LUND SUMMER COURSE 2007

SIM ROBOTS, NOW IN THE SPACE!

Brief presentation of the participants

Visnja Krsmanovic (Serbia) - Elektrotehnicki Fakultet Beograd - Electronics Department
Philipp Dessovic (Austria) - Technische Universität Wien - Phisycs
Ramón Argüello (Spain) - Carlos III University of Madrid - Computing Engineer

Robot

-Name: PhiRaVi

- Building the robot:

Our main goal was building a compact and stable robot. In order to make robot fulfills this goals, it was decided to use "tank look". The main components used for the robot construction are: lego bricks, of course, two electric engines, light and touch sensors. It was necessary to use two engines, each to control moving to the one side, left or right. Light sensor is put in the bottom of the robot, as close to the ground as it was possible, to avoid direct exposure to light. Touch sensor is connected to the front part of robot, to the construction that looks like arms, and the wheels at the end of the "arms" are put to provide smooth wall following.

- Programming the robot:

First we tried to get used to program the robot in NQC. We implemented simple wall following and several simple line following algorithms. Then we tried to detect the black gap before every fork, but after several days of work it still wasn*t reliable and the scheduling of the different tasks wasn't working.
So we decided to recode everything using the basic algorithms from the start at the evening before the contest. An reliable linefollowing algorithm was written after Nobel Party in the night. It only followed the left edge of the track, so that we could do all task on the leftside. In the morning we added the wall following algorithm and tried to detect the start and the end of the track correctly. But it wasn't enough time to get the correct timings and so it didn't work very reliable. Before the second run we corrected some errors in our algorithm, but the timings got a bit messed up. We finally got points for four tasks at the first and three task at the second run.
We had finally a quite simple program, probably the fewest code lines that could do four tasks.

- Conclusions:

This robot was built to explore unknown surface of Mars, that´s because it haven´t shown the best results here, on Earth!