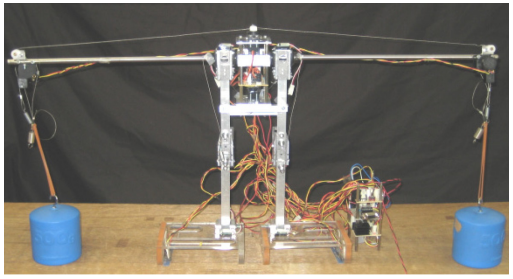
Mechanism and control of mobile robots

Professor Kazuhisa (Kaz) Mitobe

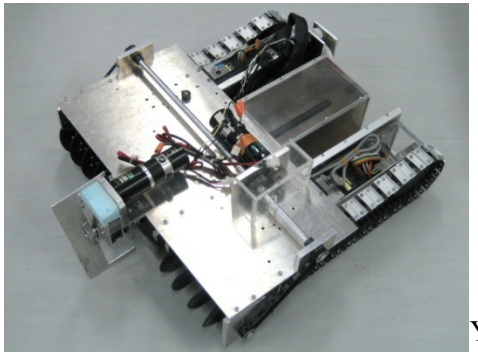
(1) Causal CPG approach for ZMP control of biped robots



ZMP control by using a spring-mass system

Passive dynamic walking mechanism

(2) Snow eater robot



Snow sweeping screw mechanism

Yuki Taro robot at EXPO 2005 (Collaborative project with Niigata prefectural office)

Content :

(1) Mechanics and control of biped walking robots.
ZMP (center of foot pressure) controller by using a spring-mass oscillator,
- controls the lateral ZMP position without COM (center of mass) position change,
- generates gait without position planning and strict trajectory control.

(2) Small sized autonomous snow eater robot.
With a goal of fully autonomous snow eater robot, we are experimentally studying on,
-low power and slow speed snow sweeper mechanism and control systems,
-robust navigation system under severe winter conditions.

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