MARIO

Managing active and healthy aging with use of caring service robots (MARIO)

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Background: Europe has the highest prevalence of dementia in the world; seven million people are currently affected and this is projected to increase to 13.4 million by 2050. Across EU countries, participation of people with dementia in family and civic life is diminished by cultures of exclusion and stigmatisation. Dementia is characterised by impaired mental functioning, language and thinking. These impairments are often accompanied by personality, functional and behavioural changes. To fight loneliness and the effects suffered by people with dementia, effective techniques include those that target change of a person's perception of loneliness and those that increase a person's resilience.

ICT solutions can be used to increase psychological skills like resilience, and to manage active and healthy aging with the use of caring service robots as will be explored with the EU funded MARIO project that involves 10 partners from 6 EU countries. In this project specific technological tools are adopted that try to create real feelings and affections making it easier for the patient to accept assistance from a robot when - in certain situations - in return the human can also support the machine. The approach targeted in MARIO is the Comprehensive Geriatric Assessment (CGA) on which the Multidimensional Prognosis Index (MPI) is based. Used effectively, the MPI can improve dramatically diagnostic accuracy, optimize medical treatment and health outcomes, improve function and quality of life, reduce use of unnecessary formal services, and institute or improve long-term care management. In MARIO, the service robot will provide information to MPI survey and evaluation process based on its observation of the instrumental activities of daily living and detection of changes regarding them. MARIO aims to address and make progress on the challenging problems of loneliness, isolation and dementia in older persons through multi-faceted interventions delivered by service robots.

Hello! My name is Mario! Learn more about me on www.mario-project.eu

Methods: MARIO will use a 36 month work program and 11 work packages (WP).
❑ WP1 defines the architecture of the system.
❑ WP2 implements the platform hardware, sensor and communication modifications to a pre-existing robot platform so that it can support the proper requirements.
❑ WP3 faces with the health aspects of the proposal related to loneliness, isolation, resilience and dementia.
❑ WP4 specifies how the CGA and MPI computation could be assessed with service robots.
❑ WP5 improves what MARIO can do via semantics and machine learning.
❑ WP6 implements MARIO's behavioural capabilities and MARIO's human-robot interaction skills.
❑ WP7 integrates WP3-WP5 and then implements an interactive development cycle that overlaps with WP3-WP5 and also later with the pilots.
❑ WP8 is the validation of MARIO in three different stakeholder type assisted living scenarios.
❑ WP9 is dedicated to the exploitation management of the project foreground and the posturing of the partners for post project replication and uptake.
❑ WP10 is widely based on communication and dissemination activities aimed largely at finding and using multipliers to increase impact.
❑ WP11 ensures efficient and correct coordination and management.

Conclusion: MARIO is a novel approach employing robot companions, and its effect will be: 1) to facilitate and support persons with dementia and their caregivers, and 2) reduce social exclusion and isolation.