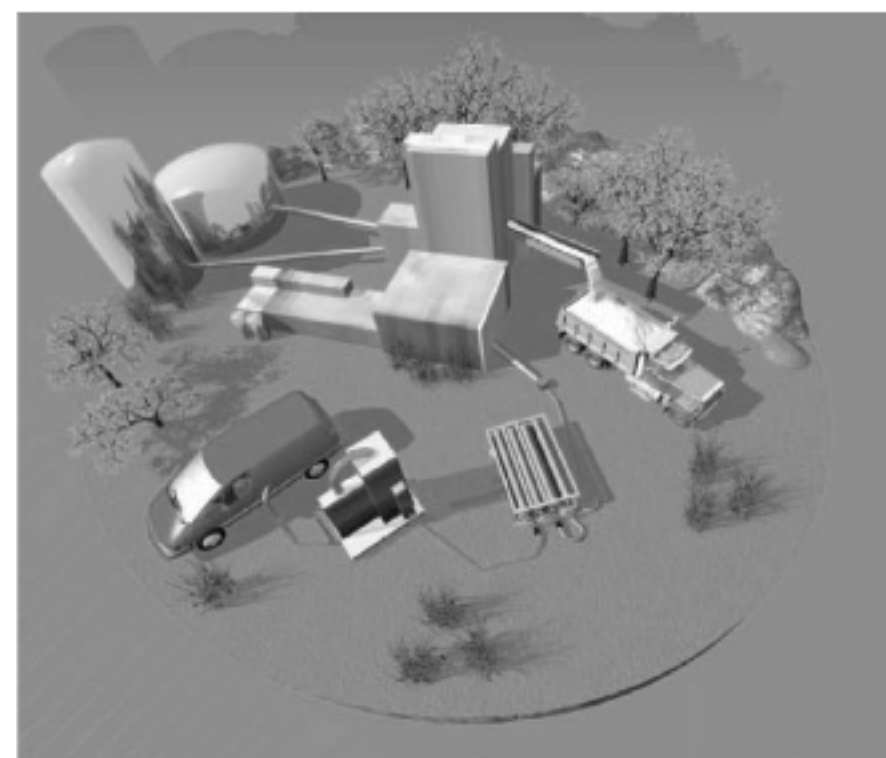
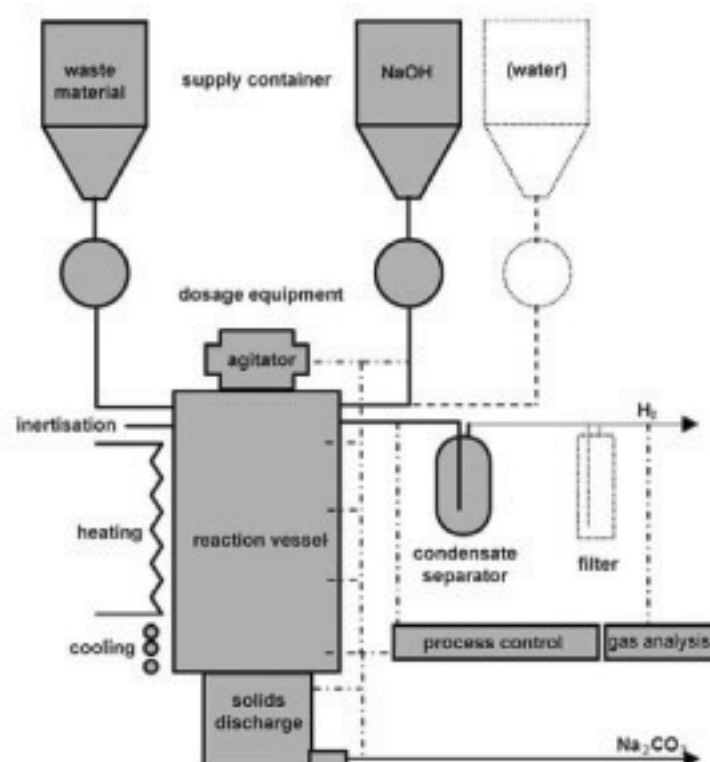


IN THE SPOTLIGHT

Hannover Messe Fair 21-25 April 2008

■ Luxotherm - OHC Polymer

During last international fair Hannover Messe 2008 Rolinger Group showed completely commercial equipment for hydrogen production from municipal waste i.e. PET bottles. The matter consists in processing the waste with addition of sodium base (NaOH) into hydrogen H_2 , sodium Na_2CO_3 and methane. Unfortunately, this reaction proceeds in temperature $800^\circ C$ that is causes of respectively high process of produced hydrogen. However this solution has a great advantage, which is using municipal waste and lack of CO_2 emission. Currently Rolluiger works on depression of temperature process.



Source: <http://www.rollinger.lu>

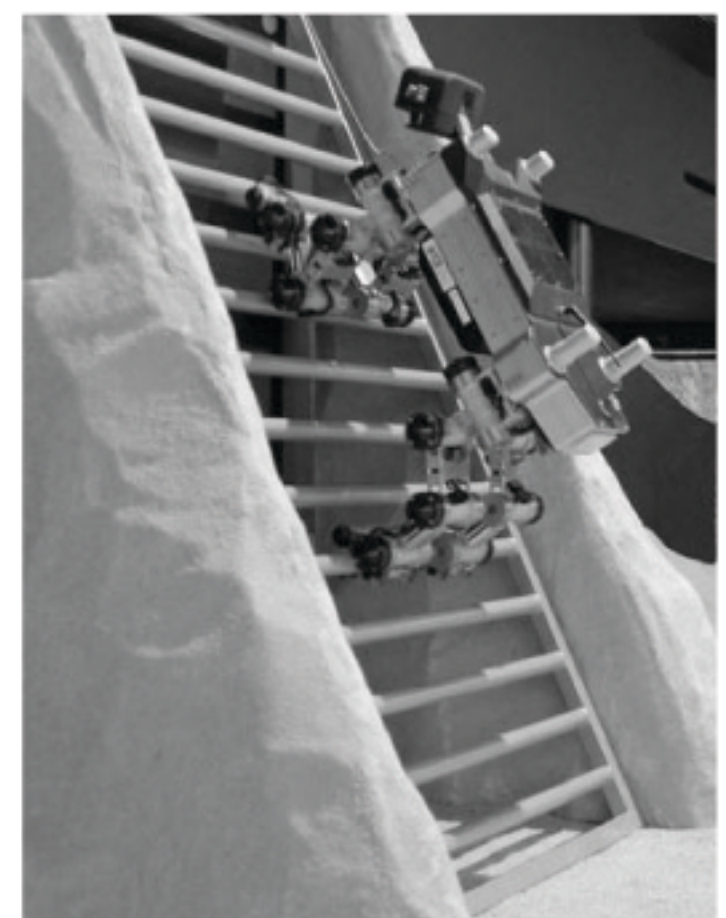
■ Ambulating Robot for Autonomous Martian Investigation, Exploration and Science

The goal of the ARAMIES project (sponsored by the *Deutsches Zentrum für Luft und Raumfahrt* and the *European Space Agency*) is to develop and program a multi-functional, multi-degree of freedom, autonomous walking robot for rough terrain, e.g., the slopes of Martian or Moon canyons and craters. It was constructed by Professor Frank Kirchner's team at the University of Bremen, Germany. In particular, the project is focused on very steep and uneven terrain, e.g., canyon or crater walls. It is expected that in-situ measurements in the different layers of sediments give new insights for the exobiology and exogeology.

The ARAMIES robot comprises 26 active joints, 6 in each leg and 2 for actuating the head, which includes a camera, a laser scanner, and two ultrasound distance sensors. Each joint is equipped with absolute position sensors, current sensors, and temperature sensors. In addition, the system has acceleration sensors and gyroscopes for stability control. In laboratory tests the system was able to climb up a rung wall with a inclination of 70° .

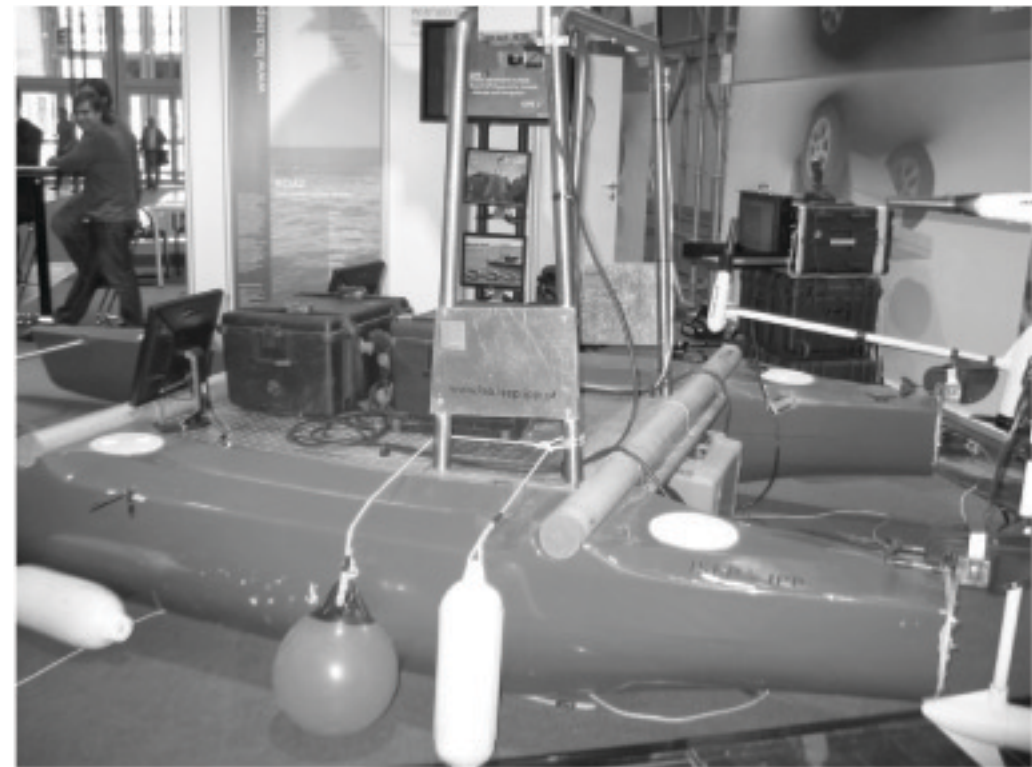
Each claw is equipped with five pressure sensors and an additional special IR-distance sensor which are used for robust ground contact detection. The software features Central Pattern Generator (CPG) and reflex models. The bioinspired mechanisms allow to solve the problem of controlling simultaneously 26 joints with high reactivity. In comparison to standard model-based robotic control approaches this is achieved by a very low number of arithmetic operations providing high energy efficiency.

Source: <http://www.dfki-bremen.de/robotik/en/research/projects/space-robotics/aramies/>



■ ROAZ - Autonomous Surface Vehicle

The ROAZ ASV research program realized by Autonomous Systems Labotatory at Porto Polytechnic Engineering School, Portugal, focuses on marine robotics systems. Two autonomous surface robots where developed: ROAZ ASV and much bigger ROAZ II ASV for the ocean operations. The autonomous marine surface robots were designed for environmental monitoring, inspection, bathymetry, science data gathering, search and rescue support and security missions. ROAZ'S overall dimensions are 1.5x1x0.52m, a payload is up to 50 kg, and the hulls were designed in order to reduce hydrodynamic drag. ROAZ has low weight (because of its fiberglass structure) and works quiet. The wind effects are reduced by relatively low area exposure of vehicle above water surface with all the electronics in the bridge section between hulls. ROAZ has a flat top surface allowing solar panel coverage and depending on vehicle configuration can support a camera tripod or a communications mast.

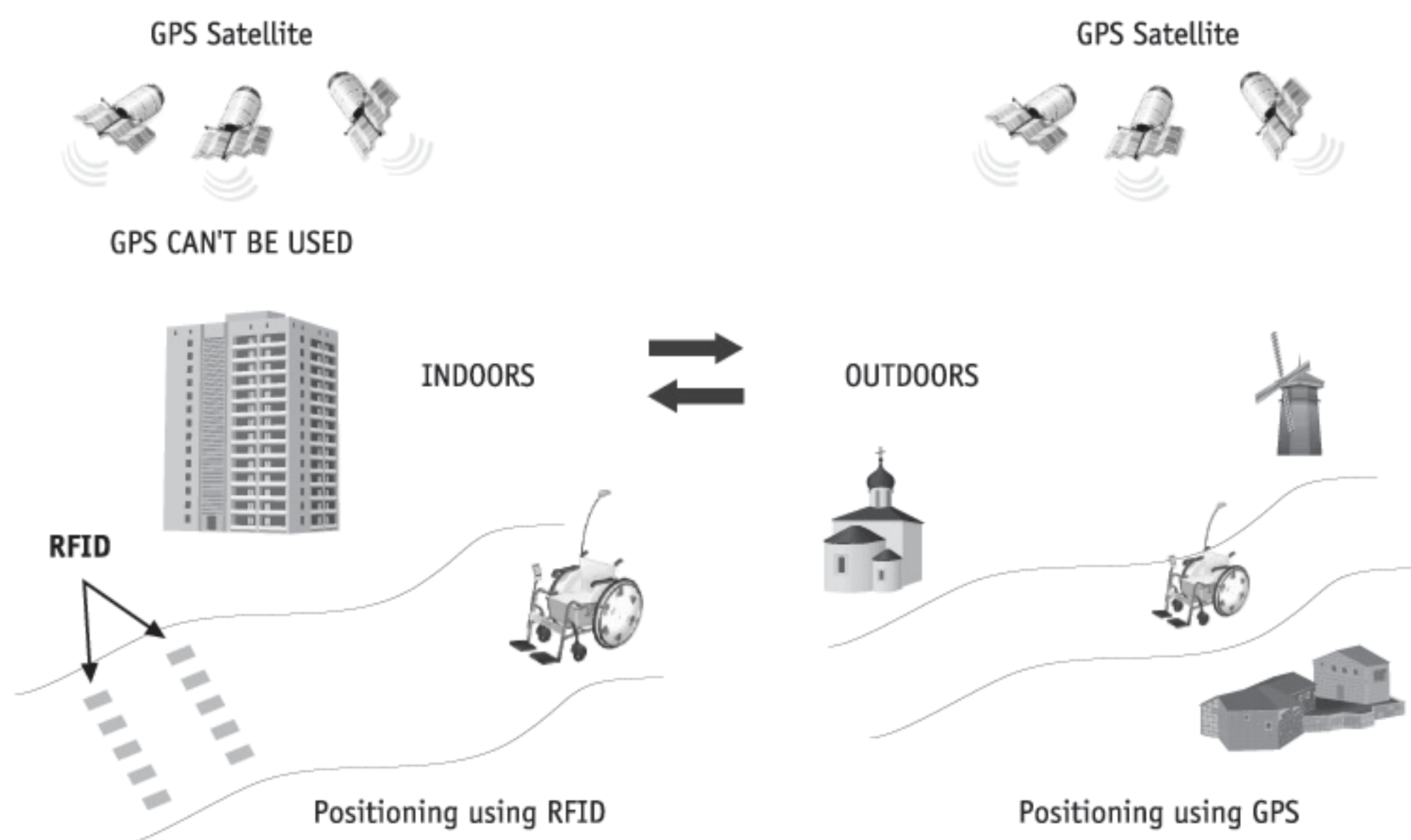


Source: <http://www.lsa.isep.ipp.pt/>

■ Robotized wheel chair

Professor Osamu Matsumoto from the National Institute of Advanced Industrial Science and Technology (AIST), Japan, developed TAO Aicle (Aishin Seiki and Fujitsu) an intelligent wheel chair. It uses two navigation systems: indoor RFID and GPS outdoor. The user inputs the desired destination by touching a PDA panel mounted on the wheel chair then it moves autonomously until it has reached the destination in avoiding obstacles, sensing traffic signals and so on.

Intelligent Wheelchair "TAO Aido" - Concept of Positioning



Source: <http://www.aist.go.jp/pr/expo/contents/taoaicle/taoaicle.html>