

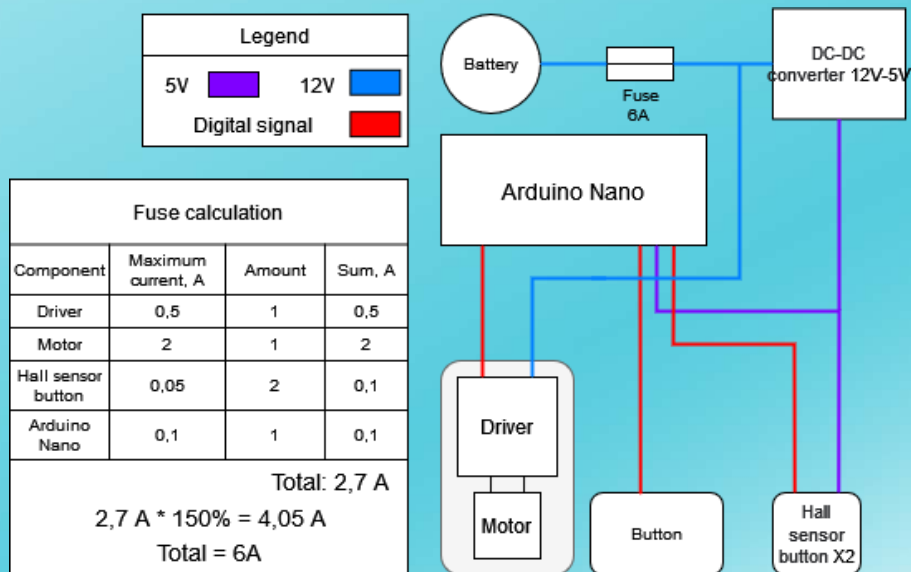
Non-ROV device

Profiling float



Pic.1. Profiling buoy

To complete the tasks this year, we use only one device that is not ROV. This device is a profiling buoy. To get the highest score, we used a buoyancy engine in the buoy. It is arranged very simply, it is a syringe with a motor and limit switches. Hall sensor buttons which are located at the bottom and in the spot where the manipulator grabs the buoy are used to track the moments when the ROV releases the buoy and when the buoy reaches the bottom. Another button is used to define the position of the syringe plunger. The motor is needed to open and close this syringe, due to which the syringe draws in and pushes out water, due to which the density of the buoy changes, due to which the Archimedes force acting on the buoy changes. This simple buoyancy engine is controlled by an Arduino Nano. To power all this, 8 AA batteries are used, giving the voltage 12V. It's used to power the motor, and a 12V to 5V DC-DC voltage converter is used to power the Arduino Nano and the hall sensors.



Pic.2. SID scheme