

Line Tracing Truck: Week III

by

Lauri Ala-Mursula, Aleksi Ylihurula & Tanguy Moriceau

The main goal of this week was to build the final electronic circuit that would be implemented on the prototype that we cut during the previous week.

We had planned to meet at the Fablab of the university on the 11th of April, but at the last moment we had to cancel this meeting because of Lauri's personal reasons.

This week we only worked at our homes, during free time. Aleksi gave the box of electronic components to Tanguy, so that he could work on them.

Aleksi's report:

After I had tested my other software, I gave the box of electronic components to Tanguy on the 11th of April. Because I had tested some code for the line tracking sensor and tested how it works, I started to create a small code for them. I still didn't exactly know how the line tracking sensor component would work with real components and Tinkercad didn't have that exact component, so I had to learn from tutorials on the internet. After doing some research I couldn't find any guide on the component we use so I created the code by testing with the knowledge of testing the sensor earlier. The code I created is a shallow part of how the truck would basically work and how we probably should continue. The code also needs to be tested on real components to ensure that the line tracking mechanism works. I also looked up how we should combine our code later.

Altogether I spent approximately 3-4 hours on this project on my own.

This week I learned how to work with the line tracking sensor and how to merge our codes.

Lauri's report:

I have further designed the turning of frontal wheel and placing other parts. Cargo place is ready as well. The design is almost finished and I'm aiming to put it all together in coming week. I decided to make the wheels by ourselves and the design of the wheels is ready. I have been using Inkscape a lot recently. There didn't come up any major problems along the way, so currently I'm working on getting the right materials along with laser-cutting the upgraded design.

Tanguy's report:

I took the box of electronic components from Aleksi on the 11th of April. I had to work on the ultrasonic sensor and on the piezo transducer.

At first, I didn't know how to deal with ultrasonic sensors, but after having a look for their operations on Tinkercad, I found a piece of a circuit that could be useful for our Line-Tracing Truck.

I reproduced the circuit with real components and implemented a code into the Arduino board. I tested the good working of the ultrasonic sensor with a LED, that was turned on when an obstacle was detected by it.

Then, I looked for help on piezo transducers (that I didn't know either) and read some documentation about them. After that, I made a second electronic circuit with real components to test the piezo transducer. Fortunately, it worked at the first time and the piezo made a sound with a specific frequency.

Finally, I uploaded these two codes on the Github repository.

I worked around four hours on my own this week and I learnt how to use ultrasonic sensors and piezo transducers with Arduino.