

Questionnaire

Kidsize Darmstadt Dribblers and Hajime Robots and Teensize Darmstadt Dribblers

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1 Photos

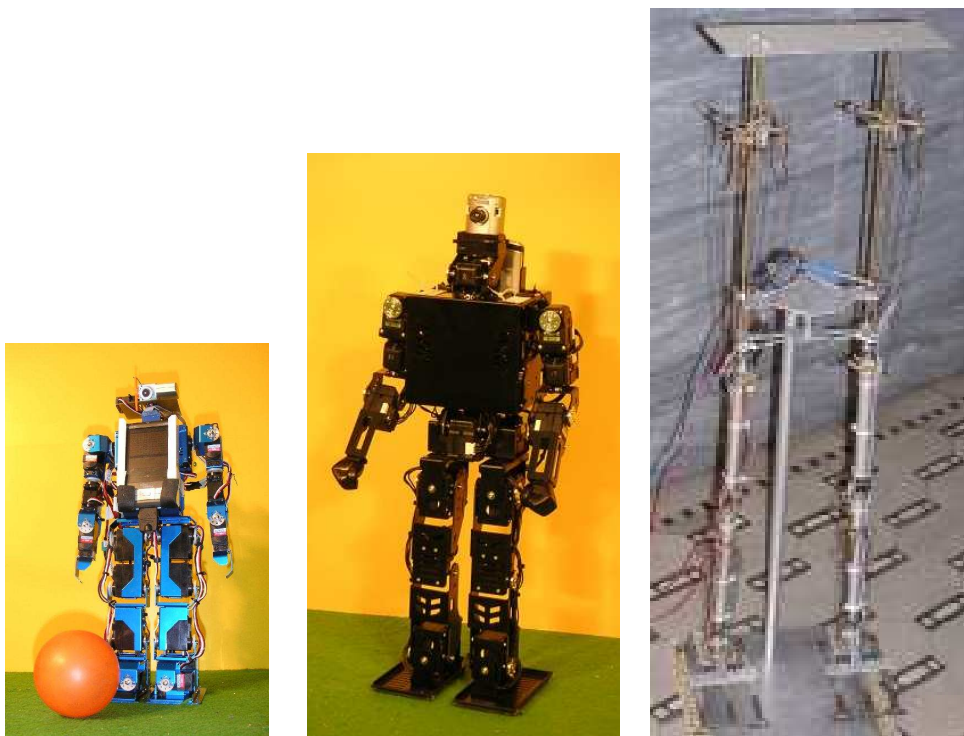


Fig. 1. Mr. DD Junior 2, Mr. DD HR18 and Mr. DD SMA (from left to right).

2 Technical Data

2.1 KidSize

Robot system:	Mr. DD HR18 (HR 18)	Mr. DD Junior 2 (YDH-EZA)
Height [cm]:	55	37.5
Weight [kg]:	4.5	1.5
Walking speed [m/s]:	0.2	0.05
Running speed [m/s]:	-	-
Actuators:	Servo Motor DX-117	Servo Motor KRS-2350 ICS Red Version
Torque [kg-cm]	33.0	29.5
Speed [sec/60°]	0.126	0.13
Degrees of freedom:	24 in total with 6 in each leg, 4 in each arm 2 in waist, 2 in neck	22 in total with 6 in each leg, 4 in each arm, 2 in neck
Sensors:		
Camera	Philips ToUCam Pro	HP PhotoTraveller
Resolution	320 x 240	160 x 120
Color space	YUV	RGB
Frame rate [fps]	< 10	< 10
Angle [°]	35 resp. 90	35
Joint Angle Encoder	24	21
Accelerometer	Crossbow, CXL04LP3, 3 axes rate 10 ms	n/a
Gyroscope	SSSJ, CRS03-04, 3 axes rate 10 ms	n/a
Control frequency [ms]	10	40
Micro Controller Board:		Motion Processor
Manufacturer	Hajime Research Institute Ltd.	Kondo
Processor	32bit μ C SH2/7145	?
Speed	50 MHz	?
Onboard PC:		
Manufacturer	Acer n50 Premium	Fujitsu Siemens Pocket PC 420
Processor	Intel PXA-272	Intel PXA 255
Speed	512 MHz	400 MHz
Operating system:		Windows CE
Network:		Wireless LAN
Batteries:	Li-Po 14.8 V, Ni-MH 6 V	Li-Po 7.2 V

Table 1. Technical data of both KidSize humanoid robots.

2.2 TeenSize

Robot system:	Mr. DD SMA
Height [cm]:	120
Weight [kg]:	4.5
Walking speed [m/s]:	0.5 m/s (in simulation)
Running speed [m/s]:	n/a
Actuators:	newly developed shape memory alloy actuators, 2 servo motors for head control
Torque [Nm]	1.8 (accumulated muscles in hip joint)
Speed [sec/60°]	60
Degrees of freedom:	16 in total with 6 in each leg, 1 in each arm 2 in neck
Sensors:	
Camera	Philips ToUCam Pro
Resolution	320 x 240
Color space	YUV
Frame rate [fps]	10
Angle [°]	35 resp. 90
Joint Angle Encoder	linear position encoder in each muscle
Accelerometer	Crossbow, CXL04LP3, 3 axes (planned)
Gyroscope	SSSJ, CRS03-04, 3 axes (planned)
Control frequency [ms]	10
Micro Controller Board:	
Manufacturer	newly developed board based on two Atmels (planned)
Processor	ATMEL 32
Speed	8 MHz
Onboard PC:	
Manufacturer	Acer n50 Premium
Processor	Intel PXA-272
Speed	512 MHz
Operating system:	Windows CE
Network:	Wireless LAN
Batteries:	Li-Po 14.8 V, Ni-MH 6 V

Table 2. Technical data of TeenSize robot Mr. DD SMA.