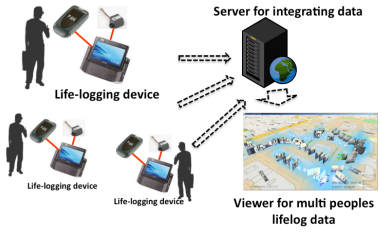
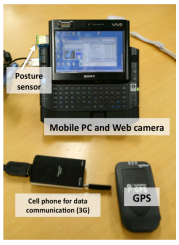
Visualization of Multiple People's Lifelog: Collecting "Ant's-eye view" to generate "Bird's-eye view"

Kunihiro Nishimura†, Jun'ichi Nakano†, Tomohiro Tanikawa†, Michitaka Hirose†
Graduate School of Information Science and Technology,
the University of Tokyo





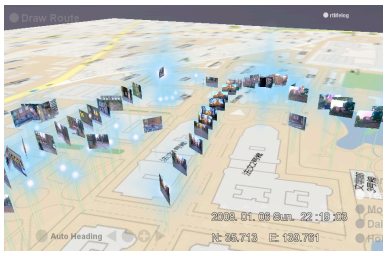


Fig. 1 System overview **Fig. 2 Device** **Fig. 3 Visualization Results of Multipeople's Lifelog**

1. Introduction

The concept of this study is to collect "ant's eye view" to generate "bird's eye view". When we can collect large number of ant's eye views, we can integrate them and can generate bird's eye view. The idea of this study is an assumption that we can grasp both whole view and situations at multiple places when we can see real-time-report from various points. To achieve this idea, we focus on lifelog technology. Using a wearable computer or small devices and sensors, it is easy to get our daily-life data. We can record our photos, sounds, positions, and so on. It will be lifelog data. When we can collect multiple people's lifelog data, we can utilize them much more. In this study, we propose a visualization method for multiple people's life log data. The lifelog data is uploaded to the server, and the viewer visualizes the data that provides us to see the whole view of the data. We combined position information and sensor information of remote places, and visualized these data.

There are some examples of similar idea. In San Francisco, Cabspotting[1] is a project to provide whole view of taxi cabs position based on GPS information. It visualize trajectory of cabs by tracking them. INTERNAVI REALIZATION by Honda[2] is a screensaver that visualize car's moving points and their trajectory based on car navigation system. It visualize spontaneously main-street which many cars use.

2. Multiple People's Lifelog

For collecting multiple people's lifelog data, we have developed a system based on a server and clients that capture each person's log (Fig. 1). The life-logging device consists of a mobile PC with a web camera, GPS, a posture sensor that can record the direction of camera, and cell-phone for data communication (Fig. 2). In this study, we take importance on integrating multiple people's data, thus we only focus on camera and position information for lifelog data. The life-logging device uploads automatically an image with posture and position information using HTTP via cell phone network to the server in every 5 seconds. Every life-logging device has an ID that can distinguish users.

For visualization of multiple people's lifelog data, we have implemented a viewer (Fig. 3). The viewer visualizes the data that are pulled from the server. Photos are distributed on a map based on position information; in addition, the direction of photos is corrected by posture information [3]. Thus, it is easy to understand relationships among photos.

Experiments were conducted. The viewer visualizes multiple people's lifelog data almost in real time (every 5-6 sec). It is like live coverage of multiple television programs, thus it is easy to grasp a whole view of the target area where life-logging peoples are. It also increases a presence of the area when users are close place because they can see and sometimes can encounter each other.

3. Result and Discussion

Visualization of multiple people's lifelog data almost in real-time is useful for grasping the same area. The applications of this visualization method are for events or groups in order to know popular or remarkable things. One concern is a privacy issue about sharing multiple people's lifelog data. Visualization methods based on privacy levels remain future works.

References

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[2] Honda, INTERNAVI REALIZATION, http://www.honda.co.jp/internavi/realization/#/neuronroad
[3] Jun'ichi Nakano, Takashi Aoki, Kunihiro Nishimura, Tomohiro Tanikawa, Michitaka Hirose, "Robust Real-Time Lifelog Display System Using Picture Processing", ASIAGRAPH 2008, Vol.2, No.2, pp.238-241, 2008.

† email: { kuni, jnakano, tani, hirose }@cyber.t.u-tokyo.ac.jp

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