

MENTIRA

MECHANICAL INVENTIONS & NEWS AROUND THE WORLD

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Autonomous Mobility Platform

The Toyota e-Palette is, basically, a box on wheels with a rather low ground clearance, which leaves it strictly for city-driving, although the same design allows it to maximum room inside to accommodate its myriad of potential applications. It will be produced in three lengths, ranging from four to seven meters, with the smallest model getting four wheels and the other two sporting eight. From what we can tell, the smallest model is aimed at everyday passenger transport, while the middle-sized unit can serve as a food truck, a delivery van, or a mobile retail store, among other uses. The largest one looks around the size of a small bus, which makes it ideal for moving equipment from venue to venue, public transport, and similar applications.

It's fully autonomous and electric-powered, which is as futuristic as modern vehicles can get, which means the platform's viability will depend on how both technologies spread moving forward. We mean, if autonomous vehicle laws aren't allowed freely on the streets any time soon, then this thing can't entirely get the jumpstart it's looking for.



Six-Foot Electric Boat

It looks like the boat equivalent of a ride-on car. Make no mistake, though, the Rapid Whale Mini Boat is a functional watercraft that's designed to let you take a leisurely cruise around the water.

Billed as a "ridiculously small" electric boat, the watercraft measures just six feet long, making it look like a veritable toy floating in the water. Seriously, you'll see kids riding inflatables bigger than that. Despite the toy-like appearance, Rapid Whale promises it's truly a "blast to ride," ensuring it will facilitate hours of riding fun.

The kit includes laser-cut marine plywood parts, various 3D-printed plastic components, a thick



Plexiglas steering wheel, steering shaft bearings, and various sizes of gaskets. If that doesn't sound enough to build a boat, you're right. The kit is designed to pair with a list of items you can get off the shelf, all of which are available from an Excel sheet on the product page. It's quite a long list, so it could be overwhelming, although they did include a direct link to a specific recommended product from either Amazon or Chesapeake Light Craft, so you can just click on the links to order everything in one sitting.

Razor Turbo Jetts Motorized Skates.

A pair of motorized skates, the contraption straps to the heel of whatever footwear you're wearing, effectively turning your shoe into motorized Heelys. Except, you know, you can remove the skates at any time (thank God), so you're not stuck wearing shoes with goofy-looking wheels on the soles the whole day.

The Razor Turbo Jetts come with one powered skate and one non-powered one, so you use it with the powered skate in front and the non-powered skate in the back, essentially allowing the front skate to drag the rear unit along. That means, you ride the skates with your legs spread apart, which should help make it easier to maintain your balance to ensure a minimal learning



curve. Both skates consist of a polymer frame that mounts to the back of your shoe and a hook-and-loop strap for securing everything to the footwear, with the powered skate getting an added enclosure that houses the battery and motor.

When strapped on, the rear wheel of the powered skates are designed to be positioned slightly above the ground, so you can still walk normally even with the darn things on. To start skating, simply put your powered foot out front and raise the tip of your toes until the rear wheel touches the ground. As soon as that happens, the 80-watt gear-driven motor automatically activates, propelling your forward at speeds of up to 10 mph. Yes, using this

looks just as goofy as wearing a pair of Heelys but we definitely see a reason for it if it gets you to work or school much faster.

The Flying Car

A real flying car, it can transport up to two people either by road or by air, allowing you to drive along roads and highways like the rest of humanity, all while allowing you to take to the skies when you'd rather travel without the heavy traffic. No, it won't quite let you perform a vertical take-off right out of a crowded road yet, but it does bring some conveniences that could make its unique land and air capabilities well-suited to modern life. Unlike some of the previous flying car prototypes we've seen, the PAL-V Liberty can collapse into a pretty compact size when transforming into a car, taking up no more space than a small SUV. As such, it should fit right in with the rest of the cars on the road. Well, as far as footprint is concerned anyway. As far as appearance goes, it's immensely different from traditional cars, with its three-wheel chassis and the mass of folded frames in the back making up the vehicle's flight mechanism.

It's fitted with two separate engines, a 100-horsepower powerplant for the road and a 200-horsepower unit for the air. On the ground, it can drive at top speeds of 100 mph and accelerate from 0 to 60 in under nine seconds. On the air, it can achieve maximum speeds of 112 mph, although you'll probably want to keep it at the recommended 87 mph cruising speed in order to maximize the range. It has a maximum operating altitude of 11,480 feet.



Foiler Luxury Yacht

The Foiler comes with four hydrofoils – two large ones in front and two smaller ones in the rear, all of which can be retracted at the single push of a button. During use, the hydrofoils raise the yacht an impressive five feet over the water surface, all while enabling heightened “speed and reactivity,” ensuring you’re as agile as you need to be while exploring the seas. With the foils anchoring it in the water, the outfit claims the yacht is extremely stable (it removes the movement generated by the waves’ impact on the hull), so much so, in fact, that it can ride through six feet waves without an issue. Do note, in extreme conditions, they recommend retracting the foils and using it as a classic boat (not being maritime experts, we have no idea why, but we’ll take it).



It’s powered by a hybrid system consisting of two 320 horsepower BMW engines that feed power to two

generators that convert the energy to electric before transferring it to a pair of custom electric-powered torpedo engines from Enata Marine. It can attain a top speed of 40 knots and cruises at a similarly-satisfying 30 knots, ensuring you will have a fun time feeling the wind in your hair while enjoying the open seas. An option to operate the boat strictly using the electric torpedoes is available, although doing so slows down the max speed to a far less satisfying 10 knots.

Autonomous Farm Tractor

An autonomous tractor platform, the machine is designed to take the place of all farm work currently accomplished using tractors, eliminating the need for a human driver while accomplishing the exact same tasks. Whether for plowing, tilling, disking, harrowing, planting, or any of the other things farm tractors are generally used for, this thing can serve as a capable robot replacement. The DOT Power Platform is a barebones chassis, with four wheels and a mounted box on one side that houses everything it needs to operate. That includes a 163-horsepower Cummins 4.5-liter turbocharged diesel engine and a 285-liter fuel tank, as well as all the necessary sensors and computer systems that allow it to operate all by its lonesome. To implement further fuel savings, the engine doesn’t directly send power to the wheels. Instead, it drives four hydrostatic pumps, each of which then transfers the power to a hydraulic motor installed in each wheel.



According to the outfit, this setup allows the vehicle to run at max speeds of just 12 mph, which may sound awfully slow, but could actually be perfect for carrying out various farming tasks.

The same engine, by the way, also powers a fifth hydrostatic pump, which can be attached to whatever implement you need to use for operation. Whether it’s a seeder, a sprayer, or some other farming tool that requires power, hooking it up to the pump should enable operation without any hassles. According to the outfit, they’ve identified over 100 farm implements that can be integrated with DOT, although, for now, the only ones they have on the operational prototype units are a 30-foot air seeder, a 60-foot sprayer with a 1,000-gallon tank, a 41-foot land roller, and a 500 bushel grain cart. And, yes, those offerings will be expanded the closer the product comes to wide release.

Zenro TSR-S Is A Road-Legal 1,177-Horsepower Beast

The Zenro TSR-S mates that powerful engine to a seven-speed paddle-shift gearbox with helical-cut dog gears, which sounds pretty regular enough. Until, of course, you find out that it also comes with two modes: one for the road and another for the track. In the former, gear changing is done electronically, with sensors helping smooth out the jump from one to the next, while the latter gives the driver a direct mechanical power-shift that's one of the fastest in existence to ensure a quick and timely response.

The car, by the way, gets extensive aerodynamic updates, including an updated front bumper and front wheel outlets that stabilize air around the wheels, a larger grille, and a splitter with more aggressive vents on the sides. It also has a crazy wing in the



rear that sits on the same level as the roof, complete with a curved shape. According to the outfit, this design allows the wing to function both as an air brake and a cornering stabilizer, making it integral to the vehicle's overall performance. Inside, the vehicle gets a stripped-down cabin that hints at its race-focused nature, although it comes with a decent load of options for adding some creature comforts.

No pricing has been announced for the Zenro TSR-S, but given its hand-built, low-volume nature, expect it to go well over seven figures.

Tipoon Camper Trailer Compacts To 1/3 Of The Size For Easier Towing

The Tipoon is a standalone pod that you'll need to combine with a separate trailer platform to turn it into a functional camper. When completely collapsed, it measures 5.5 x 5.5 x 13.5 feet (height x width x length), which should be small enough to park inside most garages without any special accommodations needed. Do note, the actual length will depend in the length of the trailer's drawbar, so 13.5 feet is the absolute shortest configuration, with the longest likely reaching just under 15 feet.

A remote control allows you to control the size, with two options in expansion, either half-open or completely open. In half-open mode, the trailer rises in height to 8.2 feet, in order to raise the headroom to accommodate standing individuals up to 6'2". One of the side panels also sticks out in order to create a hall inside where people can walk in. According to the outfit, the half-open mode is ideal when making pit stops, allowing you to access the camper's interior without having to open it completely. At this size, it will also still fit in a standard-width parking spot. Once you get to camp, use the remote to activate the Tipoon's full-size mode, at which point it will once again rise to 8.2 feet while expanding the width to its maximum 10.5 feet. The camper, by the way, will stabilize all on its own, so there's no need to add any supports for the expanded sections. According to the outfit, the expanded size provides a living space ideal for up to four people.



A Full-Fledged Go-Kart

The Ninebot GoKart Kit comes with all the parts you need to turn the erstwhile hoverboard into a functional go-kart, from the frame and the barebones body panels to the front wheels and the bucket-style seat. To assemble, you only need to tack on the kart to the miniPRO, integrating the latter as its rear wheels, so the hoverboard can propel the go-kart forward, while the kart's integrated steering mechanism and pedals allow you to drive it like a traditional vehicle. Built-in Bluetooth allows the go-kart to communicate with the app, so you can use a smartphone as a dashboard display to see how fast you're going at any time. We're assuming the same Bluetooth connection



is used to coordinate your driving with the miniPRO in the back, so it knows when you're stepping on the gas to accelerate or when you're engaging the brakes, prompting it to take the appropriate action. We don't know if the go-kart is actually equipped with its own brakes or if it merely relies on the hoverboard shutting down, but at the price point they're selling this, we definitely hope so.

An adjustable frame length allows you to accommodate short and tall riders alike, while a large seat provides enough room to hold both children and adults, making it suitable for people of all ages.

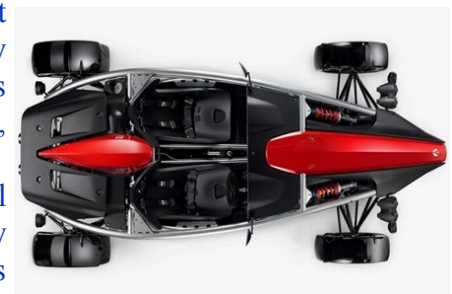
Do note, the maximum payload is 220 pounds, so bigger adults with heftier frames might want to find other go-kart options. Dimensions are 54 x 32 x 24 inches (length x width x height) when fully extended, with a weight of 61 pounds, so any adult should be able to load this up in the boot of the car for taking down an empty lot or any place where they can drive around safely.

Ariel Atom 4 Overhauls The Barebones Sports Car From The Ground Up

The fourth-generation of the Atom, the ride represents the biggest change to the car since its introduction, having been built entirely from the ground up. Seriously, the only carryover parts from its predecessor are the clutch pedal, the brake pedal, and the fuel cap, making every inch of this car almost entirely brand new.

The Ariel Atom 4, of course, retains the same familiar skeletal design as its predecessors, ensuring it cannot be mistaken for any other vehicle whether you see it on the track or on the road. It sports a newly-designed tubular chassis that's been optimized to provide a lightweight but extraordinarily strong structure, with larger diameter tubes in strategic sections providing increased torsional stiffness (15 percent increase over the Atom 3.5). According to the outfit, the chassis gives the driver more interior space, resulting in more comfortable leg room (50mm extra length and 20mm extra width), all while providing the necessary safety protections to protect them during impact.

Combined with the vehicle's sparse bodywork, the car boasts reduced drag, increased downforce, and other major aerodynamic improvements. The Ariel Atom 4 is equipped with an all-new suspension geometry that includes revised inboard points, revised outboard points, anti-squat, and anti-dive, reducing unnecessary body roll and weight transfer. A revised steering rack and geometry makes it more accessible for drivers under all sorts of driving conditions, making it as easy to drive on the road at moderate speeds as it is on the track at high speeds. The outfit claims its turning circle has also been improved, so it's easier to drive and park in city traffic.



Logitech MX Vertical Mouse

Unlike traditional mouse peripherals that has your palms facing down, the Logitech MX Vertical forces your hand into a handshake position that, according to the outfit, immediately reduces muscular strain by 10 percent. It has a 57-degree vertical angle that positions the hand so that there's less pressure on the wrist, making all your mouse-centered navigation gestures feel all the more natural. They combine this ergonomic design, which they claim to have tested on various hand shapes and sizes, with a textured surface that provides the user with a strong and natural grip for ease of movement.

It uses a 4,000 DPI sensor that, the outfit claims, allows it to achieve the same actions with four time less hand movement than an ordinary mouse, leading to further reduction in muscle and hand fatigue. That means, it has a cursor that moves pretty fast onscreen, which, admittedly, may not be the preferred mode for everyone. As such,



they threw in a cursor speed switch easily accessible by the thumb that lets you slow it down to a more comfortable pace (you can set it in 50 dpi increments from 400 to 4000 dpi). Like other mouse in the outfit's MX line, it can pair with up to three devices at a time and alternate between them with a tap of the switch button, all while giving you plenty of options in connectivity with integrated Bluetooth, a USB-C cable, and compatibility with the outfit's Unifying Receiver. Other features include a 10 meter wireless operating distance, a 240mAh battery rated at four months of use between charges, and dimensions of 3.1 x 3.1 x 4.7 inches (height x width x depth).

The Logitech MX Vertical is priced at \$99.99.

PARA Uses Two Lasers To Quickly Calculate Distance Between Two Point

The PARA consists of two arms, each with a laser on the tip that's connected by a pivot mechanism on the opposite end, allowing you to position them at any angle necessary to aim the beam at two measurement points. That should allow you to easily and quickly measure the distance between two straight points without having to move from where you're sitting or standing. No word on the maximum distance the tool has to be from the objects you're measuring, although we imagine it should work in most situations that don't involve measuring something ridiculously distant. During measurements, you can either carry it by hand, set it



down on a flat, or even place it on top

of a tripod to give you stable and adjustable positioning. An integrated display allows you to quickly see the measurements right on the device, which it can show in meters, feet, and inches, while integrated Bluetooth can send the measurements directly to the companion app (iOS and Android) so you can keep a detailed record of all your measurements. And, yes, you can trigger the measurements from the app, although the single trigger button on the device is convenient enough you're probably best off using that.

Kalpana Chawla



Kalpana Chawla (March 17, 1962 – February 1, 2003) was an American astronaut and the first woman of Indian origin to go to space. She first flew on Space Shuttle *Columbia* in 1997 as a mission specialist and primary robotic arm operator. In 2003, Chawla was one of the seven crew members who died in the Space Shuttle *Columbia* disaster when the craft disintegrated during its re-entry into the Earth's atmosphere. Chawla was posthumously awarded the Congressional Space Medal of Honor, and several streets, universities and institutions have been named in her honor. Chawla was born on 17 March 1962 in Karnal, India, but her official date of birth was altered to 1 July 1961 to allow her to become eligible for the matriculation exam. As a child, Kalpana liked to draw pictures of airplanes. After getting a Bachelor of Engineering degree in Aeronautical Engineering from Punjab Engineering College, Chandigarh. She moved to the United States in 1982 where she obtained a Master of Science degree in Aerospace Engineering from the University of Texas at Arlington in 1984. Chawla went on to earn a second Masters in 1986 and a PhD in aerospace engineering in 1988 from the University of Colorado Boulder. In 1988, she began working at NASA, where she did computational fluid dynamics (CFD) research on vertical and/or short take-off and landing (V/STOL) concepts. In 1993, she joined Overset Methods, Inc. as Vice President and Research Scientist specializing in simulation of moving multiple body problems. Chawla held a Certificated Flight Instructor rating for airplanes, gliders and Commercial Pilot licenses for single and multi-engine airplanes, seaplanes and gliders. After becoming a naturalized U.S. citizen in April 1991, Chawla applied for the NASA Astronaut Corps. She joined the corps in March 1995 and was selected for her first flight in 1996. Chawla died in the Space Shuttle *Columbia* disaster which occurred on February 1, 2003; she was killed, along with the other six crew members, when the *Columbia* disintegrated over Texas during re-entry into the Earth's atmosphere, shortly before it was scheduled to conclude its 28th mission, STS-107. Chawla's remains were identified along with the rest of the crew members and were cremated and scattered at National Park in Utah in accordance with her wishes.

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VISION

To empower the field of Mechanical Engineering to contribute to the development of industrial economy and welfare of humanity.

MISSION

- ◆ To achieve quality education by means of state-of-the-art infrastructure
- ◆ To establish industry-institute interaction to widen the scope for research and development
- ◆ To promote self employment through entrepreneurship and leadership qualities
- ◆ To develop team spirit and values for social well being

PROGRAMME EDUCATIONAL OBJECTIVES

PEO1: Graduates will excel in professional career and compete globally to pursue higher education in the field of Mechanical Engineering

PEO2: Graduates will demonstrate core competency in solving complex Mechanical Engineering problems

PEO3: Graduates will engage in continuous professional development through constantly evolving technology for the industrial needs

PEO4: Graduates will emerge as successful entrepreneurs through innovations upholding the ethical values of society



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