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Singapore Students Build 3D-Printed Electric Car

BY ANGELA MOSCARITOLO FEBRUARY 6, 2015 01:30PM EST 0 COMMENTS

Students at Nanyang Technological University built the first 3D-printed "urban solar electric car" prototype.

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3D printers have been used to make everything from high-fashion accessories to medical implants, but a group of students in Singapore are taking things to the next level.

Students at Nanyang Technological University have built the country's first 3D-printed "urban solar electric car" prototype, the school [announced](#) this week. Mounted on a carbon fiber single-shell chassis, the so-called NTU Venture (NV) 8 (pictured, left) isn't just a regular old car, it's a race car.



The team decided to go with a 3D-printed cabin made from lightweight plastic to maximize internal space and comfort while keeping weight to a minimum, Ilmi Bin Abdul Wahab, a fourth-year computer engineering student who led the development of NV8, said in a statement.

"Despite being an urban concept car, it is no slouch and can reach a top speed of 60 kilometers per hour, while maintaining low-energy consumption," he said.

Meanwhile, another team of students at the school built the so-called NTU Venture (NV) 9 (above, right), a three-wheeled racer that can "take sharp corners with little loss in speed due to its unique tilting ability inspired by motorcycle racing." The NV9 team wanted their car's body to be as streamlined as possible.

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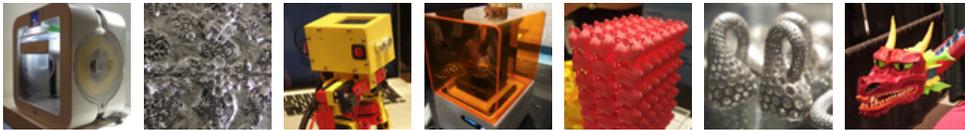


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"The resulting design looks like a fusion between a F1 race car and a glider plane, with an all surround canopy for increased visual awareness," NV9 team manager and final-year electrical and electronic engineering student Winston Tan, said in a statement.

The students plan to race their futuristic-looking automobiles in Shell Eco-marathon Asia, which takes place later this month in Manila, Philippines.

Designed from scratch and built over a year with as many as 150 parts that had to be 3D-printed, the cars aim to offer the highest-levels of fuel efficiency. To make that happen, the students developed innovations like silicon solar cells that can be contoured to follow the car's shape, allowing for maximum solar energy harvesting, according to associate Professor Ng Heong Wah, who mentored the two teams.



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"We are extremely proud to have designed and assembled a 3D printed body shell for the electric car, which is Singapore's first and probably Asia's first 3D-printed concept car," Ng said in a statement. "The 3D printed car body was pushing existing technology to the limits and we are so pleased that it has paid off."

The team that designed the NV8 initially wanted a supercar concept, but decided on a micro-car with vertical opening doors. They said it was difficult to assemble the shell of the car since it was produced in different parts by various 3D printers at NTU and sponsor companies like Stratasys and Creatz3D. In total, the printing and assembly process took three months.

"For it to be lightweight, thin and yet strong, we integrated a honeycomb structure and a unique joint design to hold the parts together," Ng said. "When seen against the light, the structure has a translucent see-through effect, like a dragonfly wing. It is a sight to behold!"

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