PAPER

Sensors and Monitoring

N. LAPIERRE, J. MEUNIER, J. FILIATRAULT, A.S.T. ARNAUD, M-H. PAQUIN, C. DUCLOS, I. DUBREUCQ, H. MOFFET, M. MORIN, M-H. MILOT, C. DUMOULIN, J. ROUSSEAU. *Using a video monitoring system at home to observe person-environment interactions.* Gerontechnology 2018;17(Suppl):113s; https://doi.org/10.4017/gt.2018.17.s.110.00 **Purpose** New technologies, especially monitoring technologies, could help older adults to Age-in-place and improve their quality of life[1]. Cameras-based technologies are efficient for home monitoring, however few are studied at home with older adults.[2] The study aims to evaluate a video monitoring system to monitor the person-environment interaction, at home during night walk. **Method** The study includes two parts: (1) A simulation in an apartment-laboratory to select the equipment for the home monitoring. Two programmable cameras have been tested through four scenarios involving different environment settings and luminosity. Different filters from the AVS Video Converter software© to respect participants' privacy were tested on recorded videos. A grid was completed to collect variables regarding the cameras and the filters; the grid included: the image quality, the quality of the night vision, the coverage of the cameras, the quality of the movement detection and the type of setting. The two cameras were compared to choose the equipment for the second phase. (2) The chosen equipment was installed for a multiple case study design (n=6 cases)[3]. Participants had the following characteristics: ≥ 65 years old, living alone, ≥ 1 fall within the year, waking up nightly to go to the toilet. For seven nights movement detection was recorded for a chosen time-window. Recorded videos were analyzed using an observation grid based on the Model of Competence. **Results & Discussion** (1) The camera chosen was the high definition security camera ZIR32 by Zetta© fixed on tripods. Each camera was equipped with a 32 GB micro SD card to store the videos. The cameras allowed wide angles and night recordings (infrared lens). They were programmed to record movement detection for a given time-window chosen. The chosen filter added to the video images was the "Relief" filter because it represented the best compromise between respecting privacy and the information visible regarding the person-environment interactions. (2) The chosen equipment enabled to record seven nights for the time window chosen. The wide angle of the camera enabled to cover each room to observe the person-environment interaction, thus only one to two cameras per room were needed (maximum of four cameras per house). The quick activation of the system avoided any loss of visual information. The filter protected participants' privacy while providing an image with enough information to monitor the older woman (*Figure 1*). These results support the use of a programmable video monitoring system to monitor person-environment interactions at home and will be used in a larger project using video monitoring system to automatically detect falls.

References

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Figure 1: Video images recorded after image processing