

Singapore university unveils Asia's first 3D-printed concept car

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Students from Singapore's [Nanyang Technological University](#) (NTU) have built what may well be Asia's first 3D-printed automobile. The solar-electric hybrid NTU Venture (NV) 8 will race in the Urban Concept category at this year's Shell Eco-marathon Asia in the Philippines.



Mounted on a carbon fiber monocoque chassis, the body, internal trim and other components of the NV8 were assembled from 150 acrylonitrile-butadiene-styrene (ABS) parts in ivory and other colors printed on Stratasys Dimension Elite and Fortus 400MC 3D printers.

"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," said Associate Professor Ng Heong Wah, who mentored the team that developed and fabricated the NV8. "The 3D printed car body was pushing existing technology to the limits and we are so pleased that it has paid off."

The NV8 solar-electric concept car (foreground) was developed by student's at Singapore's Nanyang Technological University.

Ilmi Bin Abdul Wahab, a fourth year computer engineering student who led the development of the 3D-printed NV8, said, "We decided to go with a 3D-printed cabin made from lightweight plastic, as we wanted to maximise the internal space and driver's comfort while still being able to keeping the weight to a minimum." The walls of the body are 1-mm thick and reinforced with a honeycomb cell wall that is also 1-mm thick. And 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."

The designer of the NV8 electric car, mechanical engineering student Kam Sen Hao, said, "Initially we wanted a supercar concept, but after taking into consideration the dimensional requirements for the competition, we ended up with a sensible cute micro-car with vertical opening doors, which will appeal to all ages.

His co-designer, also from mechanical engineering, Ng Jun Wen, said it was a challenge to assemble the shell of the car which was produced in different parts separately by the various 3D printers at NTU and at other sponsor companies. Printing and assembly took the team three months of effort.

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