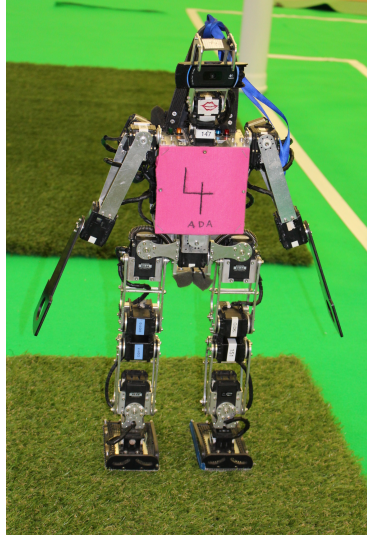
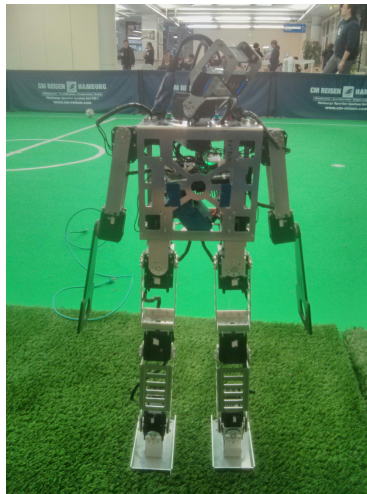


## Berlin United - FUmanoids Robot Specification Sheet 2017



Names	Alan, Ada, John, and Emmy
Height	65cm
Weight	4400g
Walking Speed	$\approx 20\text{cm/s}$
DoF	20 total (5 per leg, 2 in the hip, 3 per arm, 2 in the head)
Type of motors	10 Dynamixel RX-64 10 Dynamixel RX-28
Computing unit(s)	Central unit is an ODROID-X2 board with <ul style="list-style-type: none"><li>• Exynos4412 Prime Quadcore ARM Cortex-A9 at 1.7 GHz</li><li>• 2 GB RAM</li><li>• 8 GB eMMC</li><li>• 93 x 95mm</li></ul> Sensor and actuator communication unit with <ul style="list-style-type: none"><li>• one ARM Cortex M4 @ 168 MHz</li><li>• 196 KiB RAM</li><li>• 1 MiB flash</li><li>• 60 x 40mm</li></ul>
Camera	Logitech HD Pro Webcam C910 at 960x720
Additional Sensors	two 6 DOF IMU (gyroscope and accelerometer) Servo motor position feedback



Names	Curious Capacitor, Twisted Transistor
Height	73cm
Weight	4500g
Walking Speed	$\approx 25\text{cm/s}$
DoF	20 total (6 per leg, 3 per arm, 2 in the head)
Type of motors	6 Dynamixel MX-106 6 Dynamixel MX-64 8 Dynamixel MX-28
Computing unit(s)	Central unit is an ODROID-XU4 board with <ul style="list-style-type: none"> <li>• SAMSUNG Exynos 5422, Cortex-A15 &amp; Cortex-A7 big.LITTLE, Octa core at 2GHz</li> <li>• 2 GB RAM</li> <li>• 64 GB eMMC</li> <li>• 82 x 58mm</li> </ul> <p>Sensor and actuator communication unit with</p> <ul style="list-style-type: none"> <li>• one ARM Cortex M4 @ 168 MHz</li> <li>• 196 KiB RAM</li> <li>• 1 MiB flash</li> <li>• 60 x 40mm</li> </ul>
Camera	Logitech HD Pro Webcam C910 at 1280x720
Additional Sensors	two 6 DOF IMU (gyroscope and accelerometer) Servo motor position feedback