SA03

Personal Robot

10:10-12:10   Chair1 : Hong seok Kim (KITECH, Korea)
Room : Base 1st Floor-Otztal   Chair2 :

10:10 – 10:30   **SA03-1**

Evaluation of Performances for Personal Robots

Chang-hyun Ahn, Jin-Oh Kim, Keon Young Yi(Kwangwoon Univ., KOREA), Jin-Oh Kim(KATS, KOREA)

●Evaluation techniques of mobility
●Position characteristics
●Path characteristics
●Evaluation techniques of navigation
●Standard measurement environment
●Evaluation program and equipments
●A measurement experiment

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10:30 – 10:50   **SA03-2**

Toward the Personal Robot Software Framework

Hong Ryeol Kim, Dae Won Kim(Myongji Univ., KOREA), Hong Seok Kim, Ho Gil Lee(KITECH, KOREA)

In this paper, a software framework is proposed for the personal robot located on home network. The proposed software framework is divided into four layers-a transparency layer, a behavior layer, a distributed task layer, and a mission scenario layer. The transparency layer consists of a virtual machine for platform transparency, and a communication broker for communication transparency among behavior modules. The communication architecture includes both server/client communication and publisher/subscriber communication. A mission scenario is assumed to be a composition of sequentially planned distributed tasks. In addition to the software framework, a new concept, personal robot design cent...
Keywords: framework, personal robot, home network, transparency, behavior, distributed task, mission
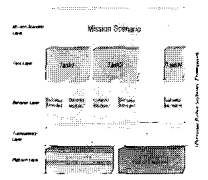

10:50 – 11:10   **SA03-3**

Development of Personal Robot Platform : Designed Approach for Modularization

Se-gon Roh, S. M Baek, D. H Lee, K. H Park, T. K Moon, S. W Ryew, T. Y Kuc, H. S Kim, H. G LeeH. R Choi(Sungkyunkwan Univ., KOREA)

In this paper a new framework is presented for developing the personal robot being used in home environments. We mainly focus on the system engineering technology such as the modularization and standardization. Effective ways for interfacing among modules are addressed regarding compatibility in hardware and software, and as a result a personal robot platform named DHR I is built. The robot is composed of five modules such as brain, mobile, sensor, vision, and user interface modules. Each module can be easily plugged in the system in a mechanical as well as electrical sense by sharing the communication protocol with IEEE1394 FireWire. &n...
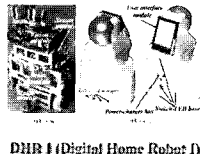
DHR I (Digital Home Robot I)

11:10 – 11:30   **SA03-4**

Stationary position control of a wheeled blimp

Mihee Nam, Sungchul Kang, Seong-sik Yoon(KIST, KOREA), Takashi Tsubouchi(Univ. of Tsukuba, JAPAN)

This paper describes a stationary position control of a wheeled blimp. The wheeled blimp is composed of a blimp filled with helium gas and a wheeled vehicle part. The wheeled blimp is designed to enable both flying in the air and standing on the floor. The wheeled blimp stands on the floor keeping its balance. However, it is difficult for the wheeled blimp to maintain a stationary position in standing phase since the stationary blimp system responds sensitively to air current even in indoor environments. In order to keep the stationary position restraining motion caused by an uncertain airflow, a position controller for the wheeled blimp is needed. Controller design based on dynamic m...

11:30 – 11:50   **SA03-5**

Mobility Analysis of Closed-Chain Mechanisms with Lack of Geometric Generality

Byung-ju YI, Dong YI(Hanyang Univ., KOREA), Wheekuk Kim(Korea Univ., KOREA)

●Mobility analysis for overconstrained mechanisms is not clearly explained.
●Aims at mobility analysis of overconstrained mechanisms
●Representative screws is employed as a tool
●A method to identifying the representative screw is introduced
●Mobility analysis for several overconstrained parallel mechanisms and mobile robots

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11:50 – 12:10   **SA03-6**

Functionally Distributed Modular Robot System using Virtual Machin

sinwook Ryu, kwangwoong Yang, hongseok Kim, hogil Lee(KITECH, KOREA)

●Functionally modularized robot
●Free from defects of monolithic system
●Modularization based on Reactive paradigm
●Virtual Machine
●Network topology
●Fractionization of robot development scheme
●Development for commercialization of personal robot