

LOCAL // HOUSTON

## A Houston company helped students design lunar race cars. Next time, they'll race on the moon.

Andrea Leinfelder | July 6, 2020



Team ATLAS from Argentina: Winning team for Best in Racer Body Style.

Students from around the world spent four weeks scrutinizing springs that would work in lunar gravity, components that would withstand extreme temperatures and grips that would keep their 11-pound race car from bouncing off course when speeding along the lunar surface.

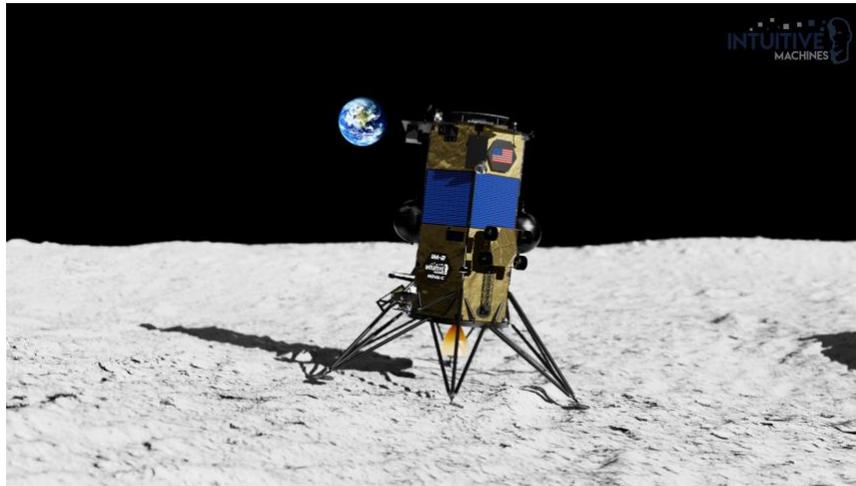
“We want the racer to be racing and not jumping,” Nicolas Maculan, a 17-year-old Argentinian student on Team Atlas, said in a You-Tube video.

On Monday, teams from Argentina, China and the U.S. were named winners of the Moon Mark competition. This competition, created to inspire homebound students during the global COVID-19 pandemic, was only for the vehicle’s design. Next year, the Reno, Nev.-based company will host another competition to help students actually build, launch and race vehicles on the moon.

It’s accomplishing this through a partnership with Houston-based Intuitive Machines, one of the companies selected by

NASA to develop a lunar lander to carry science, technology and now tiny race cars to the moon.

“Our partnership with Moon Mark was specifically to inspire the next generation,” said Trent Martin, vice president of space services at Intuitive Machines. “We can drive them toward science, technology and engineering fields where they might eventually change the world.”



Intuitive Machines' Nova-C Lunar Lander is set to land in the Oceanus Procellarum, a scientifically intriguing dark spot on the moon, in October 2021

Moon Mark was founded by Mary L. Hagy in 2018. A self-proclaimed “serial founder,” Hagy was looking for a project to engage students when she attended a robotics competition.

She was hooked after learning that, like her own hobby racing a black Mercedes-Benz SL400 on professional road tracks, the students' robotic operations were based in “pits.” Hagy decided to merge her love of racing with student robotics and landing on the moon.

Moon Mark is funded through private investors, corporate marketing sponsorships and, in the future, content licensing deals where Moon Mark would be paid by TV stations and digital platforms seeking to air its documentaries, TV shows and even virtual or augmented reality experiences created from the student competitions. Mission 1 is the competition where students will actually race on the moon.

“Mission 1 was created for the specific purpose of identifying and engaging young people,” Hagy said, “and capturing the stories of their adventures and distributing it globally.”

Leading up to Mission 1, this summer's Lunar Race Car Design Challenge attracted 35 teams from 11 countries. Students were

scored on categories that included space worthiness, such as using materials that can survive the moon's very cold and hot temperatures, creative audience reach to connect with people both locally and around the world, and entrepreneurship. The latter involved creating a business plan and identifying a commercial space application for the race car.



Moon Mark registrations from around the world for the Lunar Race Car Design Challenge

Intuitive Machines told them what computer, battery, solar panel and communications systems to use. Then the students had to determine the vehicle's mobility and its system that would dissipate heat away from hot components like the vehicle's computer or batteries.

"What stood out as unique was the vast differences in the way each group solved the problem," said Martin, one of the competition's 25 judges.

He said one team presented a vehicle with six wheels. Other teams designed four-wheel vehicles, and one team even pitched a race car with two wheels and ski-like skids to keep it from tipping over.

Ultimately, the competition gave out four \$1,000 prizes. These were awarded for best lunar viability (Team ILSTAR in China), racer body style (Team Atlas in Argentina), commercial application (Team Blue Pride in Philadelphia, Pa.) and creative audience reach (Team Nano's Clan in Argentina). The money will be donated to charities selected by the winning teams.

The competition for developing the Mission 1 race cars is set to begin in January 2021. Moon Mark will take six teams through a variety of qualifying challenges, such as building and racing drones and competing in Shark Tank-like space commercialization pitches, and then select two teams to travel to Houston and work with Intuitive Machines and race car professionals. These teams will travel to Florida in October 2021 to watch the launch.

The race cars will be attached to Intuitive Machines' Nova-C Lunar Lander, which is set to land in the Oceanus Procellarum, a scientifically intriguing dark spot on the moon, in October 2021. Nova-C is carrying commercial cargo and five NASA payloads to the moon, including cameras to observe the dust kicked up by Nova-C's engines (measuring this could help determine if the dust would damage a human landing system) and another experiment that will demonstrate autonomous navigation.

With the lander's ability to carry 220 pounds, the race cars' 22 pounds is roughly 10 percent of what the Nova-C can carry. Martin said the current market value for sending one kilogram (2.2 pounds) to the moon is between \$900,000 and \$2 million. This market value is based on NASA contracts awarded to Intuitive Machines, Astrobotic and Masten Space Systems, as well as advertised prices by the companies.

The competition still has some logistical questions to work out, for instance if the racing vehicles will be autonomous, with their speed and handling determined by software coding, or controlled by students using computers on Earth.

The distance and speed are being determined, too. But for the latter, Hagy gave one assurance: The cars will go "as fast as possible."

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My name is Andrea Leinfelder, and I write about aviation, the Port of Houston, commercial space and technology for the Houston Chronicle. Before the Chronicle, I was a business reporter at The News-Press in Fort Myers, Fla. I'm a proud alumna from the University of Florida's College of Journalism and Communication. During my time there, I had internships at the Gainesville Sun and The Detroit News, and I was an investigative journalist for Carnegie-Knight News21.