TA07

Robot Navigation

09:00-11:00 **Chair1 : Jae-Bok Song (Korea Univ., Korea)**
Room : 1st Floor-Seefeld **Chair2 :**

09:00 – 09:20 **TA07-1**

GPS/DR based train vehicles tracking in steel works

chel no Park, gyuin Jee(POSCO, KOREA)

In steel works, Locomotives and torpedo ladle cars are used to convey the smelted iron that comes out Blast Furnace to the mill making mill. In this process, Identification of the vehicles position is very important because the area is broad and efficient operation affects a productivity and investment. At present condition, there are many ways to use to identify the vehicles number and position. This paper will present the new ways using GPS/DR based method. For this, we practiced the site test to gather the real data. First, we collect the velocity data at the wheel of the vehicles with the direction data via process computer. Second, after installing the gyroscope we gathered the data wit...

09:20 – 09:40 **TA07-2**

A New Technique To Escape Local Minimum In Artificial Potential Field Based Path Planning

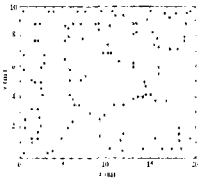
Min Gyu Park, Min Cheol Lee(Pusan Nat'l Univ., KOREA)

1. Introduction
2. Potential theory and Local minimum problem
3. Discrete modeling method
4. Virtual obstacle concept and extra potential function
5. Simulations
6. Conclusions

09:40 – 10:00 **TA07-3**

Global Topological Map Building Using Local Grid Maps

Chang-Hyuk Choi, Jae-Bok Song(Korea Univ., KOREA), Woojin Chung, Munsang Kim(KIST, KOREA)

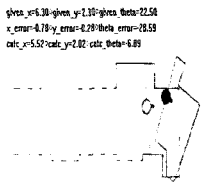


- The topological map using a thinning needs much simpler computation than that using a Voronoi.
- A thinning can provide much information on the environment (additional nodes).
- Each node created in a local map is considered as temporary and redundant nodes are discarded.
- A global topological map can be built fast and correctly through a thinning algorithm.
- Path planning can be easily achieved with a topological map.

10:00 – 10:20 **TA07-4**

A Fast Map-matching Method using a Laser Range Finder

Jung-Hyun Moon, Bum-Jae You, Sang-Rok Oh(KIST, KOREA), Hagbae Kim(Yonsei Univ., KOREA)



We propose a fast map-matching algorithm based on the length and the slope for the sequence of lines extracted from a laser range finder and a map. After finding two feature set from laser data and a map, the position and heading of the mobile robot can be determined exactly.

10:20 – 10:40 **TA07-5**

Design of DSP filter for the integration the driving simulator system with unmanned vehicle

young hoon park, Duk Sun Yun, Byung Wook Seo, Jung Ha Kim(Kookmin Univ., KOREA)

1. Introduction
2. System Configuration
3. Performance Evaluation
4. conclusion
5. Acknowledgment