

Who are we?

Rendering by Noah Watzlavick - ECAL School of Design

A team...

EPFL Xplore is a student association from Ecole Polytechnique Fédérale de Lausanne (Switzerland) whose aim is to build Martian rovers to participate in international competitions.

...Learning by doing...

Our members are putting theoretical knowledge into practice and working together on a large-scale project. They are learning important skills such as teamwork, communication and project management.

...and Letting ideas grow!

At EPFL Xplore, we start from ideas and build upon them. We foster environments where people are free to have their own approach in solving complex problems.

80+ students

The team is made up of Bachelor, Master and PhD students from various sections of EPFL.

3 schools

While EPFL is the primary school involved, students from UNIL and ECAL are participating as well.

120'000+ CHF

Thanks to the support of our partners, we were able to acquire the funds necessary to participate in the competition.

EPFL Xplore in numbers

The project started in September 2020 with its first project: Project Argos.

This edition successfully ended one year later in September 2021 when the team participated in the European Rover Challenge (ERC) among 58 teams.

20'000+ hours

The members can either work on the project as part of credited projects or during their free time.

1 rover

Based on experience gained over the years, we will develop a new rover per year to participate in the competitions.

2 Competitions

Our goal is to participate in one or two international competitions per year: the University Rover Challenge (in the USA) or the European Rover Challenge (in Poland).



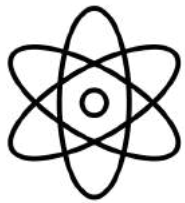


Awards

During our very first participation in the **European Rover Challenge 2021**, we were awarded the following prizes among **58 teams**.



3rd Place
of the overall
competition



1st Place
in Science



1st Place
in Probing

Current projects

In the coming years, the team will participate in **multiple international competitions** to improve its designs and **keep on forming new students**.



Getting ready for ERC2022...

Based on the experience gained over the past year and our participation in the European Rover Challenge 2021, we are currently developing a new rover. Our goal is to improve the previous version and aim for a semi-autonomous control of the rover.

...while keeping URC2023 in mind.

As the University Rover Challenge, taking place in the United States, is set to happen in June each year, the team will be developing its rover over two years for a participation in June 2023.





Science

As for most missions on Mars, our goal is to conduct in-situ **scientific experiments**. The data gathered will then help us verify prior hypothesis regarding the composition of the soil.

Navigation

Another aspect of Martian missions is mapping. Therefore, the rover will be given locations to reach and will need to use onboard sensors to **autonomously get to the targets**.

Maintenance

Thanks to the on-board robotic arm, the rover will **handle a control panel** made of switches and buttons. The arm's precision is key to succeed in this task.

Missions

To participate in the competitions, the team need to be show **technological readiness** regarding multiple tasks. The teams will need to **justify the designs** based on the project development phases.

Probing

To simulate monitoring the soil properties, the rover will **place probes** in the terrain and retrieve them on the way back.

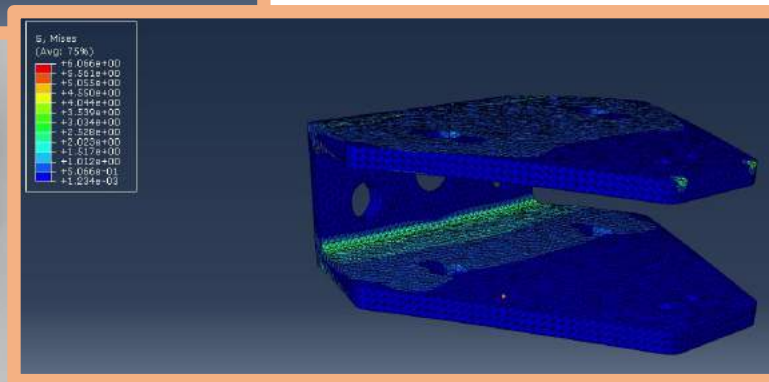
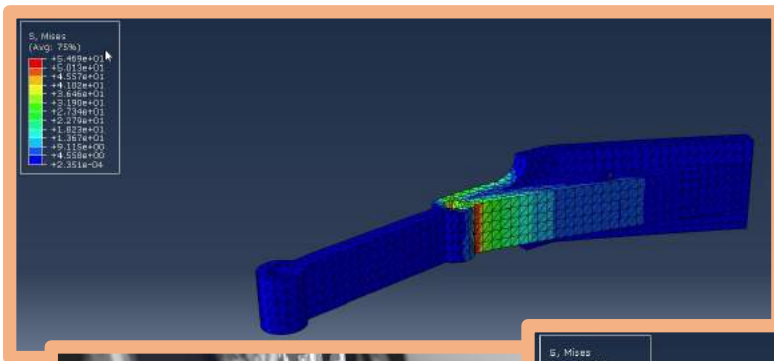
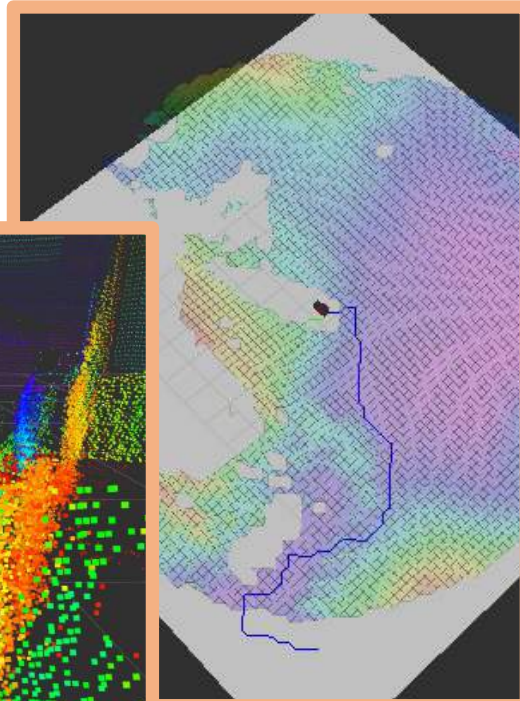
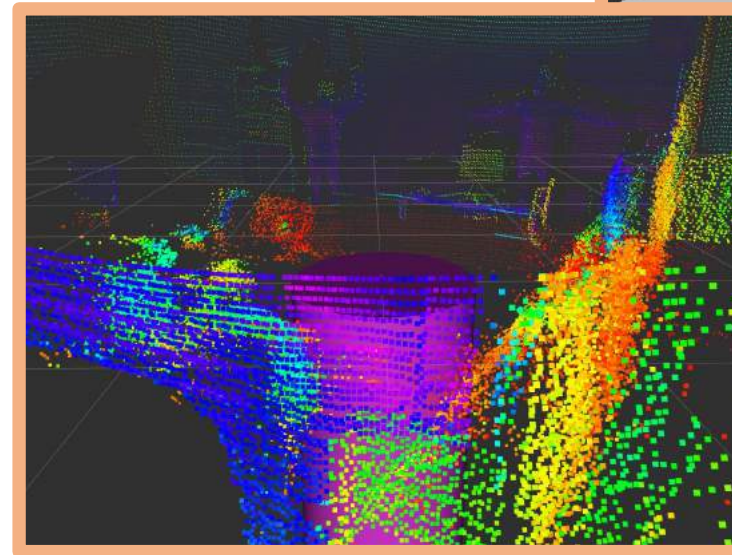
Presentation

In addition to the technical missions, the competitions ask for a detailed **presentation and documentation of the project** and its development.

What are we developing?

Student-designed Mechanisms

We encourage our members to develop their own mechanisms. We are namely working on our **own** chassis, suspension system, robotics arm, science bay and overall structure.

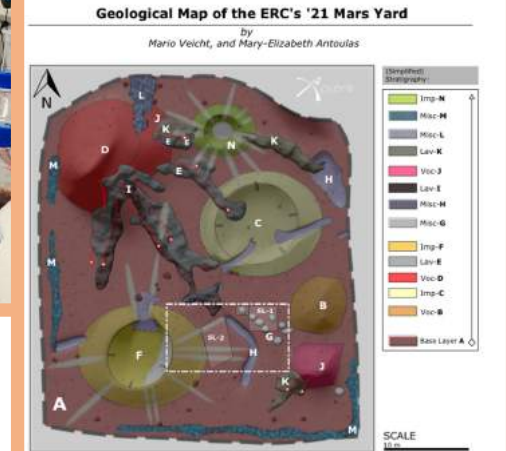


Algorithms

We develop advanced algorithms for our rovers to **analyze their surroundings** and **find the shortest path** to a desired location while **avoiding obstacles** along the way.

Science

Our rovers conduct **onboard soil sample analysis**, ranging from grain size detection to sample weight, volume and color detection. We are currently working on our own **Raman spectrometer**.



Control & Telemetry

To control the rover and monitor its data, the team develop its **control station**. It also deals with all aspects of the **communication**, either internal and external of the rover.

2021-2022 Budget

In order to reach ERC2022 and start working for URC2023, we estimated the **project costs for the coming year**.

The current estimate shows an **increase of 30'000 CHF** compared to last year's edition as new projects are being launched at the same time.

Rover

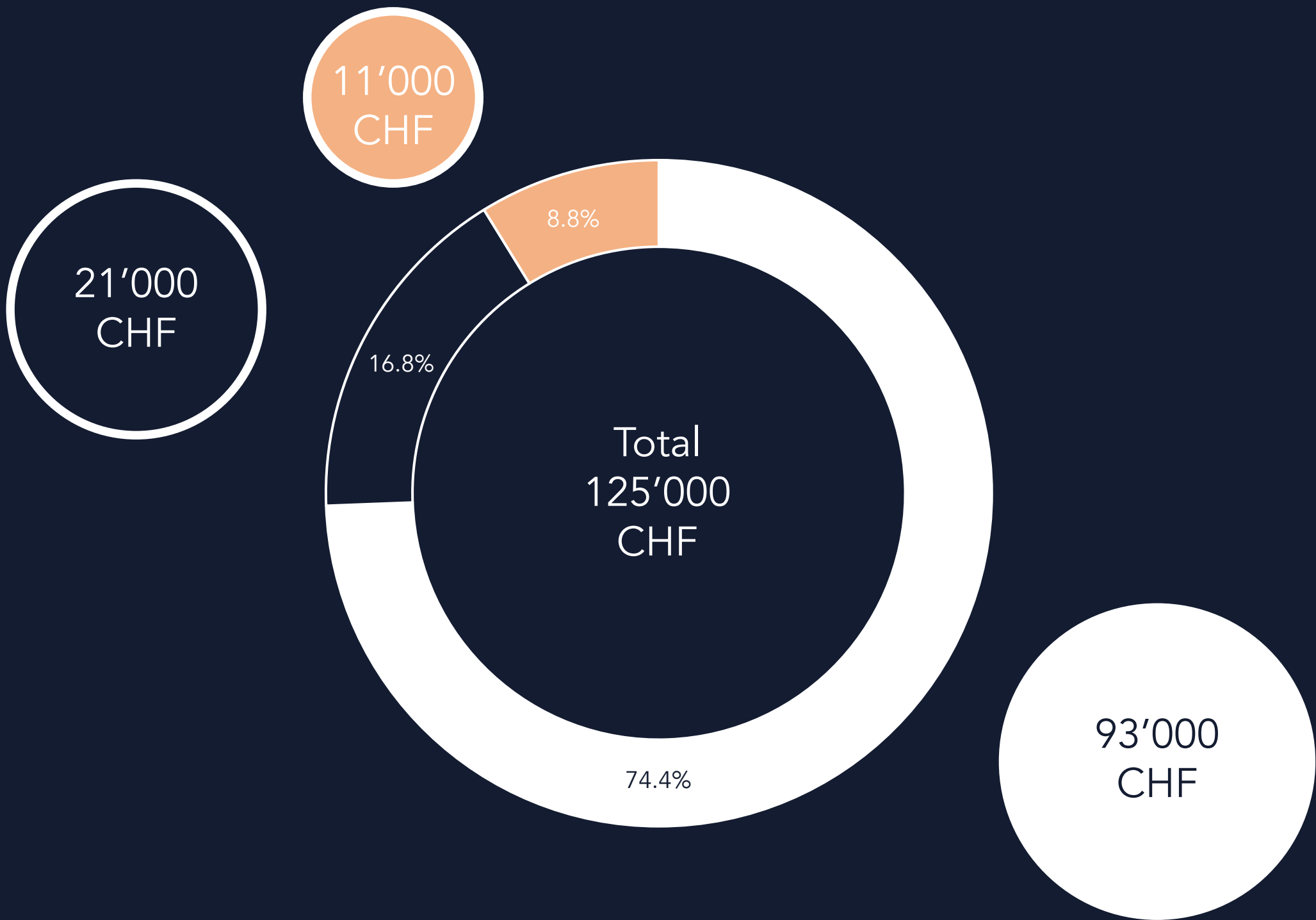
The rover budget includes the cost of all parts to build it as well as its prior prototypes.

Management

In the management cost are included the cost for supervising the project by the school. It also relates to the communication aspect of the project.

Logistics

The logistical cost of the project includes all expenses related to the transport to the competition as well as the organization of events.



Sponsoring opportunities

Visibility

Be it on campus, during the competition or the events at which we participate (Swiss Robotics Days, EPFL Forum, EPFL Open Days, EPFL Association Days,...), your brand will **be at the forefront of the project**.

A bridge between students and the industry

The members of our team are the **engineers and scientists of tomorrow**. The skills that they are developing by taking part in the project are assets that could prove very useful to your companies in the future.

Whether it is through **master projects** or **internships**, these collaboration can lead to future **talent acquisition** that will benefit both the students and your companies.

Feedback at the source

Due to our short project duration, we are required to move extremely quickly through the project phases. This constraint pushes us to integrate your components faster than the industry, leading to **rapid exchanges and feedbacks** about your products.

Sponsoring packages

In the table below, you will find all our sponsoring packages based on the sponsoring category.

Help us reach our goals by participating either **through in-kind donation or monetary support!**

	Main	Platinum	Gold	Silver	Bronze
Amount (CHF)	>25'000	> 10'000	> 5'000	> 1'000	< 1'000
On Website	Yes	Yes	Yes	Yes	Yes
On Promotional Video	Yes	Yes	Yes	Yes	Yes
On Competition T-shirts (back)	Big	Big	Medium	Small	-
On Posters	Big	Big	Medium	Small	-
On Rover	Big	Medium	Small	-	-
On Flyers	Yes	Yes	Yes	-	-
Specific Posts (Social Media)	3	2	1	-	-
On PCBs (Printed Circuit Boards)	Yes	Yes	-	-	-
On Competition T-shirts (front)	Medium	-	-	-	-
On Team Day-to-day Sweaters	Yes	-	-	-	-

Future Projects

Exploring the Earth...

The competitions are only the first step, not the end goal...

Starting this year, a new project will come to light. The **Polar Rover Project** marks the first step towards space.

Our goal will be to **send a rover to the South Pole by 2025** to help scientist to better understand our planet and monitor climate change.





...to reach for the stars.

Thanks to the experience gained from the polar mission, we wish to build the next generation of Lunar Rover and send it to the moon by 2030.

Let's shoot for the Moon together!



2021 European Rover Competition

Join the adventure and start supporting the project!



QR code to the website



For more information, please refer to our website
or contact us at
contact@epfl-xplore.ch