Floating Avatar: Blimp-based Telepresence System for Communication and Entertainment

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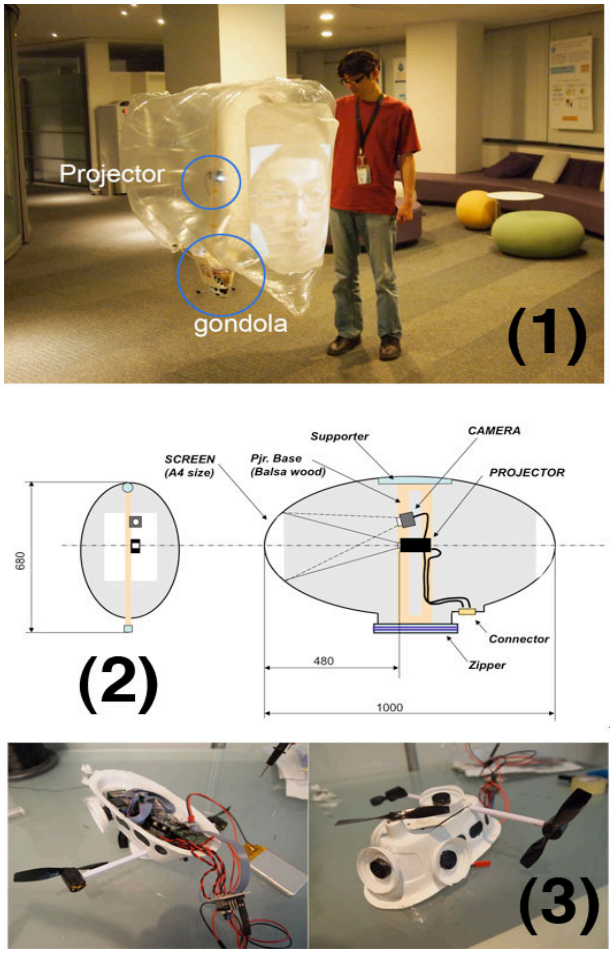

Figure 1. *Floating Avatar is a blimp-based telepresense system (1). Projector and camera are on balsa-wood plate (2). Several sensors and battery are in gondola (3).*

1. Introduction

We have created a unique telepresence system for communications and entertainment whereby users can share visual and sound information and express their feelings and impressions more directly than when using conventional meeting systems. We mainly focused on two features to create a unique avatar—its presence in the real world and its ability to interact with people— and created a system based on a blimp. Blimps are physical, not virtual, so they can be used as avatars in the real world. We installed a projector as the output function inside the blimp so that our system can work as a display and express the user's attributes. A camera and microphone mounted on the outside of the blimp provide the input function, which means the user can control the blimp from a distance through the network. The proposed system makes unique network communications between floating avatars and humans a legitimate possibility.

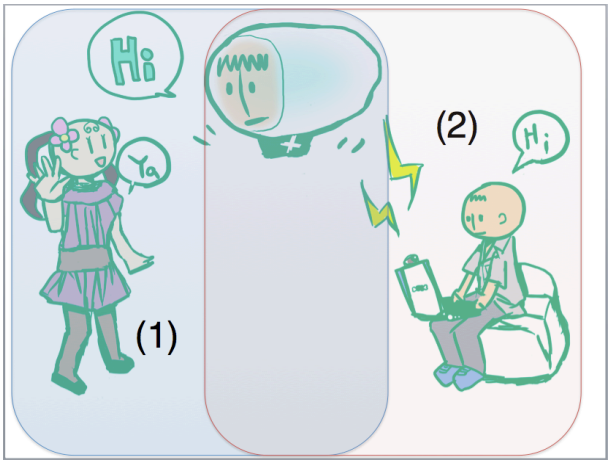

Figure 2. *Floating Avatar provides visitors with two experiences. One is unique communication between visitor and floating avatar (1). The other is that the user's senses are augmented through video camera and microphone (2).*

2. System Overview

An overview of the proposed floating avatar system is shown in Fig. 1 (1). The system is active in two main areas: the blimp and the gondola. The blimp is filled with helium that enables it to float through the air, which is especially useful indoors (Fig. 1 (2)). Blimps are made of vinyl chloride, so they do not burst like rubber balloons. In addition, even though they are floating devices, they are quite safe: if a blimp collides with a user, he or she will sustain no injuries. The small projector and speaker are mounted at the center of the blimp, which supports rear projection. We used a balsa-wood plate to mount the projector and camera to the blimp because balsa is extremely light. Several modules were included in the gondola, including Arduino and embedded Linux modules (Fig. 1 (3)).

Our demonstration provides visitors with two types of experiences. Figure 2 (1) shows a simple example of a communication between a person and our floating avatar, even though they are geographically distance from one another. The avatar exists in the real world, so the avatar visits the user or the user moves to the avatar to start the communication. In addition, the blimp extends the user's senses because he or she can see through the camera and hear through the microphone (Fig. 2 (2)). For instance, the camera provides a special floating view to the user, and the microphone catches a wide variety of sounds.

References

BERK, J., AND MITTER, N. Autonomous light air vessels (ALAVs), *in Proceedings of ACM Multimedia '06*, pp. 1029–1030, 2006.

YOSHIMOTO, H., Jo, K., AND HORI, K. Design of Installation with Interactive UAVs, *in Proceedings of ACM ACE '08*, p. 424, 2008.

PAULOS, E., AND CANNY, J. PRoP: Personal Roving Presence, in Proceedings of ACM CHI '98, pp. 296-303, 1998.

SIGGRAPH 2011, Vancouver, British Columbia, Canada, August 7 – 11, 2011.
ISBN 978-1-4503-0921-9/11/0008