

SCIENCE

Michigan Solar Car team places third in international competition

by Michal Ruprecht
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The University of Michigan Solar Car team placed third in the Bridgestone World Solar Challenge on Thursday afternoon after a five-day, 1,800-mile race through the Australian Outback.

The team's car, [Electrum](#), reached the finish line in [Adelaide](#), South Australia averaging about 49 miles per hour. The Belgian team, Agoria, placed first, followed by the Japanese team from Tokai University.

Engineering junior Andrew Dickinson, the project manager of the 20-member team, said he was proud of his team's persistence through all the challenges they faced.

"I'm really proud of my team," Dickinson said. "We did a whole lot together. We went through a lot of challenges, and just one thing about this team more than any other team that I've been on is that, every time I would walk into the room and say, 'guys, this bad thing happened to this challenge at this roadblock,' ... everybody in the room is just ready to go, ready to tackle it. It's that persistence that sets us apart."

Assistant professor of mechanical engineering Neil Dasgupta was the team's adviser this year, but wasn't able to travel to Australia with the team. Joanna Millunchick, associate dean of undergraduate education and professor of materials science engineering, joined the team instead.

Millunchick said she was proud of the team, saying they represented the "Michigan difference."

"I'm so proud of this team," Millunchick said in an email interview. "They showed incredible resilience in the face of tremendous stress. They embody the Michigan difference."

Dickinson said the team designed Electrum about one year ago and began construction in May. The team made aerodynamic changes in the nose and canopy areas of the car and added new solar cells and battery design. He said the cost of the entire project was about \$1.2 million.

“(With) any new technology, there’s always a risk, but I’d say these were not the type of drastic changes that we made when we switched the body style up in 2017,” Dickinson said. “This year, the game was not necessarily to make it a drastic change and shake the waters, it was more ‘how can we take this proven design and incrementally improve it and try to get it closer to number one?’”

Dasgupta emphasized the team’s innovations, and said they also focused on team dynamics this year.

“We have focused on our team dynamics in order to maximize efficiency during the race and control stops as well as being prepared for any challenges that we face along the way,” Dasgupta said.

The team **received** funding from a number of sponsors, including the University, to build the car. Millunchick said the cars are state of the art and use expensive technologies, so it’s important that the University financially assists the team. She added the University will continue to sponsor the team because of the team’s successes.

University alum Charles Hutchins has been a donor since 1989. Dickinson called Hutchins the team’s number one fan. Hutchins said he has traveled to the race with the team almost every year.

“We came into town and were there when they crossed the finish line, so it’s a wonderful feeling,” Hutchins said. “The number of things they overcame to be third is mind boggling.”

Millunchick said the experience allows team members to build on many skills, including systems thinking, teamwork, communication and leadership.

“This type of experiential learning is crucial for students to learn the core competencies beyond the technical skills necessary to be a twenty-first century engineer,” Millunchick said.

Hutchins said the team normally runs a mock race around the state of Michigan before coming to Australia, but this year they didn’t receive solar panels for the car until a week before the race. He added the team’s chase vehicle, which is used for security and strategy reasons, failed on the day of the race, so they had to replace it with another vehicle.

The race began on Oct. 13 in Darwin, northern Australia. Michigan quickly moved to the front of the pack and faced off with team Tokai University.

All the teams encountered cloudy and windy weather on the fourth day. This led to wind-related crashes for both Solar Team Twente, which was leading the pack, and Team Sonnenwagen Aachen, which was in fourth place.

On the morning of the final day, Michigan was in fourth place behind the Vattenfall, Agoria and Tokai University teams. However, Vattenfall dropped out of the race after bursting into flames due to a malfunctioning battery.

Dickinson noted this year was the first time Michigan has beaten Vattenfall. He said this was a surprise.

“It was quite a shock to everybody. We almost didn’t believe it at first,” Dickinson said.

Millunchick said she was hoping the team would place first this year, but is happy with the team’s performance.

“It was an unusually tough race,” Millunchick said. “But our team has an extremely robust and stable design, which allowed us to take third place.”

Hutchins said he has attended almost every race, but this year would be his last due to his age. He added he hopes the team continues to be successful.

“At age 85, I’m not going to make it again because it’s a 31-hour flight to get here,” Hutchins said. “It’s pretty exhausting, but the team will continue I’m sure, and we hope somebody else will pick up my job as the head cheerleader.”