

Project proposal

Title: Integrated Avionics redesign
Supervisor: Alexandre Schmid
Timeframe: Autumn 2021

EPFL Xplore is an interdisciplinary project whose aim is to design and develop a Rover to participate in two international competitions: the University Rover Challenge and the European Rover Challenge.

The avionics consists currently of an STM32 Nucleo development board that plugs onto different sensors through a custom made “interface board”. It allows us to get all the useful data gathered by the different sensors.

Project description

Problematic

The current avionics is working fine, it is however taking up a lot of space on the Rover. Moreover, as we are using several boards, the gain of space and mass can be significant if we could integrate the microcontroller and the different sensors onto one board. The goal of the project would therefore to first evaluate the best way to do the integration (do we use only one board for the whole Rover? Compromise between modularity, complexity of implementation and space gain) and design the whole integrated system. The student is also highly encouraged to stay during the second semester in order to manufacture the PCB(s). The details about the project are to be discussed with the EPFL Xplore team.

Means

The student should use Altium to design the PCB (or any other design software). Experience with such software is recommended.

Reference

Altium <https://www.altium.com/>

Contact

jonathan.wei@epfl.ch

alexandre.schmid@epfl.ch