

Recognizing Whether a Person is Eating Alone or Has Company by Using Wearable Devices

Mental health has received increasing attention in recent years, and research has been done on objectively measuring mental health. The mental health of a person is usually evaluated by the person's lifestyle such as their eating and sleeping habits. However, interaction with people is also important for mental health; the focus is largely on whether there is a correlation between mental health and eating, i.e., whether eating alone or has company is related to the mental health. Therefore, the aim of this research is to use wearable devices to recognize whether a person is eating alone or has company in daily life.

We hypothesized that we could use the differences in movements of the hands based on gesturing and in the access to the smartphone to recognize if a person is eating alone or has company. Therefore, recognition method using the data collected by watch-type device and the data collected by smartphone was proposed (Fig. 1). We calculated features indicating movements of the hand and access to the smartphone using the collected data, and we conducted the recognition using the calculated features.

Experiment was conducted to verify this method, and using the collected data, the recognition model was constructed for each participant. We got the accuracy of 96.3%, therefore the hypothesis was supported [1].

Keywords: eating alone, watch-type device, smartphone

Reference

- [1] Kazuki Kiri, Ochiai Keiichi, Akiya Inagaki, Naoki Yamamoto, Yusuke Fukazawa Masatoshi Kimoto, Tsukasa Okimura, Yuri Terasawa, Takaki Maeda, Jun Ota: "Recognizing Whether a Person is Eating Alone or Has Company by Using Wearable Devices," Proceedings of the 10th IPSJ International Conference on Mobile Computing and Ubiquitous Networking, 2017.

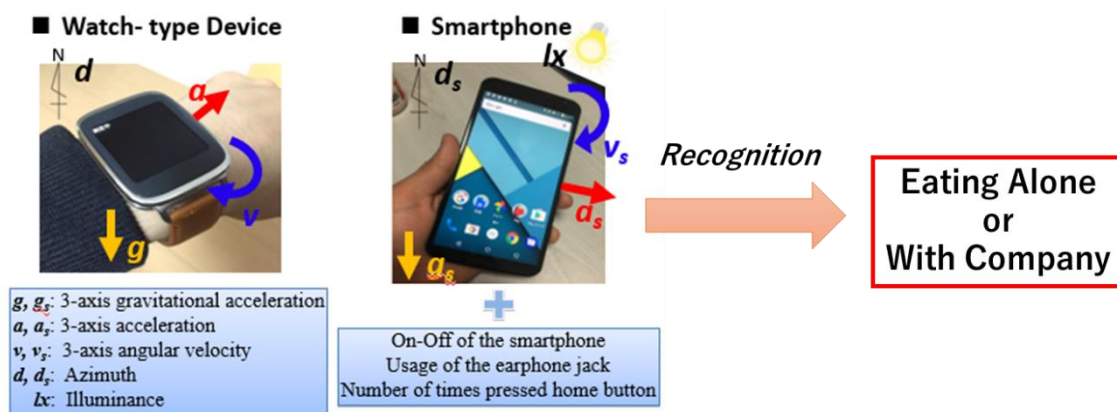


Fig 1. Recognition of the presence of the company at mealtime.