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An integrated smart system for ambient-assisted living

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Abstract

Ambient-assisted living (AAL) is an initiative to extend the time the elderly can live in their home environment by increasing their autonomy and assisting them carry out their daily activities. AAL systems exploit in-formation and communication technologies (ICT) in the assistance to carry out daily activities, health and activity monitoring, enhancing safety and secu-rity and getting access to social, medical and emergency systems. These ICTs are in the form of smart systems, which are physical objects that are augment-ed with sensing, processing and network capabilities, enabling them not only to intercommunicate with one another, but also to exchange information with people and react to their environment. This paper is on a low-cost technology customised to the South African environment to support ambient assisted liv-ing. The technology takes advantage of South Africa's digitalisation pro-gramme to provide broadband access in the support of AAL. Digital television as a gateway to internet access, wireless mesh networks for communication, motes for machine to machine communication and smart phones are the tech-nologies supported in this architecture. A survey of AAL technologies was conducted and features of these systems that would be useful in defining our architecture identified. These features contribute to the development of an ar-chitecture for AAL. This research feeds into extending the body of knowledge on AAL technologies.