

Report

SESSION 3 (09/01/22)

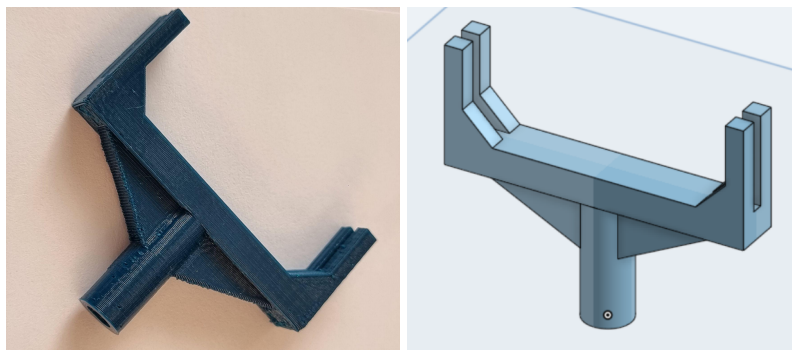
Vahan Komaryan

During session 3, I started by asking for a new driver for one of the stepper motors because the direction of the last one was not working. I was able to try my code with two motors simultaneously and everything works perfectly. You can virtually create two motors thanks to the object-oriented design, control their speeds independently and this without using any delay which allows you to make them move simultaneously.

I then coded a simple linear function. This function allows, if the linear mode is selected, to vary in a linear way the position of the motor between a variable *range* and *-range* which is specific to the engine. By increasing the speed of the motor close to the maximum we can create the simplest effect with the laser, a straight line.

I then used a piece of rigid cardboard to which I attached a mirror. I fixed everything on one of the motors and I could try with a laser if you get the right effect and it was the case. We didn't have a very nice result but this was due to the fact that the mirror was not of good quality nor well fixed to the engine but it was enough to confirm our project.

I finished by modeling in 3D the parts that will be used to attach the mirrors to the engines. I used Onshape software to do this. We then 3D printed two of them.



We'll have to find the right size and quality mirrors before the next session.

Benjamin Choiselat

During session 3, I finished the code for the moving average, using a library which was really convenient for that.

I then used this moving average to detect where the "bass" of the music was : If the intensity of the lower frequencies are under the moving average, there is nothing happening; however if the intensity of the lowest frequency suddenly rises, we use it to put the laser on. We will use that to align the laser inputs with the music.

A problem that I encountered is that some of the musics have different "bass" frequencies. Some of them have higher frequencies, which means they are not yet recognized by the moving average. I plan to add a moving average to other frequency bands to include more music. I will also add a potentiometer to adjust the sensibility of the code, to try and fix some of the extraneous sounds.

We finally combined this code with the little mirror Vahan built to make a straight line appear and disappear with the music.