

TM03-1

A study of web-based remote control systems using Java language

Chuloh Park, Insung Song, Kyungkwan Ahn , Soonyong Yang, Byungryong Lee(Univ. of Ulsan, KOREA)

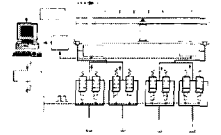
Recently, increased accessibility to the Internet makes it possible to access to Internet-connected devices easily. For this reason, anyone can reach and command any device that is connected to the network. But these teleoperation systems have several problems like the network time delay, data loss and development cost of an application for communication with each other. The network time delay phenomenon is the most important in teleoperation system, which disturbs a real time control. The loss data also causes some users not to send correct commands to device or not to receive correct information from devices. To develop an application to communicate between user and device, it needs a comp...

TM03-2

Intelligent control of pneumatic actuator using On/Off solenoid valves

Insung Song, Sungman Pyo, Kyungkwan Ahn, Soonyong Yang, Byungryong Lee(Univ. of Ulsan, KOREA)

This paper is concerned with the accurate position control of a rodless pneumatic cylinder using On/Off solenoid valve. A novel Intelligent Modified Pulse Width Modulation(MPWM) is newly proposed. The control performance of this pneumatic cylinder depends on the external loads. To overcome this problem, switching of control parameter using artificial neural network is newly proposed, which estimates external loads on rodless pneumatic cylinder using this training neural network. As an underlying controller, a state feedback controller using position, velocity and acceleration is applied in the switching control the system. The effectiveness of the proposed control algorithms are demonstrated...



on/off solenoid valve, load estimation, MPWM, Artificial neural network

TM03-3

A Development of the Power Conditioning Technique for Grid-connective PV Power Systems

S.H Ko, S.R Lee, S.S Kim(Kunsan Nat'l Univ., KOREA)

- Introduction
- Grid-connected power system
- Current Control
- Simulation
- Conclusion

TM03-4

Implementation of (RSF + RPP) PWM Inverter for reducing Harmonics

SangMok Ha, WooYong Han(Jeonju Tech. College, KOREA), Chang-Goo Lee, SeongJoong Kim(Chonbuk Nat'l Univ., KOREA)

In this paper, RSF+RPP(Random Switching Frequency Randomized Pulse Position) PWM for three-phase voltage-controlled inverter is proposed. The LLPWM(Lead-Lag PWM) technique is that three switching pulses are located randomly back and forth in each switching interval . But with the restriction of random distribution, the harmonic spectrum cannot be dispersedly and continuously distributed. To tackle this problem, First, the switching frequency is varied randomly. Next, the duty ratio is calculated under the first circumstance. Finally, the switching pulses are located randomly in the switching interval. To verify the validity of the proposed technique, simulation study is tried using Matlab/Si...

TM03-5

A Recognition Method for the Step Movement of A Control Rod in Nuclear Power Plants

ChoonKyung Kim, SeogJoo Kim, JongMoo Lee(KERI, KOREA), JangMyung Lee(Busan Nat'l Univ., KOREA), SoonMan Kwon, JongMin Cheon(KERI, KOREA)

- Introduction
- Description of Prototype CRDM
- Theoretical Approach for estimating the gap variation between lift pole and lift armature
- Experimental Setup
- Experimental Results
- Conclusions

TM03-6

Development of Intelligent Force Reflection Joystick using Pneumatic Motor

Sungman Pyo, Insung Song , Kyungkwan Ahn, Soonyong Yang, Byungryong Lee(Univ. of Ulsan, KOREA)

In teleoperation robotic system such as hydraulically actuated robotic excavator for dangerous area, the maneuverability and convenience is the most important part. Particularly the force information is important in dealing with digging and leveling operation in the tele-operated excavator. Excavators are also subject to a wide variation of soil-tool interaction forces. This paper proposes a new force reflecting joystick using pneumatic motor and a new algorithm for selecting force-reflecting gain in a velocity-force type bilateral teleoperation system. The master system is electrical joystick with the same structure of that of real excavator. Particularly Pneumatic motor is used newly in...