Purpose Most tenants in nursing homes for the elderly have some type of cognitive disorder, as a result, they often wander indoors or out of the facility without being noticed; this can lead to fatal accidents. Stumbles and falls have also been reported in home corridors. To enhance tenants safety and peace of mind, and supplement the finite care force, we propose a new multi-camera, gate system for locating hazardous motion. **Method** We record corridor passer events with camera gates in a system configuration (*Figure 1*). Each gate consists of networked cameras, including front, side, and top cameras[1,2]. We place these gates in corridor areas and around living rooms in the nursing home. The faces of the passing tenants in a gate are confirmed with the front or side camera. We apply face recognition technology, developed by GLORY LTD, to the system. Face recognition leads to the acquisition of a 3-D passing position, speed and time for the tenant. From this data, we can build a state transition diagram of each tenant for the gate, and find who is in danger of wandering indoors or going out of the facility without notice. We can also detect the stumbles or falls around each gate with if-then rules from passing data. **Results & Discussion** We assembled a prototype of the multi-camera gate system and conducted on-the-spot experiments in a nursing home in Awaji-city, central Japan. Five hazardous cases, in which a tenant in a wheelchair wandered to and from her own room late at night, were all recorded successfully over 6-hour period and sent to a care personnel station by the computer network. It is considered that this system is useful when care personnel are not abundant such as during the late night period or at shift change. This research has been supported by Strategic Information and Communications R&D Promotion Programme of The Ministry of Internal Affairs and Communications, Japan.

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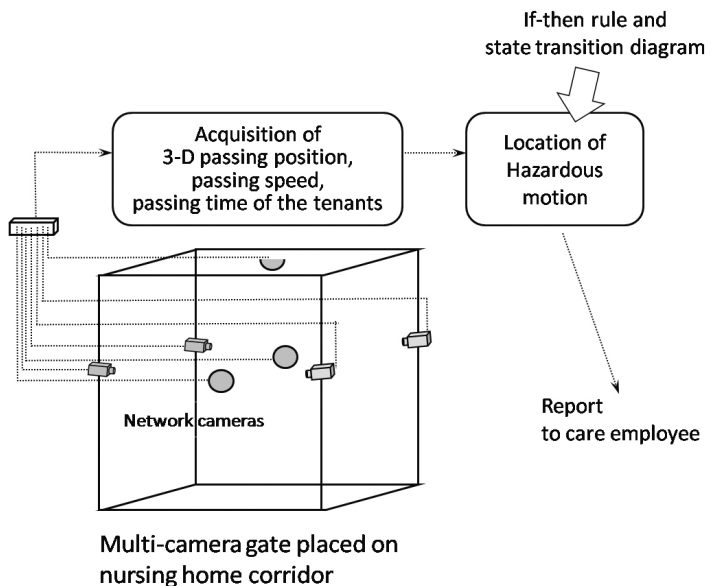2. Omori K, Matsumoto T, Nakamoto H, Kameyama H, Kitayama I, Sumiya K. [in Japanese]. Proceedings of EAWLS2009; 2009; pp 226-227

Figure 1. Multi-camera gate system configuration