

Line Tracing Truck: Week I

by

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The main goals of this week were to meet with the other members of the group and start planning the whole project.

We met on the 30th of March at the university and started talking about our Line Tracing Truck project. We firstly elaborated a list of electronic components that we would need, created a repository on GitHub and then registered our project on Moodle. We started the introductory report on the same day and defined a plan of tasks to perform for the 1st of April.

Lauri had to design the truck on Autodesk Fusion 360, Aleksi had to write the Arduino code to control the forward-moving motor and the LEDs, and I had to write the code to control the servo motor and the honk of the truck.

On the 1st of April, we put in common all the tasks we had performed and met the deadline. We had a few problems with the rotation of the servo motor in the Tinkercad simulator, so we tried to find solutions for it and finally solved the problem on the simulator.

During the weekend, Lauri reproduced the truck into Inkscape so that we could start cutting the first prototype on the 4th of April in the Fablab of the university.

Aleksi's report:

During the first week I started to look for information related to our projects mechanics and code that we would need for the car to work. During the task distribution I personally took charge of making the code for the DC motor and the ambient light sensor. I created the code using the Arduino software and tested it on Tinkercad Arduino Simulator. Previously I had no experience on how to use Tinkercad or how to make a working circuit, but I managed to make the code part to work by studying the software on my own time. Currently the code works on Tinkercad but it needs to be tested with real components next week.

Altogether I spent approximately 7-8 hours on this project on my own.

This week I learned how to program with the Arduino software, use Tinkercad to visualize the code and how to laser cut in Fablab.

Lauri's report:

During this first week I went through a lot of tutorial videos on how to use Inkscape and Autodesk Fusion 360, gaining a basic understanding of both. Previously I had no experience in neither one of those. I made models for the car on both programs. I encountered some difficulties as I first designed the car in Fusion 360 and then tried to import that to Inkscape. Had I studied Inkscape before, I would have changed the process in a way that the car would have been easier to import to Inkscape. However, I managed to go through obstacles and we had first prototype for lasercutting. Along modelling, I learned to use the laser cutter in FabLab. I met this week's goals, as we now have right models of the car both in Inkscape and Fusion 360 and first laser-cut prototype in our hands. I spent approximately 8 hours on these tasks in total.

This week I learned a lot about Fusion 360, Inkscape and lasercutting. I had no experience in any of those before.

Tanguy's report:

During this first week I looked for some information related to the rotation of servo motors with Arduino and then took charge of the elaboration of the Arduino code of the servo motor rotation and of the honk. I also added a small part dedicated to the forward movement of the truck (control of the DC motor). After some modifications, we made this code working on Tinkercad Arduino simulator. Finally, I added the ultrasonic sensor security (if there is an obstacle on the road, the truck should stop moving immediately).

Now the code should work and must be tested on real components next week. I spent around 7 hours alone on this project this week.

This week I learnt how to program with the Arduino software, and I also learnt the operation of standard servo motors and how to control them in Tinkercad.