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Ambient Assisted living systems and platforms

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In accordance with the modern concept of "smart home", we see the emergence of a new component - Ambient Assisted Living, which can be translated as "living environment". The basic idea of is that all the human environment should facilitate his life. Ambient Assisted Living (or AAL) is a multi-disciplinary field, exploiting ICT in Healthcare and telehealth systems to resist the effects of growing elderly population. There is a huge potential and prospects of development of ambient assisted living systems and platforms. Also, there is affected aspects of AAL systems, usage of contemporary AAL systems and platform and its architecture.

Keywords: Ambient Assisted Living, smart house, personal health monitoring, healthcare IT, telehealth; medical sensors, health monitoring, interoperability, usability, security and privacy

Automating the process of resetting the carrier phase of the mudflow to the downstream reach of Medeo dam

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The carried-out analysis of catastrophic mudflow in Medeo tract in 1973 showed that the abnormal operation of the dam spillways was associated with several deficiencies in the mud dam's construction and unexplored process of deposition of the solid phase of the carrier medium mudflow mass trapped in the mudflow storage reservoir. Subsequent completion and modernization of spillways was made taking into account the effects of the mudflow in 1973 and now they do not structurally allow catastrophic mud flow cram the mudflow storage reservoir. The article presents a method of controlled dumping the treated fraction from the solid one of of carrying water phase of the forecast catastrophic mudflow through modernized spillways of Medeo mud dam. The proposed approach allows protection from flooding the social-culture objects of Medeo tract through optimal work of spillway that controlled using computer model of automated dam's control and safety system.

Keywords: swirl shaft spillway, hard mudflow phase, hydro technical constructions (HTC), automated control and safety systems

A Novel CPG controller of robotic fish: based on body wave function

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The biomimetic robotic fish shows great potential of surveying of resource, military reconnaissance, the monitoring of water environment and so on, so the biomimetic robotic fish is a hot issue with great challenges. Although the current CPG controller of generating sine signals can also control the movement of robotic fish, but this kind of controller needs many parameters.According to the fish body wave function proposed by Lighthill we design a new CPG controller. This controller can efficiently reduce the parameters of controlling robotic fish movement and realize the simulation of the fish body wave curve. In order to test the feasibility and effectiveness of the CPG controller. We realized the virtual reality simulation and test it in a three joints of robotic fish.

Keywords: CPG, fish body function, biomimetic robotic fish

Software environment to teach programming of robots

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This article discusses the issue of selection of suitable software environment for programming the robots needed for university studies. Educational robots are two types of Lego Mindstorms NTX2 and Lego Mindstorms EV3.

Keywords: robot, software environment, programming languages, Lego Mindstorms, sensors