Abstract

This thesis has the purpose of describing the process of building and programming an autonomous, mobile robot, which is able to clean a table without external help. The only hardware used is the Lego Mindstorms set. Therefore, the author is able to show that it is possible to build a functional robot without using expensive and complicated hardware. Furthermore, this thesis tries to answer the question if it is possible to use the Lego Mindstorms Set to inspire young people to start progamming.

To program the robot, two software architectures are used. Firstly, the theory about the architectures is covered, then the thesis discusses how it is implemented in the actual code.

For the most efficient use of both approaches, two different development environments are used. On one hand the graphical programming language “EV3-Software” , on the other hand the text based language “Java”.

Finally, the robot is tested in a real environment and it is possible to compare the efficiency of the two solutions.

The robot masters the given task successfully. He is able to recognize the edges of the table and it cleans most of its surface. During the tests I discovered the problem, that the Lego hardware is not able to apply enough pressure on the sponges to clean the table completely.

Moreover, one can draw the conclusion that similar projects are extremely helpful to start teaching young people about Computer and Information sciences, since it is easy and fast to achieve small successes and one can see an actual end result, which helps to boost confidence and motivation.