# An excretion care support system using a scanning range finder

*H. KATO, T. FUJINAMI.* **An excretion care support system using a scanning range finder.** *Gerontechnology 2014;13(2):222;* doi:10.4017/gt.2014.13.02.145.00 **Purpose** Excretion care is one of the most important tasks in home care. Caregivers often check their patients to make sure they can excrete waste. They also would like to know if residents can sit on a toilet seat if they do not come back. However, caregivers' reactions may make the residents feel undignified. **Method** Five caregivers participated in this study. They were asked to observe and guess situations that were presented by residents in a restroom. Firstly, we set the scanning range finder in a restroom. *Figure 1* shows a scanning range finder (Hokuyo URG-04LX). The sensor data is transferred as visualization on the display monitor. Secondly, the data was shown on the monitor in several situations as follows: opening the door, closing the door, walking from the door to the toilet, sitting down, standing up, sitting on the floor, and falling down on the floor. Lastly, the caregivers were asked to observe and guess situations in the restroom, more precisely when and how did the event occurred. Motion data do not reveal residents' images. Therefore, when monitoring the data with a scanning range finder, a certain amount of privacy is maintained. **Results & Discussion** Caregivers were able to judge situations by watching the motion image collected using the scanning range finder. They noticed behaviors such as entering the restroom, sitting on a toilet seat, rising from the seat, and exiting the restroom. Moreover, they gave us helpful feedback: The device may help caregivers to detect when a resident sits on the floor. In conclusion, a scanning range finder is useful for monitoring residents in a restroom. Residents can be monitored by caregivers using the device. Therefore, we build a device with an alarm system to see if a resident falls down in the restroom. The research has just begun and this subject needs to be examined further.

**Reference**

1. Yasuda K, Okazaki Y. Toilet task support system using 3-D human posture measurements: System evaluation in simulation environment. In: Proceedings of The 22nd Annual Conference of the Japanese Society for Artificial Intelligence (JSAI) 2008;313-316

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*Figure 1. Scanning range finder*