

Coyote II

High Mobile Micro Rover

System Description

Coyote II is a micro rover with high mobility performance in various terrains. Equipped with its own power source, on-board sensor suite and computer it is able to perform autonomous exploration tasks. The communication subsystem allows to cooperate with other systems and provides a link for remote control. Due to the robust structural design and powerful actuators, Coyote II is able to carry several kilograms (> 6 kg) of payload.

A special characteristic of Coyote II is its novel locomotion concept. It combines the high mobility performance of hybrid legged-wheels (in the front) with the smooth wheel movement of spherical helical wheels (in the rear). Therefore, the scout rover is able to move on soft soil as well as on unstructured terrain and can perform side-to-side steering movements. It is however, possible to mechanically tilt the rear axis in a horizontal position allowing to operate Coyote II with four equally shaped wheels in the front and rear.

Technical Details

- **Size:** 850 mm x 516 mm x 415 mm
- **Weight:** 9.2 kg (excl. payload)
- **Power supply:** LiPo – 44.4 V; 2.1 Ah (primary battery)
- **Speed:** max. 0.65 m/s
- **4-Wheel drive:** Robodrive ILM 50x8 bldc-motor with Harmonic Drive gearing (100:1)
- **Laser range finder:** Hokuyo UTM-30XL
- **Stereo Camera:** 2 x AVT F33B (horiz. FoV: 118.6°)
- **IMU:** Xsens MTi-300 AHRS
- **Mobile access point:** 2.4 GHz, 802.11n
- **Remote control:** Bluetooth
- **On-board computer:** IntelCore i7-351UE, 1.7 GHz
- **Chassis:** Passive roll joint at rear axis
- **Front wheels:** Hybrid legged-wheels
- **Rear wheels:** Spherical helical wheels
- Double-decker structure based on sandwich sheets (aramid in combination with Arix)
- Mechanical tiltable rear axis



Coyote II equipped with full sensor suite including its soil sensor system payload developed by Surrey Space Center

Application: Space Robotics

Projects: **FASTER**
Forward Acquisition of Soil and Terrain data for Exploration Rover (11/2011 - 11/2014)



Coyote II with tilted rear axis, equipped with four hybrid legged-wheels