

AUDIOVISUAL SENSING OF HUMAN MOVEMENTS
FOR HOME-CARE AND SECURITY IN A SMART ENVIRONMENT

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Abstract- This paper presents the necessity and possibility of smart sensing using a multitude of sensors such as audio and visual sensors for human movement detection for home-care and home security applications in a smart environment. We define an event and spatial relationship based approach to the problem. Use of multisensory information to event detection is proposed and its prototype implementation to detect events like falling, walking, standing, shouting etc. are presented. Use of audio sensor based event detection and video sensor based event detection helped to increase the number of different types of actions that can be detected within a smart environment. Video sensors detected the actions at 94.44% accuracy while the audio sensors detected the actions at 83.35%. In addition to that the video based fall detection accuracy was 93.3%. Currently we are working in real life data capture and analysis using multi-sensor integration