

Motion Generation of Humanoid Robots and Development of Robot Control Systems

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Illustration

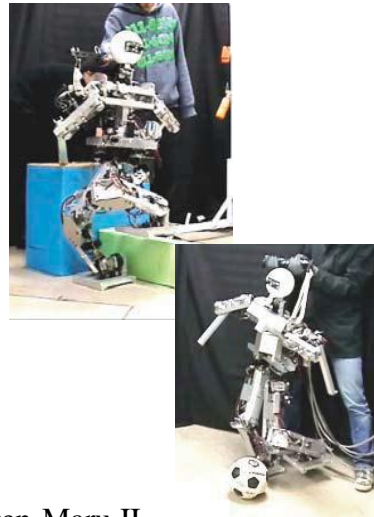
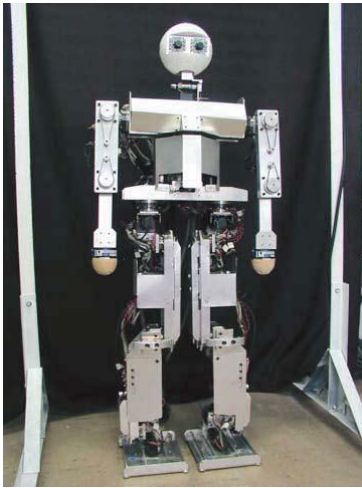


Fig.1 Bonten-Maru II



Fig. 2 HIRO



Fig. 3 Robot control board

Content :

We research humanoid robots that work in human living environment. Based on the kinematics and dynamics of those robots, we develop the method to carry out various motions to overcome various obstacles. The control methods are developed so that the method can be easily applied to the robot using its sensory information. Fig.1 shows a humanoid robot that has two 6-DOF(Degree Of Freedom) legs, two 3-DOF arms, a 2-DOF neck and a 1-DOF waist. Using its joints, the robot realizes the motion like human. Because DOFs and joint torque of humanoid robots are smaller than those of human, efficient motion planning is required for the robots.

We also begin to use a new humanoid robot shown in Fig. 2 developed by Kawada Industries Inc. for the research of corporation between human and robots.

To realize efficient development of robot control systems, we develop robot control boards shown in Fig.3. We also develop the robot control system using Linux and study the system using a PC and multiple micro control units.

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