

BEST Summer Course Lund, 2007 "Simrobots, now in space"

Robot description for "Robby the Nature Saviour" (RNS)

Team:

Nikolina Jakovljevic, University of Zagreb, Faculty of Electrical Engineering and Computing, Croatia

Silvia Ioana Lipovan, "Politehnica University of Timisoara", Romania, Faculty of Automatics and Computer Science

Rob van Wijk, Eindhoven University of Technology, The Netherlands, Computer Science (master Embedded Systems)

Description:

The mechanical design is a combination of the driving base given in the back of the NQC manual, the dual bumpers from the official LEGO manual (attached to a chassis we designed ourselves), some custom modifications and tweaks to make it stronger and fine-tune its performance and, last but not least, a cute face, to give it a bit of charm and personality.

The software was written according to the algorithmic control approach. While this has a number of drawbacks, we think the benefits are far greater. Naturally, we do rely on sensor feedback as much as possible, only resorting to timers when there is no other way, or when it doesn't matter that the results are not finely predictable.

The first thing we tried to program was the line following. This turned out to be a lot more difficult than expected, especially looking for the black spots; it didn't really help that the sensor reading for black is snugly in between the readings for white and green. While the solution is not all that elegant, it does seem to be very reliable. It's also pretty fast on straight pieces of road, while still being able to cope with tight corners.

The assignment we plan to do are the cave and the big rock (both work very well), avoiding trees, investigating the plateau, remove a rock and receive a message (probably, since they still require some work). It's unlikely we'll manage to go to the valley.