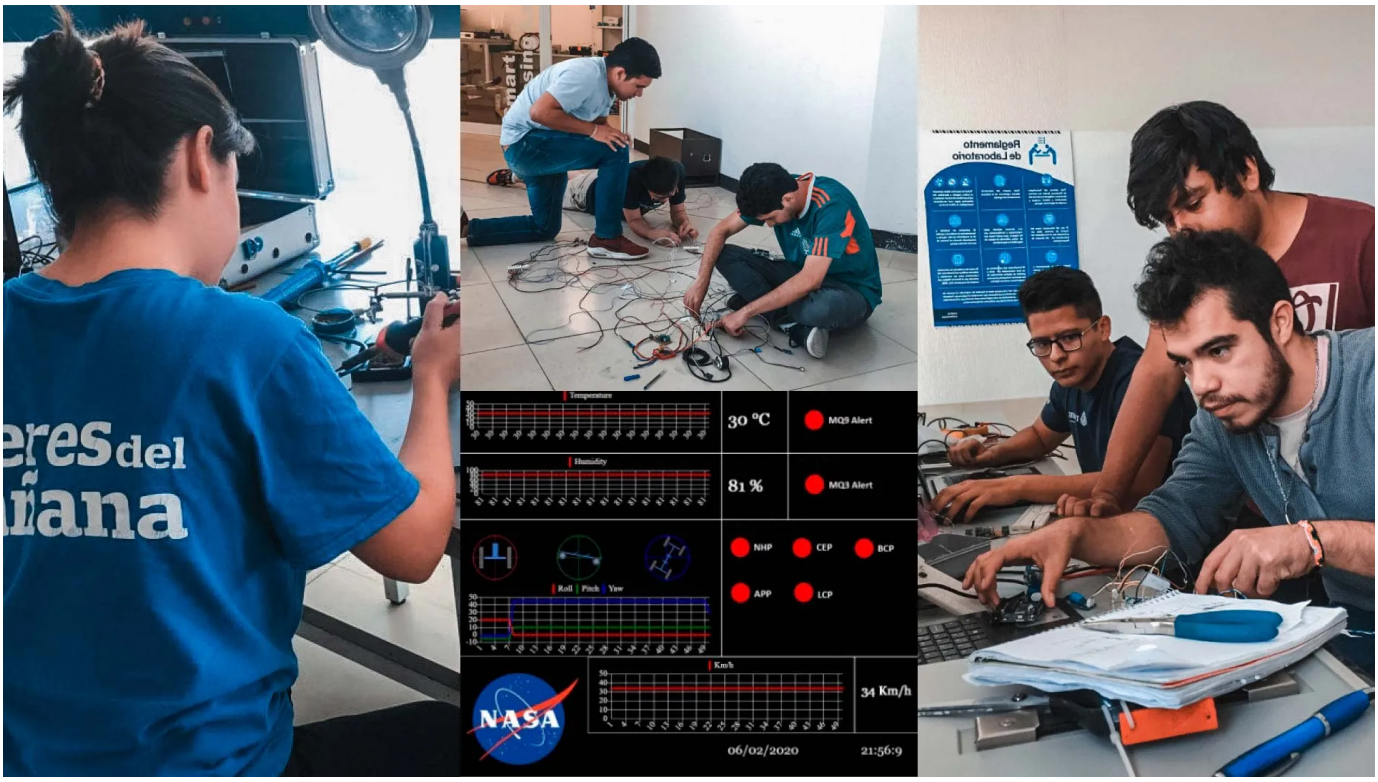
They’ve done it again! Third-time winners of the NASA telemetry prize



For the third year, Tec students in Cuernavaca have obtained the AIAA Telemetry/Electronics Award in the NASA Human Exploration Rover Challenge.

31/08/2020

Students from the School of Engineering at the **Tec’s Cuernavaca campus** have obtained the **AIAA Telemetry/Electronics Award** for the third year in the **2020 NASA Human Exploration Rover Challenge**.

This year, the event was held virtually owing to the **cancellation of on-site activities** at **NASA’s Marshall Space Flight Center** in Huntsville, Alabama, **due to the COVID-19 pandemic.**

The **telemetry** category is presented by the **American Institute of Aeronautics and Astronautics** and seeks the **best implementation of a remote measurement system** that allows the variables of vehicle, pilots, and terrain to be monitored.

The telemetry **team consists** of **students from the degree courses of** Mechatronic and **Computer Technology** Engineering: Diego Hernández, Brenda Zárate, Aarón Pérez, Eric Arzate, Brian Gálvez, Erick Olivar, and Erick Velázquez.

They were mentored by teachers from the school of Engineering: Dr. Ricardo Fernández, Dr. Julián Guerrero, and Dr. Jesús Simental.

THE CHALLENGE

The **NASA Human Exploration Rover Challenge** is one of the seven **Artemis Student Challenges** organized by this space agency, which seek to prepare new generations of scientists and engineers for **future colonization of the Moon and Mars.**

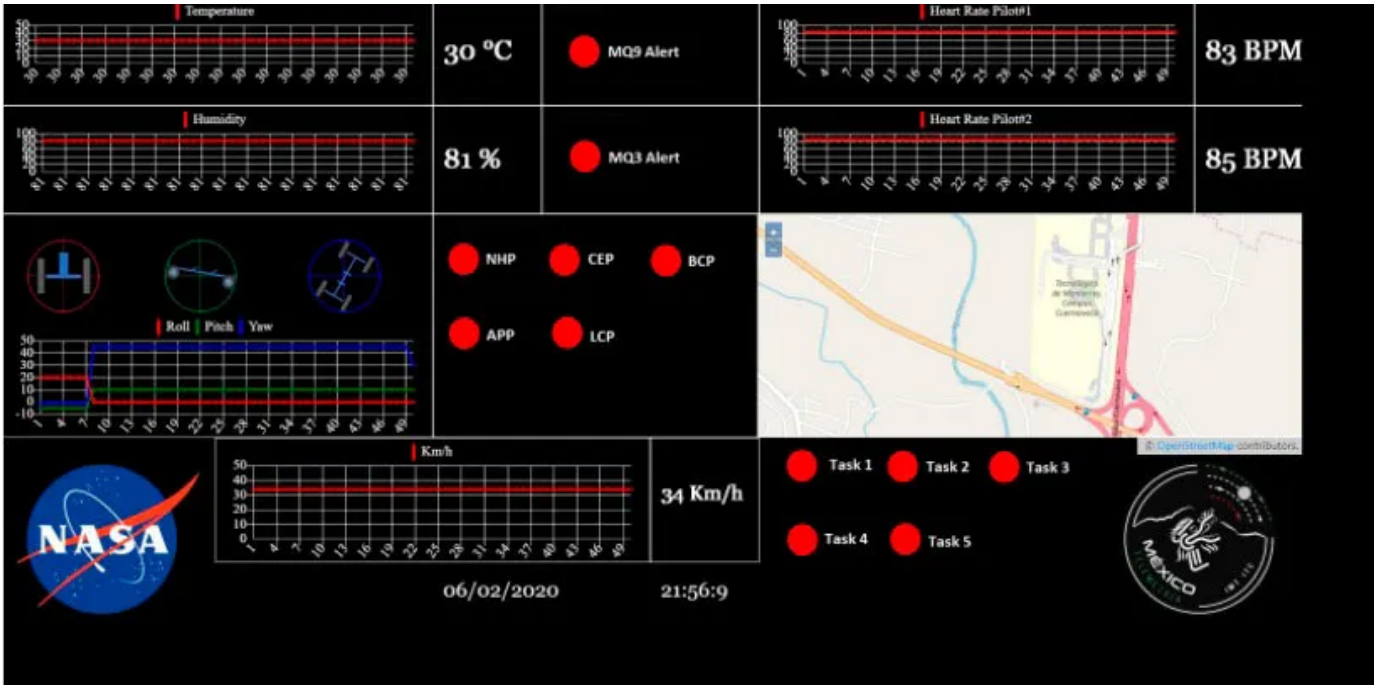
The challenge in which the Cuernavaca campus took part is the **only one open to international teams**. Over 8 years**, it has positioned itself as one of the best foreign teams in this challenge**.

*"**Telemetry provides the rover's five senses**. It allows us to see, feel, and hear what's happening remotely on the mission and gives us the **power to control and analyze the data captured**,"* explains Brenda Zárate, the student in charge of audio and video.

*"Our system is capable of **measuring the rover's position** (GPS), **speed**, **vibrations**, **bending**, **temperature**, and **humidity**, in order to **look after the pilots' safety** and keep a record of tasks completed,"* explains David García, project mentor and academic advisor on engineering.

The competition aims **to challenge students from across the world** to **design and manufacture a vehicle** (**rover**) that **simulates transportation on future missions** to other planets, asteroids, and moons.

The **rover** must be capable of **traveling along a course** with **obstacles** under adverse conditions and on which the pilots can **perform missions to collect samples,** as part of the **extraterrestrial exploration.**

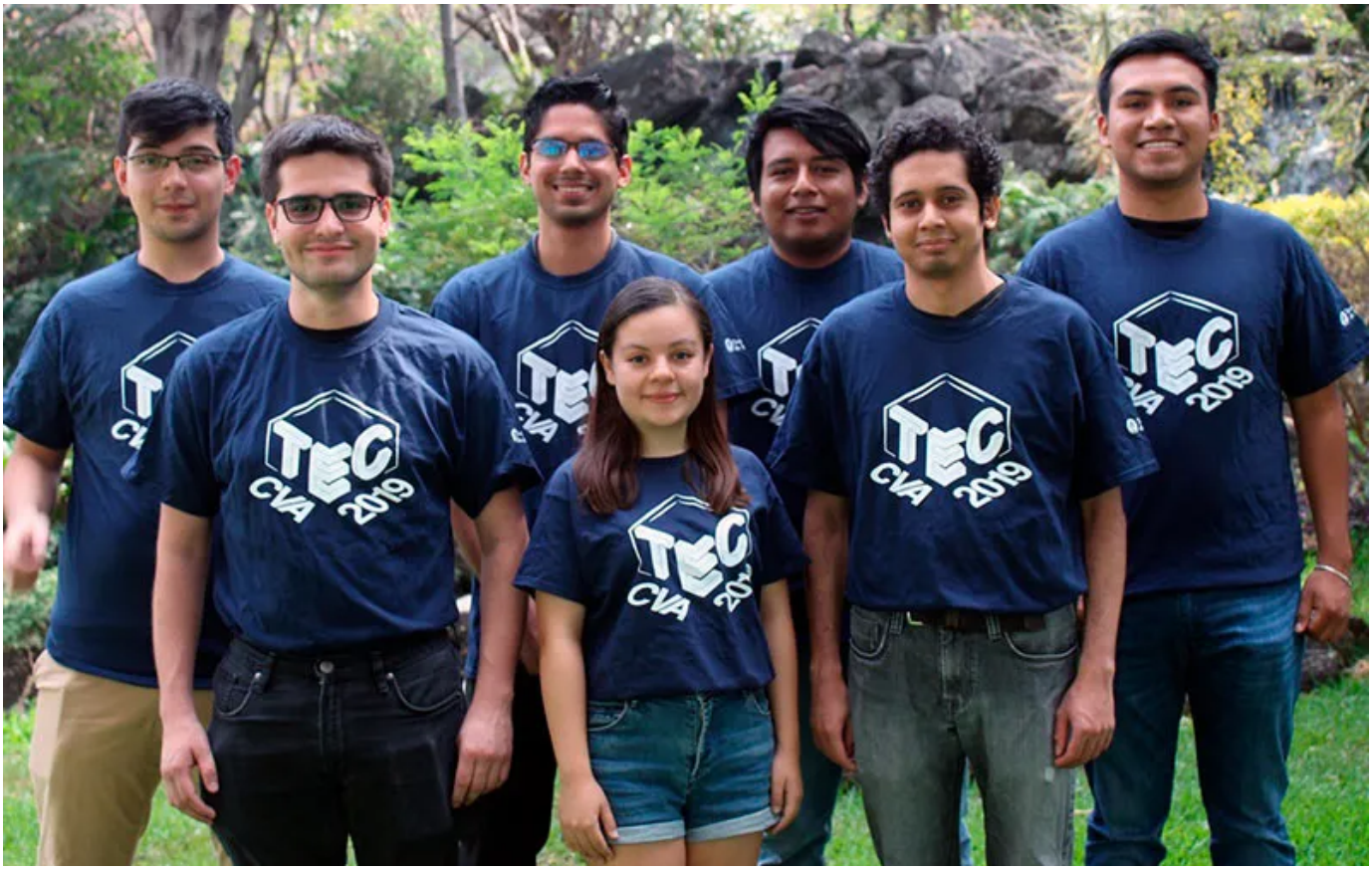


This year, due to the **COVID-19 pandemic**, the teams **only took part by sending reports** on the **design and manufacture of the rover,** as well as their use of **technology in wheels and telemetry**.

*“The **report on telemetry work is a requirement** to be able to take part in the competition,”* says Brenda.

*“It includes 10 sections, among which are the **system design**, the **electronics** part, the **graphical** interface, remote **data transmission**.*

*“And **our favorite** (which we think helped us to win): **innovation**, which included NASA protocols, safety protocols, and a pilot monitoring system.”*



*"**Thanks to telemetry**, we can remotely **tell what the pilots are experiencing**, as well as assist the team at each stage of the tasks required with data that can benefit or affect the exploration goal of the mission,"* says Brenda.

111 teams took part from universities and high schools in different countries such as the United States, Germany, Peru, Colombia, Italy, Russia, Puerto Rico, Brazil, and Mexico.

Participation of Cuernavaca in the NASA Rover Challenge

The **participation** of Cuernavaca campus has become an **uninterrupted tradition since 2013,** with mentoring from laboratory technicians and coordinated by the campus' Undergraduate Mechatronic Engineering Department.

Over 8 years, they have obtained the following awards:

- *AIAA Telemetry/Electronics Award (2014, 2016, and 2020)*
- *“**Jesco von Puttkamer International Team Award**“ (**2016**, 2017, and 2019)*
- *“Frank Joe Sexton Memorial Pit Crew Award” (2017)*
- *“**Team Spirit Award**“ (2018)*

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