

Virtual living room system based on video call to connect nursing home resident and family moderately

Genki Uryu
Nagoya Institute of Technology, Japan
g.uryu.880@stn.nitech.ac.jp

Kenji Funahashi
Nagoya Institute of Technology, Japan
kenji@nitech.ac.jp

Index Terms—Virtual living room, Video call, BLE beacon

I. INTRODUCTION

Many senior citizens stay in a hospital or nursing home. When they part with their family, there is a risk of them suffering from delirium due to stress [1][2]. Although video call probably reduces their stress, they may feel an oppressive feeling by constant video call, and also may be hesitant to take the trouble to call each time. The family live freely and have no strong connection with the other in the living room, but a person can start a conversation at any time by talking to another person, and the conversation will end naturally without clear termination signal. In this paper, we propose virtual living room system to connect distant people each other moderately using video call service. It provides only information that the other person is there when video call is disconnected, and connects video call by a belief voice word.

II. VIRTUAL LIVING ROOM SYSTEM

In the living room, you can see at a glance whether family is there. A person needs to be able to know whether the other is there when using virtual living room system. BLE Beacons that are been worn by them are used to judge whether they are. Video call is activated by voice recognition of a belief word and closed when they stay silent each other. Skype is used as a subsystem instead of developing original video call system. One main system sends the necessary information to the other system through Skype text chat function. And the system displays the status of the other on the half of the screen (Fig. 1).

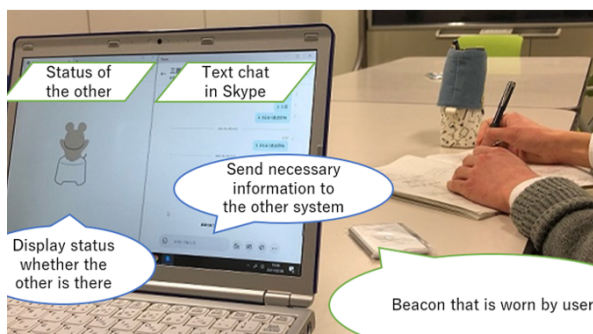


Fig. 1. System screen and appearance of experiment



Fig. 2. Video call during an experiment

III. EXPERIMENT

Subjects had a video call while staying home for long time first, it meant plain Skype was used and it was been connected all along. After that they used our new system, and compared these two lifestyles (Fig. 2). They all said that they felt uncomfortable for first one, and that the system reduced the uncomfortable feeling. It was confirmed that the system reproduced the atmosphere of natural living room to a certain degree.

IV. CONCLUSION

In this paper, we proposed virtual living room system to connect distant people each other moderately using video call. An experimental system was built and it could reproduce relationship at natural living room. As a future work, we would like to estimate person's action from Beacon information, and do not show only whether the other is there, but show also what and where they do.

ACKNOWLEDGMENT

This work was supported in part by JSPS KAKENHI Grant Number JP20K11918.

REFERENCES

- [1] A. Matui, M. Yatsuzuka, S. Takabatake, Y. Mukaiyama, K. Hasegawa, and K. Tazawa, "Study on the delirium-inducing factors after operation in aged surgical patient," *The journal of the Nursing Society of the Toyama Medical and Pharmaceutical University*, vol. 6. no. 1. Japan, July 2005.
- [2] American Psychiatric Association, "American Psychiatric Association Practice Guideline for the Treatment of Patients With Delirium," 1999.