

SeekurJr

Four-wheel, skid-steered mobile outdoor robot

System Description

The robot SeekurJr is based on the correspondend platform of the manufacturer „Adept/Mobile Robots“. It is a very robust outdoor system which can especially be used on uneven, e.g. rocky or sandy ground. The base platform was extended by several sensors plus a pan-tilt unit (see below). The system is used for the primary research tasks of autonomous self-evaluation and the detection of unspecified failures and disturbances, especially on sandy or uneven ground.

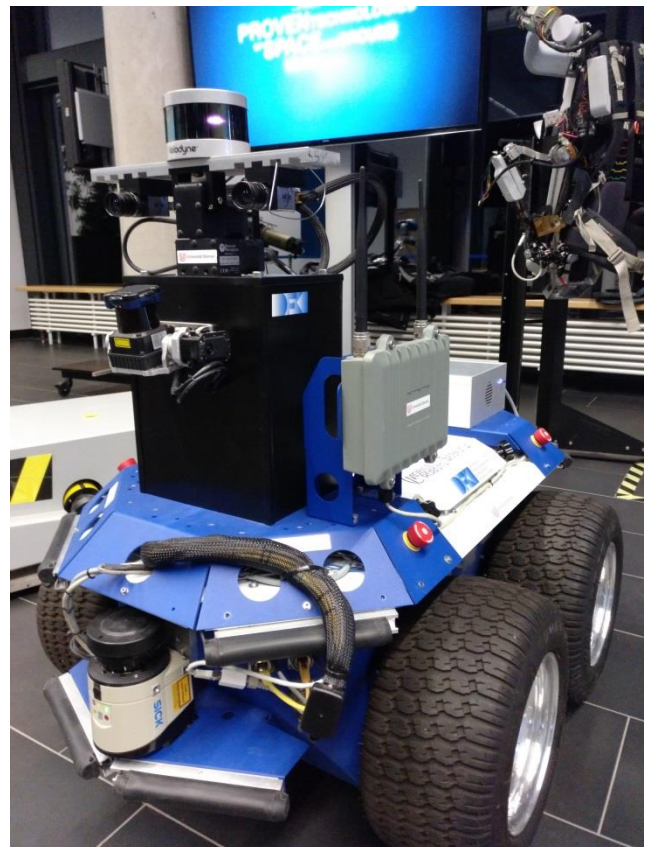


Technical Details

- **Size:** 1.05 m x 0.84 m x 0.5 m
- **Weight:** ca. 80 kg (base platform)
- **Runtime:** 3 hours (3 additional hours by second battery set, hot pluggable)
- **Actuation:** 2 motors (right / left, skid-steered)
- **Sensors:** 2 x IDS GB Camera, Velodyne 16 Laser scanner, Sick laser range finder (LRF), Hokuyo Laser scanner, inertial sensors (IMU)
- The two IDS GB Cameras are mounted as stereo system on a Directed Perception PTU (pan-tilt unit)
- A periodically tilting Hokuyo LRF for close proximity scans to detect obstacles
- The long-range Sick LRF allows a front and side view to generate maps
- Three PCs for autonomous control and perception. Besides navigation and plan execution, the autonomous control particularly includes the prediction of sensor values (generation of expectations) and the self-evaluation (detection of unexpected or unknown situations).
- The periph components are connected via two switches using Gigabit-Ethernet or USB.

Application: Space Robotics

Projects: **VirGo⁴**
Prediction systems in reactive groups of autonomous robots
(04/2011 – 06/2014)



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