

Session report 16

Before the session:

I received the last screws I had ordered for the platform and could assemble it entirely with the good screws. I also welded a shield for the Arduino Mega that has wire terminals with screws. This shield enables me to screw the female 8 pins connectors to the Arduino and with the male part on the platform I can detach the Arduino easily.

I had some trouble when processing the test sequence with the shield because there were 2 pins that weren't very well welded. After fixing this issue and other small ones I successfully finished the test Sequence.

I then added a last test to the test sequence that would make the platform go up retrieve a package then go down and release the package. This test uses all the components except the TOF (time of flight) sensor and OLED screen both connected to the I2C bus.

During this last test before implementing the stepper (used for the slider) I found that the module controlling it was really hot even if not used at all. At some point I smelled something burning and later found out it was the module that had overheated. I checked everything multiple times, measuring voltages and connection, nothing seemed wrong. I decided to test the old module I still had (pin layout is the same except for the ENB that must be connected to the ground), when powering on it instantly burned. Supposedly the ENB being on ground but strange behavior.

I checked everything another 4 times did multiple test step by step with a new module, without stepper and with stepper, really nothing had changed, and everything seemed correct. I repowered everything with the new module and till now it works perfectly and hasn't even been especially hot.

I also started to make some research about ROS Melodic that Julius I already started to use for the LIDAR. This system will make the conception a lot easier even if we have to learn how to use ROS.

During the session:

During this session we talked with Julius about how all his components will be placed, estimated the battery size (4A Jetson, 2A base motors, 4A max the whole platform, all the components initially planned to run on 12V can handle 15V) so we choose a 4S and we still need to choose the capacity. We also need 5V so we picked a DC-DC Buck Boost converter that can handle up to 8A (more than enough). The first I tested was not working and I could easily set the other to have a 5V output with a 15V input.

We also stated that a ventilator on the Jetson Nano and one for the whole base where necessary.

After talking with Julius I power my part (the platform) using a 15V generator and the Buck Boost with a also a switch to power everything off in emergency case. I then proceeded to do another test Sequence but jumping some steps.