without any attention to the place the contents were made. For example, we search for videos and watch them in the same way on PC, even if some of them were made in our home cities, while others were made abroad. Therefore, users can not feel the background of the contents, and they can not realize essence of contents. In this research, we developed CQ Submarine which is the system for searching videos based on feelings of distance and direction. In this system, users set the distance and direction from themselves, then they can watch the videos which were made in the area where users set. This searching process allow users to have imagination, aspiration, amazement, and discovery about that area. We also made a demo of CQ Submarine at an exhibition on travel applications that was held in Tokyo in 2011, and got a lot of feed backs from initial users.

1 INTRODUCTION

As a result of the progress of globalization in information technology, a variety of video data have been possible for us to get. Some people enjoy entertaining contents such as movies and TV shows, while others attend lectures of university by e-learning. These services enable us to look into what happens in the world sooner and closer.

However, on the other side of the coin, we consider that these information are uniformized in PC. For example, all videos are gathered and displayed in the same way although one video was recorded at our city, while another one was recorded at a place 10000km from our cities. A couple of decades ago, we had to spend time, money and some efforts in order to look what happens in the world and experience them. In this process, people could have a variety of imagination, about each place. Therefore, they could realize how far the places are from their city, and how different the cultures are in those places. We believe that contents should contain the elements which we can get in searching process such as imagination, aspiration, and discoveries. In current process, as people normally get contents directly on shortest path, they are not allowed to have any imagination and aspiration about unknown places. In fact, the number of young Japanese people who travel abroad is decreasing significantly in this decade.

In this research, we developed the searching system for video and sounds which allows users to have imagination, aspiration, amazement, and discovery in the process of searching.

2 CQ SUBMARINE

CQ Submarine is the system for obtaining the information such as videos and sounds by setting the distance and direction from the place where the user is (Figure.1). Users set the distance from the place where they are by the dial which is set on the upper part of the device (Figure.2). Then, users set the direction by rotating the device. After that, users can watch the videos and listen to the sounds which are

Yoshihara T. and Yasumura M..
CQ SUBMARINE - The Interface for Searching and Visualizing Videos based on Feelings of Distance and Direction.
DOI: 10.5220/0003927107950798
In *Proceedings of the International Conference on Computer Graphics Theory and Applications* (IVAPP-2012), pages 795-798
ISBN: 978-989-8565-02-0

recorded at that place. A maximum of 9 videos are selected randomly from the area by the distance of 50km from the place where the user set, and play inside of the chassis of the system (Figure.3). In order to let the users feel the shift of the contents for real, we adopt the metaphor of submarine's periscope in which users look in the chassis. The phrase of "CQ" which stands for "seek you" or "Call for Quarters" came from the technical word of ham radio. It is reflected in my own experience of childhood in that I often heard my father's ham. I always tune the frequency and could imagine how the world is and have aspiration or amazement by listening to the voice which came from abroad.

As getting a hint from my experience, in CQ Submarine, users select the videos not actively and directly but only vaguely by tuning the distance and direction, therefore they are able to allow to prompt speculation about how that place looks like.

Figure 1: The aspect of the system.

Figure 2: The dial for setting distance.

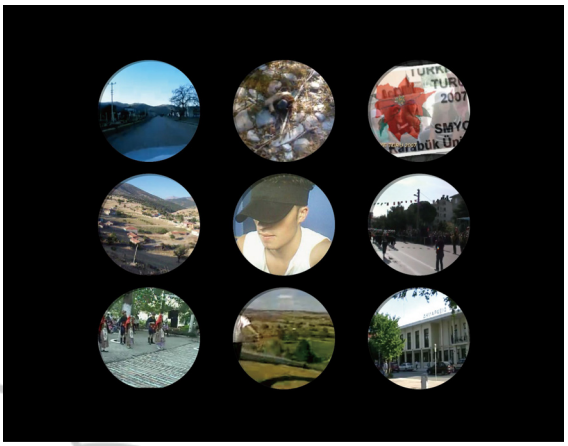

Figure 3: The videos playing inside the chassis.

3 IMPLEMENTATION

CQ submarine is comprised of three functions. The first one is the device for setting direction and distance, and we set an iPad on the top of the chassis for this function. The second one is the device for showing the videos, and we set a Mac Book Pro in the chassis for this function. The last one is CQ Submarine software which gathers geo-tagged videos from YouTube API(Figure.4). CQ Submarine software is running on Google App Engine.

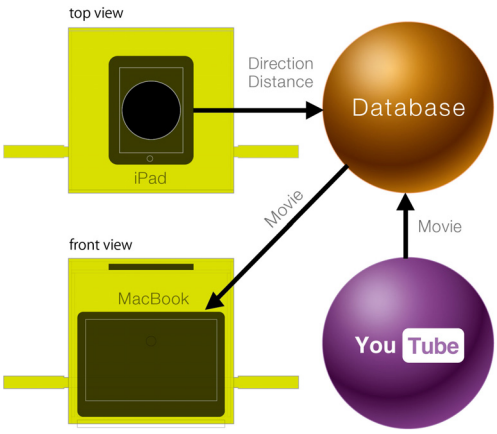

Figure 4: The system configuration diagram.

4 USE CASE

There are two patterns of use cases. Firstly, users fix the distance, and then control the direction with watching videos. In this case, users can watch the videos which are recorded in limited areas. For example, it is expected that users can expand their

knowledge about the region and discover something by watching the videos recorded in the area just nearby their homes. A lot of people treat the place as dots, because they normally move by means of transportation such as car, train, and bus in their city. But this use case enables users to realize what happens in several directions spatially. Secondly, users fix the direction, and then change distance with watching movies. In this case, users can realize the transition of culture by expanding the distance. For example, if Japanese users expand the distance toward west, they can watch Japanese contents, Chinese contents, European contents and so on in sequence. As just described in these use cases, users can obtain information with recognizing the space around the world.

Figure 5: A use case at exhibition.

5 DISCUSSIONS

In order to get some initial user feedback, we made a demo of CQ Submarine at an exhibition on travel applications that was held in Tokyo in September 2011. In that exhibition, we received a variety of opinions with some visitors using CQ Submarine after that event. When users set the distance and direction, most of them tend to decide the place such as the their home city, the place where they travelled before and so on in advance. Of course they missed the point at first, however, they guessed which country the current places were from the information in the videos such as the look of people, buildings and character. In this process, especially, users were amazed when Japanese language changed to Chinese, Turkish, and French by expanding the distance from Japan to west. At last some users reached the videos recoded at the place where they intended at first. A lot of users were surprised that their sense of distance and direction missed the points of real.

6 RELATED WORKS

As a research which relates image browsing and spatial location information, Snavery, Seitz, and Szeliski presented “Photo Tourism “. This system enables users to browse through Internet snap shots that have been arranged into virtual 3D space by finding similarities between the images. There are also some web services such as “flickr” or “panoramio” and “google maps” in which users can browse pictures or videos on maps. These ideas shows the value of browsing contents by relating them to location information, however there are no case which use distance and direction as an interface. Some AR applications such as “Sekai Camera” or “Layer” presents interface which uses real-world experience, but they are different in that the area is extremely small from our research.

7 CONCLUSIONS

Initial feed back from users indicates CQ Submarine is useful to provide imagination, amazement and discovery in searching process. This results indicate that the concept of CQ Submarine is expected to work for a variety of areas such as education, tourism, and culturology. We believe that making scope for imagination in searching process is a useful activity that may lead to a variety of innovative applications.

REFERENCES

Rui Y., Huang, S. H., Ortega, M., Mehrotra, S., 1998. A Degree-of-Edit Ranking for Retrieval on Relevance Feedback: A Power Tool for Interactive Content-Based Image Retrieval. In *IEEE Trans. Circuits and Systems and Systems or Video Technology* Vol.8 No.5.

Snavery. N., Seitz, M. S., Szeliski, R., 2006. Photo Tourism: Exploding Photo Collections in 3D. In *ACM Transactions on Graphics (SIGGRAPH Proceedings),*

25(3), pp.835-846.

Toyama. K., Logan. R., Roseway. A., 2003. Geographic location tags on digital images. In *Proc. Int. Conf. on Multimedia*, 156-166.

Irie,G., Hidaka, K., Satou, T., Kojima, A., Aizawa, K., 2009. A Degree-of-Edit Ranking for Retrieval on Video Sharing Sites and Its Evaluation. In *Interaction 2009*. Information Processing Society of Japan.

Morimoto, Y., Murota, M., Shimizu, Y., 2005. Development of an Information Retrieval System of Video-Based Learning Materials and a Method to Attach Timecode Information on Speech Data. In *Journal of the Institute of Electronics, Information and Communication Engineers*.

Inuduka, J., 2006. The meaning and forms of university education, as media in networked society. In *bulletin Vol.43, Jissen Women's University Faculty of Human Life Sciences*.

Flickr., http://www.flickr.com/

Panoramio., http://www.panoramio.com/

Google Maps., http://maps.google.co.jp/

Sekai Camera., http://sekaicamera.com/

Layer., http://www.layar.com/