

igus Humanoid Open Platform: A Modular 3D Printed Humanoid Robot

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The use of standard platforms in the field of humanoid robotics can accelerate research, and lower the entry barrier for new research groups. Many standard humanoid platforms exist in the lower size ranges of up to 60cm, such as for instance the Nao and the DARwIn-OP, but beyond this, standard platforms such as the Asimo and Atlas robots quickly become significantly more expensive, and difficult to operate and maintain. At 90cm, the igus Humanoid Open Platform seeks to bridge the gap between these larger and smaller platforms. The robot is large enough to interact with a human-scale environment in a meaningful way, and is equipped with enough torque and computing power to foster research in many possible directions. The robot is entirely 3D printed and open-source. Aside from an appealing outward appearance, the main criteria of the robot hardware design were the simplicity of manufacture, assembly, maintenance and customization. This was achieved with the use of a modular design approach, greatly aided by the flexibility of the 3D printing process. The robot software is built on ROS, and comprises of a range of software modules, many of which are generic and reusable for other robotic platforms. The talk will address the main features of the mechanical, electrical and software designs of the robot, with a specific focus on the inherent modularity of the platform.

Links:

Platform page: <http://nimbro.net/OP/>

Software release: https://github.com/AIS-Bonn/humanoid_op_ros

Hardware release: <https://github.com/igusGmbH/HumanoidOpenPlatform>