Development of a Guide Robot with Real-Time Linux OS
Mun Hak-Jun, Seo Yeon-Gon and Kim Jin-Oh
(Kwangwoon Univ.)

A new method for a guide robot using Real-Time Linux OS is introduced in this paper. A guide robot is to guide people in museums or buildings. So it has to be more reliable and stable in its control system. In addition, it has to satisfy Real-Time operation requirement because it needs to react to changing environment promptly. The task includes localization, map building, collision avoidance, path planning, and user interface software. The modular guide robot is designed with Real-Time Linux OS, which is composed of many open sources for scheduler, interrupt dispatcher, fios, shared memory, timer services. We developed application software to satisfy the given task. The developed guide robot moves at 0.2m/s and the interrupt latency is less than 100us. It is thought that the developed system can be a stable and low cost open architecture robot controller for ...

16:00 – 16:20     D-FE02-3
On the ZMP of biped robot (Visualization of ZMP)
Sang-Hak Sung, Youngh-Yi Youm, Wan-Kyun Chung
(POSTECH)

Many locomotion purpose robots are being built and are under research such as mobile manipulator and biped humanoid robot, etc. Dynamic posture stability of these robots is based on the ZMP point. For getting stable ZMP trajectory, some method has been developed but is too complex and time consuming which leads to inability in generating on-line ZMP trajectory. In this paper, we give a qualitative study about behavior of ZMP in biped walking robot through visualization. This result gives intuitive understanding about behavior of ZMP under various robot state.

16:40 – 17:00     D-FE02-5
Reliability Analysis of Underwater Mobile Robot for Automated Reactor Inspection using Bayesian Belief Nets
Eom Heung Seop and Kim Jae Hee
(KAERI)

This paper proposes a method that combines diverse evidence relevant to the reliability to evaluate the reliability of complicated systems such as robots. In practice, reliability experts combine diverse evidence relevant to the reliability and infer the answers by using their own way that are mostly informal. The proposed method also combines diverse evidence and performs inferences but informal and quantitative way by using the benefits of Bayesian Belief Nets (BBN). Diverse evidences could be those from classical analysis techniques, test results, quality assurance about the process of manufacturing, and the quality of the company or development team, etc. Some of these evidences are qualitative and others are quantitative. Both are ...