

Singapore's First 3D-Printed Solar Cars

[February 4, 2015](#) Energy Matters

Students at Nanyang Technological University (NTU) in Singapore have built the city-state's first urban solar electric cars with 3D-printed body shells.

The body of the NTU Venture (NV) 8 consists of 150 parts and is mounted on a carbon fibre single shell chassis. Printing and assembly of the vehicle took the team three months. (NV) 8 can reach a top speed of 60 kilometres per hour, while still being an energy sipper.

"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," said the vehicle's co-designer, Ng Jun Wen.

The NTU Venture (NV) 9 is a three-wheeled racing vehicle featuring hand-made silicon solar cells. According to Team Manager Winston Tan, inspiration for the vehicle originated in motorcycle racing, where riders lean to maintain handling and speed.

"For the car's body, we aimed for it to be as streamlined as possible," said Mr. Tan. "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."



The (NV) 8 will be competing in the Urban Concept category at this year's Shell Eco-marathon Asia and the (NV) 9 will be entered in the Prototype category.

"Using the latest engineering techniques learnt from their studies in NTU, the students have developed innovations such as silicon solar cells that can be contoured to follow the car's shape," said Associate Professor Ng Heong Wah, who mentored the two teams.

"This allows for maximum harvesting of the solar energy and a tilting mechanism in NV9 that can 'lean' in the direction of the turn to avoid losing speed."

The idea of solar electric cars parked in our driveways and cruising our streets is no longer a pipe dream or even that far off. In December last year, the University of New South Wales' Sunswift team were successful in a crowdfunding campaign that will assist them take their record-breaking [eVe solar car](#) to the next level – making it street legal and Australia's first road registered solar car.

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