Education and Culture DG

Lifelong Learning Programme

2011

Lego mindstorms

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Comenius

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Purpose

We have to build a robot, which will be able to complete a given black line course. This means we have to build a fast and good looking robot to compete with the other teams.

Materials

Course

Camera

Computer

Lego Mindstorms nxt programming software

1 micro controller

2 Interactive Servo Motor

1 light censor

1 sound sensor

1 ultra sonic sensor

3 wheels

Different Lego blocks

How to do

Building our robot.

First we looked on the Internet for some building plans for the Lego Mindstorm© Robot.

Then we build it with more than 150 pieces of Lego.

We put the Sound and Light Sensor on the Robot, and then we programmed it.

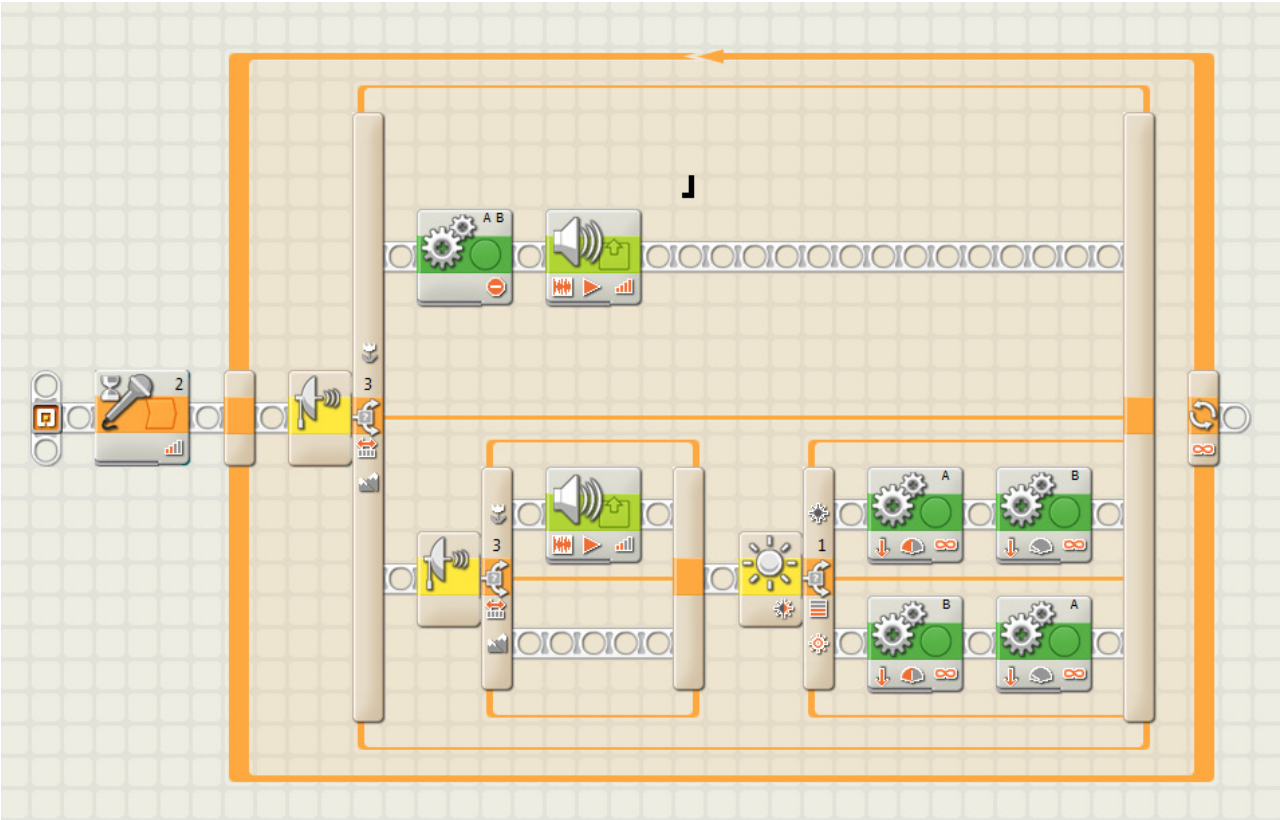
Next we decided that the design was not good and we build a new one.

It was not able to finish the course very well, because the Robot was too big and too slow for us.

Now the Robot looks like an Animal.

And we used fewer Pieces of Lego, now we Program it for the course and it is better and faster.

Programming



A screen shoots of our programming

Output

A: Motor

B: Motor

Input

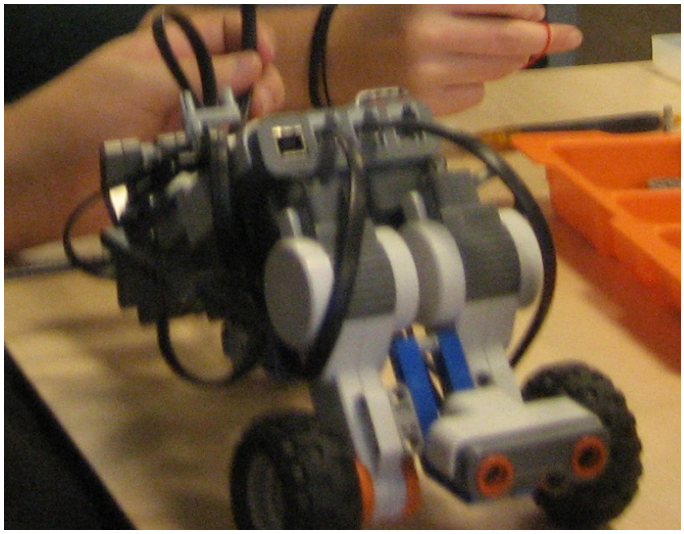
1: light sensor

2: sound sensor

3: ultrasonic sensor

Discussion

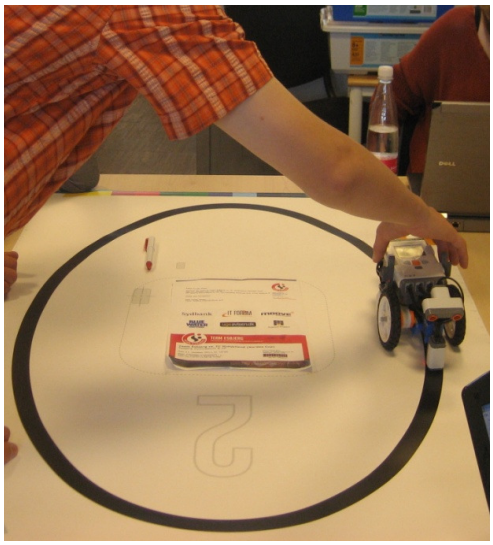
We started building a robot after an instruction, but we note that the robot we have build was too big. That result that our robot was very slow, and have trouble turning around the course.



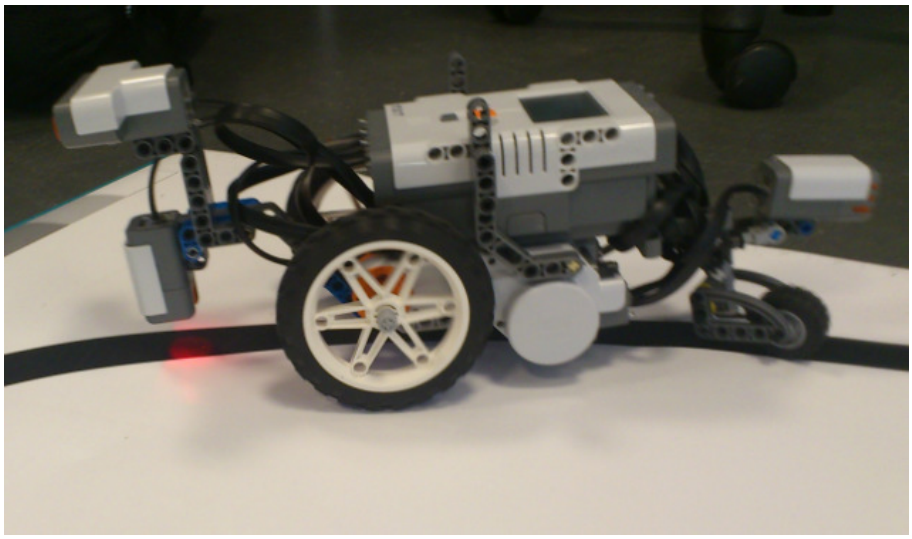
We use this robot to learn have to use the computer program, because we have used a lot of sensors on this robot. Then we connect the robot to the computer, and started try out some simple programming. We learned how to make the robot drive and stop just with a single loud pat. We were also able to make the robot start with a touch on the back of the robot.

The robot was missing a light sensor, and that is a very important thing, if the robot has to finish the course.

Then we build a new robot there was smaller and lower to the ground, than the first one was. This would make our robot drive faster and mover better on the course.



But we still have problems with the light sensor, so we are rebuilding the light sensor setup , to make it recognize the course.



The final robot

When the robot was able to recognize the course we try to programme the robot, to drive faster.

Conclusion

After we build our robot and we programmed it, our robot was quite too fast, so we tried to find out the normal speed to complete the course correctly. This took a lot of time because we wanted to optimize the speed to get the best time for completing the course. We also changed the design a little bit of our robot for a better appearance and for using more sensors. After all we think we did the project very well and correctly.

About working together Danes and Germans,
was a challenge, it was a bit difficult convey messages, because of the language difference. We divided the work between us instead of working together as a group, but we think that the cooperation was going to be better, in the last days, maybe we started to know each other better.