# D-FMP02 Domestic Poster Session

**14:00-14:50** **Chair : Huh Uk-Youl (Inha Univ.)**
**Room : Terrace(3F)** **Co-Chair : Kim In Won (Konkuk Univ.)**

**14:00 – 14:50** **D-FMP-37**

### A Development of Carrier Phase DGPS Aided with INS

Lee Kiwon, Lee Jaeho, Seo Hungserk and Sung Taekyung
(Chungnam National Univ.)

When the signals from satellite vehicles are blocked, it is impossible to provide positioning information. Integrating CDGPS with INS, the performances of output can be greatly improved. In the CDGPS/INS integrated system, the error growth in INS can be efficiently suppressed due to CDGPS. On the contrary, the search range of integer ambiguities can be reduced with the aids of INS. Furthermore, cycle slips in carrier phase measurements can be easily detected using INS. The paper presents a CDGPS/INS integrated system that utilizes CDGPS aided with INS. Using the outputs of CDGPS/INS integration filter, a method to reduce search range of integer ambiguities is proposed. A method to detect cycle slips in carrier phase measurements is ...

**14:00 – 14:50** **D-FMP-38**

### Remote Fuzzy Logic Control of Networked Control system in Profibus-DP

Lee Kyung Chang and Lee Suk
(Pusan Univ.)

This paper focuses on the feasibility of fuzzy logic control for networked control systems. In order to evaluate its feasibility, a networked control system for motor speed control is implemented on a Profibus-DP network. The NCS consists of several independent, but interacting processes running on two separate stations. By using this NCS, the network delay is analyzed to find the cause of the delay. Furthermore, in order to prove the feasibility, the fuzzy logic controllers performance is compared with those of conventional PID controllers. Based on the experimental results, the fuzzy logic controller can be a viable choice for NCS due to its robustness against parameter uncertainty.

**14:00 – 14:50** **D-FMP-39**

### Real-Time Performance Evaluation of Network in Ethernet based Intranet

Pae Duck Jin and Kim Dae Won
(Myoungji Univ.)

This paper analyses the real-time performance of Ethernet based intranet whether it is applicable to the real-time network. Unpredictability of transmission delay by collision-delay-retransmission mechanism in CAMA/CD(Carrier Sense Multiple Access with Collision Detect) of Ethernet is the major reason making hard to apply to real-time system. Both retransmission mechanism of TCP(Transmission Control Protocol) for reliability and sliding windows algorithm for high utilization make hard to predict transmission delay. Because real-time control network require fast responsibility and bustle of short-periodic messages, global-clock for collision avoidance and UDP(User Datagram Protocol) for high utilization of network are used. The mathematical models for time-delay that can be occurred between ...

**14:00 – 14:50** **D-FMP-40**

### Optimization for the Composition of Assembly Cell in the Optical-Components System

Kim Sok Ha, Kim Young Ho, Seung Gweon Jeong, Lee Man Hyung
(Pusan Nnational Univ.) Bea jong Il(Pukyoung Univ.)

In the paper, a Visual factory model for a optical-components manufacturing process is built. The optical-components manufacturing process is composed of 3 operation processes; optical sub assembly process, package assembly process, and fiber assembly process. Each process is managed not a batch mode, which is one of most popular manufacturing styles to produce a great deal of industrial output, but though a modular cell. In the processes, a modular cell has to be processed independently of the other cells. Optimization for the composition of assembly cell in the optical-components system is made by the Visual factory model.

**14:00 – 14:50** **D-FMP-41**

### Performance Evaluation of Switched Ethernet for Real-time Industrial Network

Kim Tae Jun, Lee Kyung Chang, Kim Do Hyung and Lee Suk
(Pusan National Univ.)

The real-time industrial network, often referred to as fieldbus, is an important element for building automated manufacturing systems. Thus, in order to satisfy the real-time requirements of field devices such as sensors, actuators, and controllers, numerous standard organizations and vendors have developed various fieldbus protocols. As a result, IEC 61158 protocol including Profibus, WorldFIP, and Foundation Fieldbus is recently announced as an international standard. Many fieldbus protocols have an important advantage over the widely used protocols such as Ethernet (IEEE 802.3) in terms of the deterministic characteristics of the fieldbuses. However, the application of fieldbus has been limited due to the high cost of hardware and the difficulty in interfacing with multi-vendor products. In order to solve these problems, computer network ...

**14:00 – 14:50** **D-FMP-42**

### Development of an Integrated Reactor UT Inspection System

Yoo Rark Choi and Jae Cheol Lee
(KAERI)

Reactor vessel is one of the most important equipment of Nuclear Power Plant (NPP) with regard to the nuclear safety. Thus reactor vessel must be examined periodically by certified experts. Currently, ultra-sonic(UT) non-destructive inspection is executed on reactor vessel. Two different techniques are used in this inspection. One is using the movable manipulator fixed with the support-guide placed on the vessel, and the other is using mobile robot moving in the vessel. Movable manipulator machine is very heavy, hard to handle, and very expensive. Mobile robot equipment is small and convenient but has a weak point on positional precision. To solve these problems we developed a reactor inspection system based on laser-driven mobile robot. This paper describes the main concept and structure of integrated inspection units and the feature of implemented units.