D-FMP01

Domestic Poster Session

13:00-13:50   **Chair : Huh Uk-Youl (Inha Univ.)**
Room : Terrace(3F)   **Co-Chair : Kim In Won (Konkuk Univ.)**

13:00 – 13:50   D-FMP-19

Obstacle-Avoidance System for Redundant Field Robot

Park Chan Ho, Hwang Jea Suk, Lee Byung Ryoung, Yang Soon
Yong, Ahn Kyung Kwan
(Univ. of Ulsan)

In this paper, a motion control algorithm is developed using a fuzzy control and the optimization of performance function, which makes a robot arm avoid an unexpected obstacle when the end-effector of the robot arm is moving to the goal position. During the motion, if there exists no obstacle, the end-effector of the robot arm moves along the pre-defined path. But if there exists an obstacle and close to the robot arm, the fuzzy motion controller is activated to adjust the path of the end-effector of the robot arm. Then, the robot arm takes the optimal posture for collision avoidance with the obstacle. To show the feasibility of the developed algorithm, numerical simulations are carried out with changing both the positions and sizes of obstacles. It was concluded …

13:00 – 13:50   D-FMP-20

Development of automatic measurement method of concentricity and roundness using image processing technique

Hyung-Wook Moon, Kyung-Moo Huh
(Dankook Univ.)

In this paper, we suggest an algorithm for the automatic measurement of concentricity and roundness using image processing technique. From the experimental results, we could find that the required measurement accuracy specification is sufficiently satisfied using our proposed method.

13:00 – 13:50   D-FMP-21

A Study on the Fabrication of Micro Actuator for Smart Catheter using Shape Memory Alloy

Min-Sung Kim, Doo-Hwan Park, Sang-Koo Sung, Jong-Won Jung,
Joon-Tark Lee
(DongA Univ.)

A SMA actuator fabricated in this paper generates the large force and it's structure is very simple. The SMA actuator was fabricated by small size with diameter of 9mm and length of 27mm and also it's actuations toward all the directions can be acquired because of three springs which was fabricated with diameter of 2.4mm and 28 turns, We showed into applicability to smart catheter by analyzing accurately the dynamic characteristics such as heading angle, force, displacement.

13:00 – 13:50   D-FMP-22

Development of Measurement System of Moving Distance Using a Low-Cost Accelerometer

Seong-Yun Cho, Jin-Ho Kim, Chan-Gook Park
(Kwangwoon Univ.)

In this paper, a measurement system of moving distance is developed. The error compensation method is also proposed using the characteristics of walking motion. As personal navigation systems and multimedia systems are emerging into the commericial market, men's moving distance is considered as one of the important information. GPS offers the information easily but GPS can be used only when the satellites are visible. INS can calculate the moving distance anywhere but error is increased with time due to the sensor bias. In this paper, to detect the human walking distance a measurement system of moving distance only using low-cost accelerometer is developed. The sensor bias is estimated and compensated using the walking motion characteristics. The performance of the proposed system is verified by experiment.

13:00 – 13:50   D-FMP-23

Discrete-time Sliding Mode Control with Input Shaping for flexible systems

Lim Hyun Woo, Chung Chung Choo
(Hanyang Univ.)

This paper presents a discrete-time sliding mode control method for linear time-invariant systems with matched uncertainties. In this paper, we suggest a method of adding a command generator using input shaping filter to a discrete-time sliding mode controller. We design the number of steps required to reach the sliding layer and the magnitude of a control input, respectively using the shaping filter. Therefore we can minimize the excitation of the resonance mode and increase the tracking performance of a system. Simulation results are included to show its effectiveness.

13:00 – 13:50   D-FMP-24

Remote Measurement for ECU Self Diagnostic Signals

Lee Seong-Cheol, Jeong Jin-Ho, Yun Yeo-Hung, Lee Young-Chun,
Kwon Tae-Kyu
(Chonbuk National Univ.)

On-Board diagnostic systems are installed in passenger cars and light trucks on today. During the 1970's and early 1980's manufacturers started using electronic means to control engine functions and diagnose engine problems. This wa primarily to meet EPA emission standards. The CARB requires that, by model year 1996, all vehicle sold in California contain a certain minimum "On-Board Diagnostic" capability to diagnose emissions-related failures of the engine control system. Thesse diagnostic requirements have been designated as OBD with a goal of monitoring all of the emissions-related components on-board the vehicle for proper operation. Part of the intent of CARB's OBD program is that a single diagnostic tester can be used to read the diagnostic information from any OBD-compliant vehicle. A tester which….