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-07

A Study on the load control using electric inertia

Gil-Dong Kim, Hyun-Jun Park, Young-Jae Han, Dong-Yuk Jang, ,
Jung-Min Jo
(KRRI)

A propulsion system apparatus is needed for a railroad vehicle to test and estimate propulsion performance. The electrical inertia simulator to facilitate the development and testing of propulsion systems, is presented in this paper. It is based on a vector-controlled induction motor drive supplied from the AC mains through a double PWM converter that provides desirable features such as bi-directional power folw, nearly unity power factor and low harmonic factor at the Ac mains. A theoretical analysis is first presented, followed by a detailed simulation study to assess the overall system performance under dynamic conditions.

13:00 – 13:50   D-FMP-08

Development of Capacitance Measuring Equipment for Electrostatic Precipitator

Kim Seung Min, Lee Sung Jin, Nam Jung Han, Cho Chang Ho
(DHIC)

Since pulse energization can improve the performance of Electrostatic Precipitator(ESP) for high resistivity dusts, high voltage micro-pulse generators, 70kV 140usec duration pulses for instance, are commonly developed by LC resonance for most pulse powered ESPs. Consisting of discharge electrodes and collecting electrodes, ESP has its own capacitance like a capacitor. ESP's capacitance affects the LC resonance phenomenon with resonance inductor and capacitor of micro-pulse power supply, engineers should acquire the value of their ESP to design for proper power supply design. In this study, we describe the ESP's capacitance measuring device which has the same topology with our new developed micro-pulse power supply. In this microcontroller based capacitance measuring equipment, ESP's capacitance can be calculated easily through ...

13:00 – 13:50   D-FMP-09

A study on the speed control of induction motor using Neural Network

Young-Jae Han, Hyun-Jun Park, Gil-Dong Kim, Dong-Uk Jang, Su-Gil Lee, Jung-Min Jo
(KRRI)

In this paper, we proposed that the speed of induction motor is controlled by a PI controller, which could control unknown motor using Neural Network for auto-tuning of the PI parameter. The parameters of the PI controller were adjusted to reduce the speed error of the controlled motor. The input parameters of the Neural Network controller are the speed, q-axis current, and speed reference of the induction motor respectively. The usefulness of proposed controller will be confirmed by simulation which we compare with conventional PI controller.

13:00 – 13:50   D-FMP-10

A Study on Improvement of Automatic Vehicle's Comfortability using Fuzzy Controller

Bae Jong Il, Park H.S, Yeon-Wook Choi, Hwnag Yeong-Yeun, Ha M.K.
(PKNU)

Based on fuzzy logic algorithm this paper constructed fuzzy logic controller for automated vehicles. For passenger's convenience especially comfortability controller need to reduce the frequency of input variable's changing. So we established membership functions for comfortability as well as speed following. It made possible to control comfortability directly. To demonstration the efficiency of fuzzy logic ontroller, we carried out simulation with a automobile's transfer function. First, we designed the PID controller by using Ziegler-Nichols tunning method. Second, we calculated time response for each controller, then we compared the speed patterns of fuzzy controlled system and PID controlled system. Also we compared the difference of input variable.....

13:00 – 13:50   D-FMP-11

A Study on Arc Force Sensor for a Robotic Welding Control System

Son Joon Sik, Kim Ill Soo, Choi Seung Gap, Kueon Yeong Seob, Lee Duk Man
(Mokpo Univ.)

This paper presents investigation of an arc force sensor for a robotic welding control system. Arc force sensor is employed in this research to monitor the bead geometry of the arc welding process. Arc force sensor mounted at the end of the robot wrist was employed to measure the arc force applied to the weld. Experimental configuration for measurement of arc force was used to quantify the changes in the arc force distributions of the plate being welded. A relationship between the bead dimension and the arc force distributions was established. The sensor information was used to establish a relationship between welding current and arc force. Arc force sensor have shown to be one of the most sophisticated technique to monitor perturbations that occurred during robotic arc welding process.

13:00 – 13:50   D-FMP-12

Development of a Robot arm capable of recognizing 3-D object using stereo vision

Sungjin Kim, Seungjun Choi, Hongphyo Park, Sangchul Won
(POSTECH)

In this paper, we present a methodology of sensing and control for a robot system designed to be capable of grasping an object and moving it to target point. Stereo vision system is employed to determine to depth map which represents the distance from the camera. In stereo vision system we have used a center-referenced projection to represent the discrete match space for stereo correspondence. This center-referenced disparity space contains new occlusion points in addition to the match points which we exploit to create a concise representation of correspondence an occlusion. And from the depth map we find the target object's pose and position in 3-D space. To find the target object's pose and position, we use the method of the model-based recognition. Using standard computer graphics techniques, a virtual ......