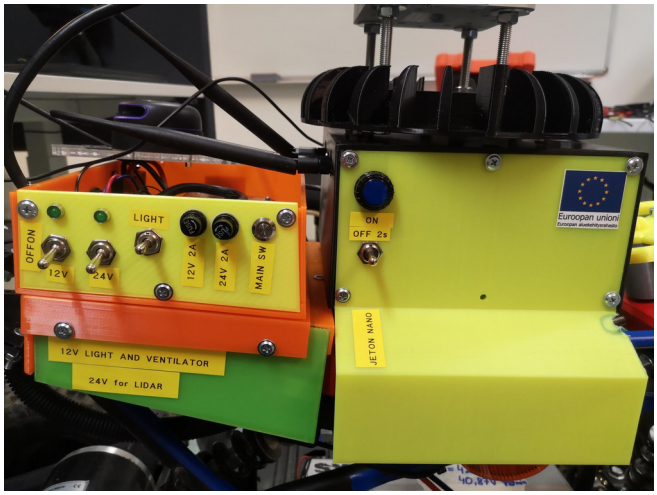
MiniATV Quick Start Guide

Switch on the MiniATV:
Push the “Main SW” button to switch on power on the left button panel.
After this, for the Ouster lidar, switch on the 24 V switch
For the Fan cooling the “brain”, move the 12 V switch up
For the warning light, switch on the “Light” switch
And for starting the MiniATVs “brain” (Jetson Nano), move the switch on the right panel up (it will move down on it’s own again). It can take up to a minute for the “brain” to be ready.



Switch off the MiniATV:
1. Switch off the 12 V, 14 V and the Light switches.
2. Switch off the brain by moving the switch up for at least 2 seconds. Wait for the brain to shut down, this can take over a minute.
3. At last, switch off the “Main SW” power button.

How to charge the Battery:
1. Make sure the MiniATV is switched off.
2. Disconnect the battery at the orange connectors
3. The safest way to charge is to pick up the battery (the charging plug has to be disconnected from the frame first) and carry it to the explosion-safe charging cabinet and connect it to the right charger (labeled “MiniATV”) there.
4. A less safe option is to connect a charger with the charging plug of the battery and a normal electric outlet
→ Warning! A full battery has up to 43 V instead of 40 V. This has not caused damage to the fuses etc yet, but be warned that the MiniATV is constructed for only a 40 V battery. Sometimes it has to be restarted once before connecting to the network automatically after connecting to a freshly charged battery.

Control the ATV

Via Remote Control:
Switch on the remote control by opening the hatch and moving the power switch. With the knobs above that, you can correct the miniATV’s path if it is leaning to the left or right when driving straight ahead.

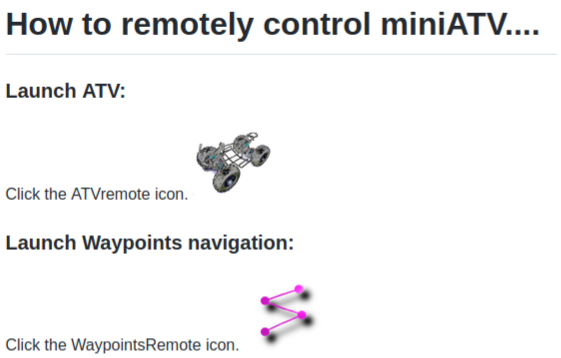
Basics for controlling via PC:
- The miniATV and the controlling Laptop have to use the same network! (Connect the miniATV with a screen and a mouse to change the network settings)
-If the network is new for one machine, ssh to the miniATV and confirm hat this connection is harmless before the next steps
- Ssh to miniATV with the credentials found on one of the side panels

Create a map of new surroundings:
Launch via command line: “bash run_atv_robot_remote_slam.sh”. move the Robot with the remote control (or arrow keys) through the environment you want to map, then save the map with this command after ssh to miniATV

```
rosrun map_server map_saver -f name_of_the_map
```

For using the map in the next step, ssh to the miniATV and change the map name to your map’s name in /*catkin_ws*/src/atv_setup/launch/atv_remote.launch

Move the ATV remotely via Laptop in an existing map:
If the desktop launchfiles work on the laptop:



If the desktop launchfiles don’t work: Launch via command line: “bash run_atv_robot_remote1.sh”.
The rviz opens and the Map topic (/map), the Position and the Lidar (LaserScan for RPLidar, PointCloud2 for Ouster Lidar) have to be added by topic.
With “2D Navigation Goal”, the MiniATV can be moved to different positions on the map

Steering with the keyboard’s arrow keys (not recommended!):
In the Terminal: Ssh to the miniATV or export the ROS master to the laptop (“export ROS_MASTER_URI=http://ATV.local:11311”) and then:

– **Be careful, it is fast! Press “space” key for emergency break!**
– There are no limitations to the steering angle, so the steering mechanism can get stuck. You will know when it gives that sound. Press the emergency stop and unstuck the mechanism!

```
rosrun ackermann_drive_teleop keyop.py 0.5 0.8
```