

# Project proposal

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Title: **LIFE\_DETECTION\_DEVICE\_DESIGN**  
 Supervisor: Andreas Osterwalder  
 Timeframe: Fall 2020

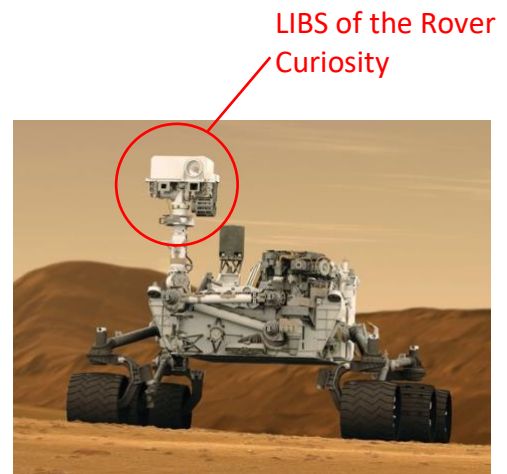
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EPFL Xplore is an interdisciplinary project whose aim is to design and develop a Rover to participate in two international competitions: the University Rover Challenge and the European Rover Challenge. One of the main tasks to achieve is the science task. The Rover has to perform an on-board experiment on a soil sample previously recovered by the Rover or directly on the soil.

## Project description

### Problematic

Given the required functionalities of a final device that will be mounted on the rover and needs to be able to detect life, the student will have to identify the best-suited technique that can be implemented within the limits of weight, cost, and power consumption of the project (see below). Based on this assessment, the student will then propose a design that will be manufactured and assembled during the following semester. The device could be a mass spectrometer, a Laser Induced-Breakdown Spectroscopy (LIBS) tool or anything else that suits.



### General requirements:

- The cost of the device shall not be over 3000 CHF (can be extended if needed).
- The mass of the device shall not be over 5-7 kg.
- The device shall respect some power restrictions that we will establish later.

*These requirements will likely be reassessed at the start of the semester, depending on the global design of the Rover.*

### Contact

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