

Welcome lecture

A Robot Controller Architecture for Performing Tasks in Remote Maintenance system

Kyoichi Tatsuno

Professor, Meijo University



Friday, December 11, 17:00 – 17:30

Reception Hall (15th Floor of Tower 75)

We propose a robot controller architecture for remote maintenance robot systems which perform tasks with task level instructions, for example, “grasp the bolt” and “insert the bolt into the hole”. In this lecture, we will introduce the proposed controller architecture and experiment on task performance of “grasp the bolt on tool box”

The proposed architecture is shown in Fig.1. It is composed of 7 agents. The Human Robot Interface (HRI) has the Graphical User Interface, a Master arm, and a Joystick. By clicking the bottom operators direct tasks, for example “grasp the bolt on tool box”

The command issued by the HRI is then transferred to the task planner. When Task Planner (TP) receives the command, TP run the task execution program for “grasp the bolt on tool box”. TP distributes the processes for executing the program to Arm controller (AC), Tool controller (TC), Vehicle controller (VC), Vision (VS), and CG.

AC moves the arm when it receives the move commands. TC drives the gripper and impact wrench. VC moves the vehicle. VS recognizes the bolt and gripper and tracks them. CG draws the CG arm, the CG tools, the CG vehicle, the CG camera in the CG environment. The CG agent has all data for the robot system and work environment.

We fix functions in 7agents of our architecture because robots are composed of those subsystems and we have always been developing those element technology. We can take the technology into our robot controller with no difficulty.

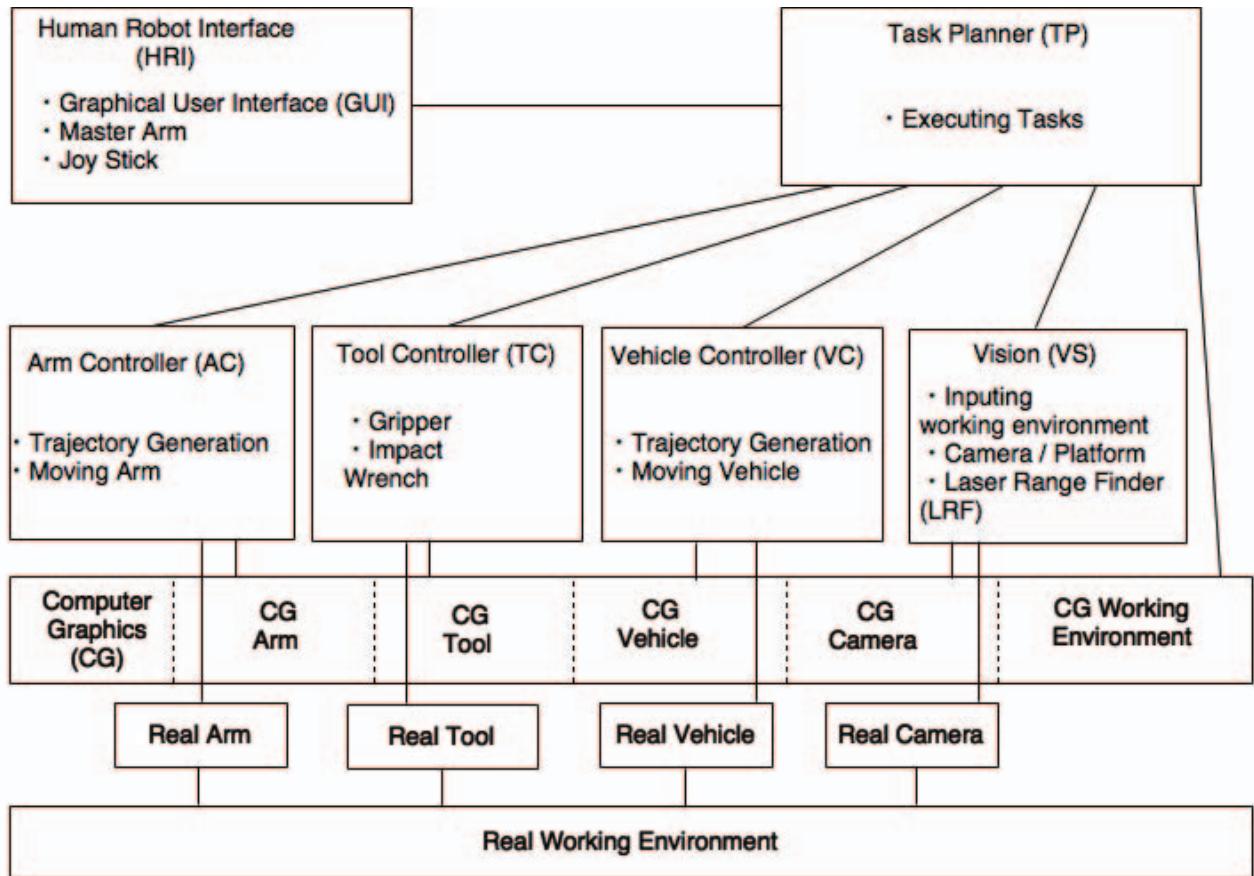


Fig. 1 Architecture for the proposed robot controller

Prof. Kyoichi Tatsuno was born in Osaka, Japan on Jan. 1, 1950. He received his B. E. degree in 1972 and his Doctor of Engineering degree from Osaka University in 1988. He joined Research & Development Center, Toshiba Corporation in 1973, and moved to Meijo University in 2001. He has interests in robot controller and sensing system for remote maintenance robots. He received Technical Award from SICE Japan in 1986, a remarkable invitation award from Science and Technology Agency, Japan in 1986, and Technical innovation award from RSJ, Japan in 1997. He is a member of IEEE, IEE Japan, SICE Japan, RSJ Japan, JSME Japan.