

# Asguard v4

## Mobile Scout Robot

### System Description

The Asguard v4 is a leg-wheel hybrid which can be used in difficult outdoor environments. The system was designed on the basis of the predecessors in the Asguard series. The main improvement of the v4 system is in the modularity of the subsystems. Like the v3 version, Asguard v4 has a powerful on-board PC, which can be used to process the sensor data from the Laser-Range-Finder, the Cameras, IMU and RTK-GPS, so that the system can operate in unknown terrain. Asguard does not rely on an external power supply, but can operate for multiple hours with its on-board batteries. The system can be tele-operated via videolink, but also has the ability to autonomously explore unknown terrain and perform waypoint navigation with local obstacle avoidance. The powerful motors allow the system to carry payloads of multiple kg in mass. Additionally a standardized electro-mechanical interface enables the robot to carry a multitude of additional sensors.

### Technical Details

- **Dimension:** 0.935 m x 0.56 0m x 0.5 m
- **Weight:** 16 kg
- **Payload:** 5 kg
- **Runtime:** ca. 3 h
- **Actuators/Motors:**
  - 4 x DC-Motor: Faulhaber 3863 024 CR + planetary gear 66:1
  - Servo: Dynamixel Rx-28
- **Sensors:**
  - Laser Scanner: Hokuyo – UTM-30LX
  - Stereo Camera: 2 x Guppy F-036C / objektive: TS4124-4mm Pentax
  - IMU: Xsens Mti-28A53G35
  - D-GPS: GPS-702-GG Dual Frequency  
GPS+GLONASS Pinwheel Antenna
- **Communication:**
  - Mobile Router: ASUS WL-330N3G
  - Long Range radio RF Modem: AMBER Wireless AMB8385



**Application:** Space Robotics  
SAR & Security Robotics

**Projects:** **Entern**  
Space Exploration  
(01/2014 – 12/2017)  
**TransTerra**  
(05/2013 - 04/2017)  
**iMoby**  
Intelligent Mobility  
(04/2009 - 06/2012)



**Contact:**  
DFKI GmbH & University of Bremen  
Robotics Innovation Center

Director: Prof. Dr. Frank Kirchner  
Phone: +49 421 – 178 45 4100  
E-mail: robotik@dfki.de  
Website: www.dfki.de/robotics