

SPACE EDUCATION AND OUTREACH SYMPOSIUM (E1)
New Worlds - Innovative Space Education and Outreach (7)

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TOUCH THE COMET! TESTING OF THE “ROSETTA’S COMET TOUCHDOWN” EDUCATIONAL
KIT IN THE SZÉCHENYI ISTVÁN HIGH SCHOOL, SOPRON, HUNGARY**Abstract**

Introduction: In our school works a course in robotics where students build and program robots from a LEGO MINDSTORMS kit. We took part in the Hunveyor-Husar project with a Mars rover based on a rover model kit, of which the operating arms are built out of LEGO and controlled by an MINDSTORMS NXT computer. We saw the “Rosetta’s Comet Touchdown” educational kit on the EPSC in September 2010. We agreed that we would also participate in testing the kit. It comes with a set of Interdisciplinary Activity Sheets and the proposed activities cover three areas: science, art/history and engineering. In this presentation we report in particular the activities of the LEGO building team.

Overview: The LEGO team started to design, build and program a new landing unit. Although the demonstration model that is part of the Rosetta’s Comet Touchdown kit is a perfect copy of the original, our students did not use it as a base. Instead, they followed their own ideas about how a lander should look like. The legs based on their own creative ideas and all the sensors and probes are designed by them. So they were forced to build their own “original Hungarian” lander: ROZI.

Tasks and solves: We looked for tasks and focused on problems what we can solve from the LEGO elements and from our knowledge and mental background. - measuring temperature: Instead of LEGO-sensor we use a semiconductor thermometer was made compatible to our system. We let down this sensor too - measuring gases by a gas-sensor. It was fitted into the case of the sound sensor, in this way it was made compatible to the LEGO system. Using a laser beam to heating we liberate gases from the frozen surface. We let down the sensor to the surface. - measuring the surface gravity, by an instrument which is a specific development of our Team. - measuring surface magnetic field using an LEGO compass. Besides these measurements we installed a wireless camera.

Motions: To carry out these measurements the following motions are necessary: opening the shield of the camera; turning around the cabin, operating the trigger of the gravimeter. We must let down the thermal and gas-sensor.

Summary: We report the work and the activities of the LEGO building team. The planning/building/programming problems gave great tasks for high school students, but they enjoyed the work and learned very much.