

2016

DAuto Newsletter

APRIL EDITION



Design engineers turn designs into reality. Without them, a great idea but nothing more than, ... well, a great idea.

SHELL REVEALS CITY CAR CONCEPT DESIGNED BY GORDON MURRAY

The city car concept by Shell and Gordon Murray delivers a fuel consumption of 38km/liters (107 mpg) and allows a 34% reduction in primary energy use over its entire lifecycle.

The Shell Concept Car would use around half the energy required to build and run than a typical small family car UK and 69% less than that of a typical sports utility vehicle (referring to the UK market).

A high level of efficiency is enabled by the “co-engineering” holistic process, whereby vehicle body, engine design and lubricants are all created together.

From a styling perspective, the Shell Concept Car offers a new take on the ‘tall and narrow’ look, and features a **three-seat triangular layout**, with a central driving position and two passenger seats behind.



Built around Gordon Murray Design's patented iStream® platform, the Shell Concept Car represents a radical rethink on the way in which cars are designed, developed and produced.

The prototype evolves the ideas presented with the Gordon Murray Design T.25 city car produced in 2010.

The car **weighs just 550kg** and is built using carefully chosen materials which have a low energy and CO2 footprint.



SHELL REVEALS CITY CAR CONCEPT DESIGNED BY GORDON MURRAY



The car also uses recycled carbon fiber for its body that can be assembled for a quarter of the price of a conventional steel car and almost the entire car can be recycled at the end of its life. The car makes use of a modified version of Shell's Drive App via a smartphone. This App provides the driver with real time feedback via an on-screen graphic which emphasizes the fact that fuel consumption is highly dependent on driver's behavior.

The concept also has a turning circle smaller than that of a London taxi, making it ideal for urban driving.

The Shell Concept Car is a total rethink of the Gordon Murray Design T.25 city car produced in 2010 for which Shell produced a prototype oil to improve the vehicle's energy efficiency.

The new car is the result of a co-engineering collaboration between vehicle, engine and lubricant designers, with each of the three elements of the vehicle tailored to work optimally with each other.

The car's gasoline consumption has been measured using a range of vehicle testing protocols covering both steady state and urban driving styles. Sample test results include a steady state consumption of 107 miles per gallon [2.64Litres per 100km] [38km/Litres] [89.1 miles per gallon US] at 70kmph/45mph and an improvement of 4.67g CO₂/km on the New European Driving Cycle (NEDC) from the use of bespoke lubricants, equivalent to a 5% improvement in fuel efficiency compared to standard lubricants available in the UK.

TOYOTA uBOX IS A GEN-Z FOCUSED CONCEPT

Toyota in partnership with Clemson University has created the Deep Orange 6 concept, a car targeted to Gen-Z, the next generation of car buyers.

The uBox Concept is the sixth generation of the Deep Orange concept vehicle program at Clemson University International Center for Automotive Research (CU-ICAR).



The exterior styling is characterized by a surface treatment that combines sharp edges and details with simple geometries with curved surfaces that lend the car a more organic look. The goal of the design was to “align with generation Z’s personality trait to stand out, embodying a muscular stance that looks like it’s sprung forward in motion, even when standing still.”

The concept car was designed, engineered and hand-built by graduate students at CU-ICAR, and is the result of a two-year collaboration with Toyota Motor North America designers and engineers. The brief tasked students to develop a vehicle targeting young entrepreneurs who want a vehicle that can provide utility and recreation on the weekend but that can also offer office space or other career-centric or lifestyle uses during the week.

TOYOTA uBox IS A GEN-Z FOCUSED CONCEPT

The interior is focused on versatility and can be rearranged for various activities, from working or operating a business, to hauling bulky cargo. A low floor allows for reconfigurable, removable seats on sliding tracks that can be nested.

A compact, dual-purpose, all-electric powertrain providing a fun driving experience and emission-free stationary energy to power consumer electronics, power tools or other devices through various 110-volt sockets located throughout the interior and exterior.

One distinctive technical highlight of the uBox is the *pultrusion* technique developed by the students that allows composite carbon fiber rails bonded with aluminum to support a curved glass roof. On this feature, Executive Program Manager Craig Payne, commented *"The roof pultrusion was something unexpected and very interesting when they first started talking about the concept. The fact that they were able to achieve an industry-first manufacturing technique as students speaks volumes for this program."*



INTERIOR DESIGN PROCESS AT BUICK: THE ROLE OF CLAY SCULPTING

The role of traditional artistic clay modeling in the development and design of the interior of the Buick Avista Concept.



The official document released by Buick underlines the importance of traditional clay modeling in today's automotive design process, which so heavily relies on digital tools, and gives



A some insights on the development of the door panel for the Avista Concept, revealed at this year's NAIAS in Detroit.



They gave the detailed sketch to the clay sculptors and left the next step in their hands. For a designer, the transition from 2D to 3D is the moment of truth.

While sketching and refining the door in digital mockups they reached the point where they wanted to see it in physical form.



We are really fortunate to work with such a talented team of sculptors,: said **Aaron Stich**, creative designer for Buick.



INTERIOR DESIGN PROCESS AT BUICK: THE ROLE OF CLAY SCULPTING

It was an amazing door design, but it was longer than we are used to, so we knew we'd have to pay special attention to the curved lines to make the physical model look just as graceful as it did on the paper: Dybis explains.



In developing a vehicle, designers use a variety of tools to achieve the perfect blend of form and function. While every new Buick begins as a sketch, refining the design entails a range of methods to achieve a specific advantage or desired aesthetic.

Mark Dybis, creative sculptor, remembers his initial reaction when seeing the drawing of the door and quips that it reminded him of an M.C. Escher artwork.

Dybis, who has spent the majority of his decade long career as an automotive sculptor in the Buick studios explained the lofty nature of making this proposed door design work.

The job is to bring the designers a vision to life, and we know there are things that have to be considered when transitioning a drawing into the tangible world. In the end, I appreciate that a modern-looking car like the Avista, and all Buicks, are styled with time-honored methods like hand drawing and sculpting



TECHRULES SEEKS EUROPEAN PRODUCTION SITE FOR TREV CONCEPT

Techrules, a new China-based automotive R&D company, is looking for an European site for producing the Turbine-Recharging Electric Vehicle (TREV) presented at the recent Geneva Show.

The heart of the concept presented by Techrules at the 2016 Geneva Motor Show is a Turbine-Recharging Electric Vehicle (TREV) system, an all-new patent-protected series hybrid powertrain technology comprising a turbine-generator.

TREV is a range extender system that uses a micro-turbine to generate electricity that charges a battery pack. The battery powers the motors that drive the wheels. Newly developed battery management technologies enable superior charging efficiency. The high efficiency of the TREV range extender results in a requirement for fewer batteries, saving weight and space.

TREV combines experience of aviation and electric vehicle technologies with several proprietary technical innovations aimed at delivering high levels of efficiency and performance, and ultra-low environmental impact.



The system was showcased at the 2016 Geneva International Motor Show with a concept car presented in two versions: the AT96 and the GT96, each offering an alternative configuration of the system.

TECHRULES SEEKS EUROPEAN PRODUCTION SITE FOR TREV CONCEPT



'AT' refers to 'Aviation Turbine', indicative that the turbine is configured to run on a liquid fuel such as aviation kerosene, diesel and gasoline. The AT96 is a vision of a track-focused version of the supercar and features management large rear wing, which provides both straight-line stability as well as downforce to aid high speed cornering.

The GT96 – for gas turbine – is designed to run on a gaseous fuel such as biogas and natural gas and is styled as a road-going supercar.

To keep the weight in the 1,000 kg range, the concept adopt a carbon fiber monocoque chassis combined with carbon fiber panels.

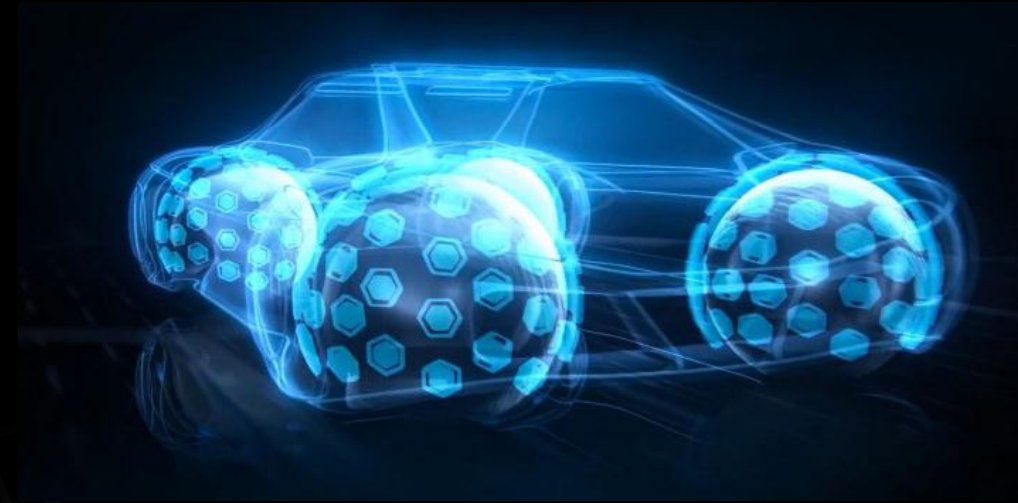
Producing peak power of 768 kW (1,030 bhp / 1,044 PS), initial projections indicate extreme performances (0 – 100 km/h in 2.5 seconds; 350 km/h limited top speed) and a huge range (over 2,000 km). Under plug-in operation, it achieves fuel consumption of just 0.18 l/100 km (1,569 mpg).

Techrules plans to begin series production of TREV technology in a low volume supercar of its own design within a couple of years.

GOODYEAR'S SPHERICAL CONCEPT TIRES FOR SELF-DRIVING CARS

At the Geneva Show Goodyear has unveiled the Eagle-360, a futuristic concept tire with a spherical-shaped design create to be used on autonomous vehicles.

The possibility of spherical, omnidirectional tires has been explored many times in the past – a recent example is the 2004 “I, Robot” movie with the Audi RSQ Concept – and such a technology poses many challenges on different levels: technology, costs, performances, efficiency and last but not least, styling.



The tires are connected via magnetic levitation and feature a 3D printed tread inspired by nature that mimics the pattern of brain coral and behaves like a natural sponge stiffening in dry conditions and softening when wet.

With their Eagle-360 concept tire Goodyear has targeted autonomous vehicles and aimed at achieving high levels of maneuverability, connectivity and biomimicry.

Along with the Eagle 360, at the Geneva Show the tire manufacturer has also presented the IntelliGrip, a concept tire designed to communicate with autonomous vehicle control systems, sensing road surface and weather conditions.

GOODYEAR'S SPHERICAL CONCEPT TIRES FOR SELF-DRIVING CARS

Goodyear IntelliGrip

Senses road conditions: Thanks to its advanced sensor technology and specially designed tread, the concept tire can sense many road conditions, including both surface and weather conditions.

Active-wear technology: The IntelliGrip also uses advanced active wear technology to assess the condition of the tire and the vehicle.

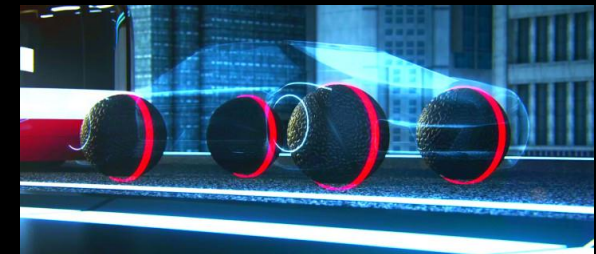
• Custom algorithms: Goodyear-developed algorithms account for variables such as inflation pressure and tire temperature.

The Goodyear Eagle-360 is a spherical-shaped design concept tire that would provide self-driving cars ultimate maneuverability, connectivity and biomimicry to increase safety.



Adapting to road conditions: When the tire senses a rainy or slippery road surface, the autonomous vehicle will adapt its speed. Additionally, the tire can shorten the stopping distance, provide a better cornering response, optimize stability and even support collision prevention systems.

Technology adaption: Goodyear is working with a number of vehicle manufacturers to further adapt this technology to their needs, enhancing connectivity with features such as Electronic Stability Control Systems, Brake Control Systems and Suspension Control Systems. (Source: Goodyear)



YAMAHA 04GEN IS A SCOOTER CONCEPT WITH SEMI-TRANSPARENT BODY

At the Vietnam Motorcycle Show Yamaha has unveiled the 04GEN scooter concept, featuring semi-transparent body panels and a frame with a flowing, organic design.



"The 04GEN was designed based on the RUN-WAY concept, which evokes the image of women with an air of dignified elegance and grace in mind and body."

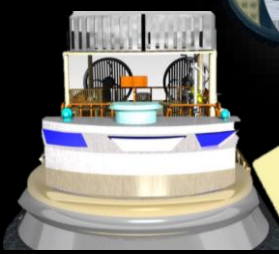
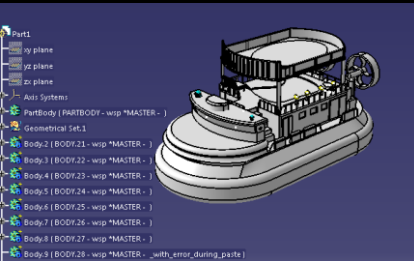
The 04GEN is the fourth concept vehicle in the series started in 2013 and inspired by the "Refined Dynamism" design philosophy. It is also the first actual two-wheeler.

Its predecessors were the 01GEN futuristic three-wheeler; the 02GEN, an electrically power-assisted wheelchair designed in collaboration with Japanese fashion designer, Tamae Hirokawa; and the 03GEN-f and 03GEN-x three-wheelers based on the Tricity model.

According to the designers, *"Showcasing the beautifully-engineered interior structure brings a lightness to the majestic body, creating a new design which synthesizes the interior and exterior."*

The main design feature of the 04GEN is the use of semi-transparent plastics for the body panels, which leave the underlying frame partially visible.

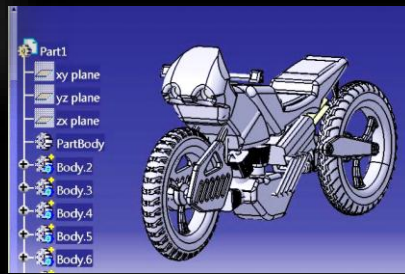
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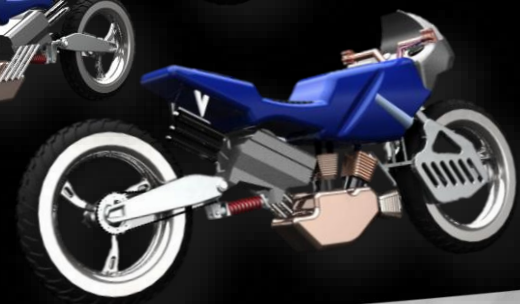
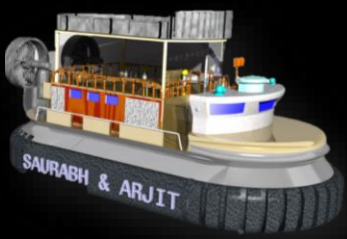
By :
Arjit & Sourabh
(OCT, Bhopal)
Design Tool :
CATIA V5



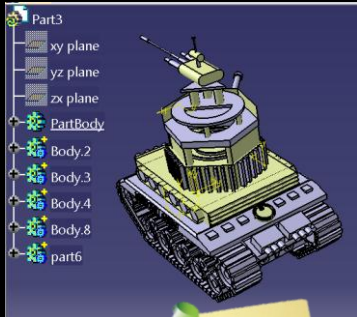
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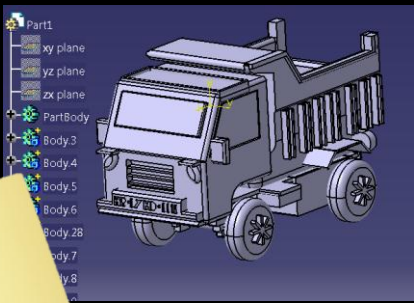
By :
Hariom Harod
(SAIT, Bhopal)
Design Tool :
CATIA V5



STUDENT'S CORNER



By :
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(LNCT, Bhopal)
Design Tool :
CATIA V5

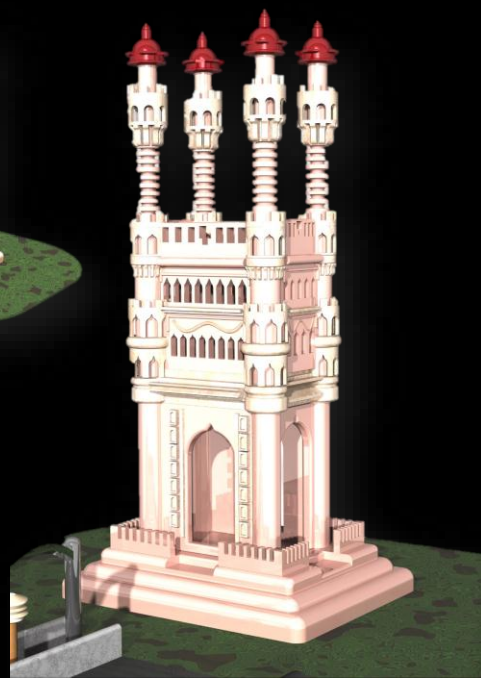
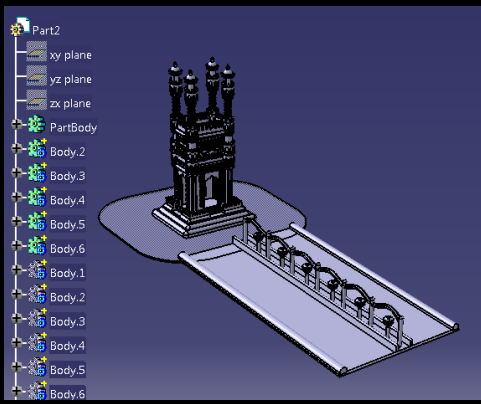


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