# Student-designed Hyperloop pod demonstrates magnetic levitation

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A team of students from the University of Cincinnati looks on as their Hyperloop Prototype prepares to levitate. Credit: Jay Yocis/University of Cincinnati

The whirring sound of Hyperloop UC's hover engines filled the conference room as an anxious crowd shuffled closer for a better view.

Would this student-designed prototype actually levitate?

The answer came in a matter of moments as the eight miniature engines gained revolutions per minute—emitting noises reminiscent of Star Wars sound effects—and the 14-foot-long Hyperloop UC pod achieved roughly a quarter-inch of magnetic levitation.

The unveiling and demo of Hyperloop UC's prototype at the University of Cincinnati's Myers Alumni Center on Oct. 17 was indeed a moment to celebrate for a team of more than 60 UC students who had been working nonstop to refine their entry into an international Hyperloop competition hosted by Tesla founder Elon Musk. As CEO of the aerospace firm SpaceX, Musk has challenged the world to submit ideas—and now prototypes—for a tube-based passenger system that would allow for travel between cities at the speed of sound. Testing of prototypes will take place January 27-29 when they will insert their pod for takeoff in a mile-long test track next to SpaceX in Hawthorne, California.

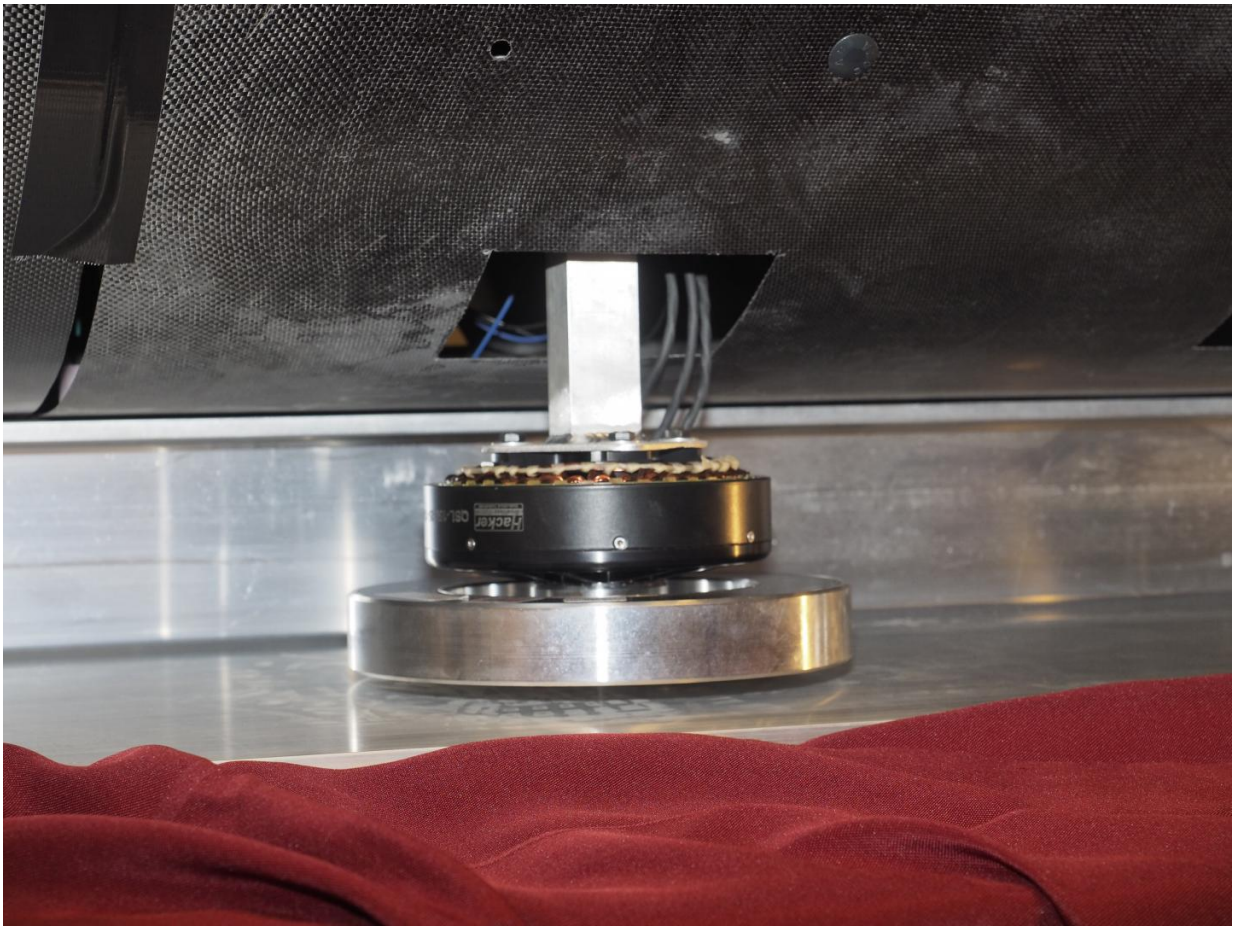
UC got involved when UC aerospace engineering graduate student Dhaval Shiyani took Musk's challenge to heart last year and began assembling an interdisciplinary team from across campus. UC's group is one of just 30 that has advanced to the test round of the Hyperloop competition out of more than 1,200 teams worldwide.

"We are very proud of the design we have created," said Shiyani, Hyperloop UC's president and an international student from India. "It hits all the marks with respect to performance, safety and scalability. Our education at UC has taught us well, and we are confident that we will be a force to reckon with come January."

Fellow graduate student Sid Thatham, also born in India, oversees finance, operations, marketing and fundraising for Hyperloop UC.

"Our journey has been pretty amazing," said Thatham. "We've had a chance to work on something that's larger than all of us, something that actually is going to change the way people travel in the near future."

If successful, the venture could completely shift the way commuters travel. Cincinnati to Chicago, for example, could be travelled in a half-hour—all while passengers relax in a capsule that levitates through the tube at more than 700 mph



The University of Cincinnati Hyperloop pod includes eight electromagnetic hover engines that allow the prototype to levitate as it travels through a Hyperloop tube. Credit: Jay Yocis/University of Cincinnati

"This has been a tremendous marriage of innovation, academics and research," said UC Interim Provost Peter Landgren. "Hyperloop is a global conversation, and Elon Musk needs to be hearing what's going on in Cincinnati."

UC Board of Trustees Chairman Rob Richardson, Eng '02, JD '05, also offered words of encouragement to the team.

"When we talk about innovation and what that means, it is not about making money," said Richardson, who received his first degree in electrical engineering. "It is really about that spirit and that passion that anything is possible, and you can rebel against the status quo.

"That spirit you have today will be challenged. People will tell you that your idea can't be done or that you are not the one that can do this. The beginning of being an innovator is being comfortable being dismissed. People often assume that because it hasn't been done, it can't be done. But nothing was possible until it was."

Richardson has also been the key driver behind Next Lives Here, an innovation summit at UC on Oct. 20 that will also include the Hyperloop UC prototype.

UC's hyperloop team was among 120 teams invited to Texas A&M University in January of 2016 to present their ideas, where they were then selected to be among just 30 who are moving on to the final round of competition. UC is also the only group representing Ohio universities.

"People always say that seeing is believing and personally, seeing Hyperloop UC's design mature from rendering to prototype only further affirms that we are doing everything right here at the College of Engineering and Applied Science," said Teik C. Lim, UC CEAS dean and Herman Schneider professor of mechanical engineering. "We are always challenging our students to be innovative and cutting edge, and Hyperloop UC is all of that and so much more.

"These are engineers, designers and business students all working side by side—just as they would in the real world. They have taken their vision, formed by a host of different minds, and together have made it a reality. I couldn't be more pleased with what they have accomplished. I wish them much success as they enter the final round."

Next, UC's team will ship their pod to California for preliminary track testing in early November ahead of the competition with the 29 other teams in January.

Provided by University of Cincinnati