

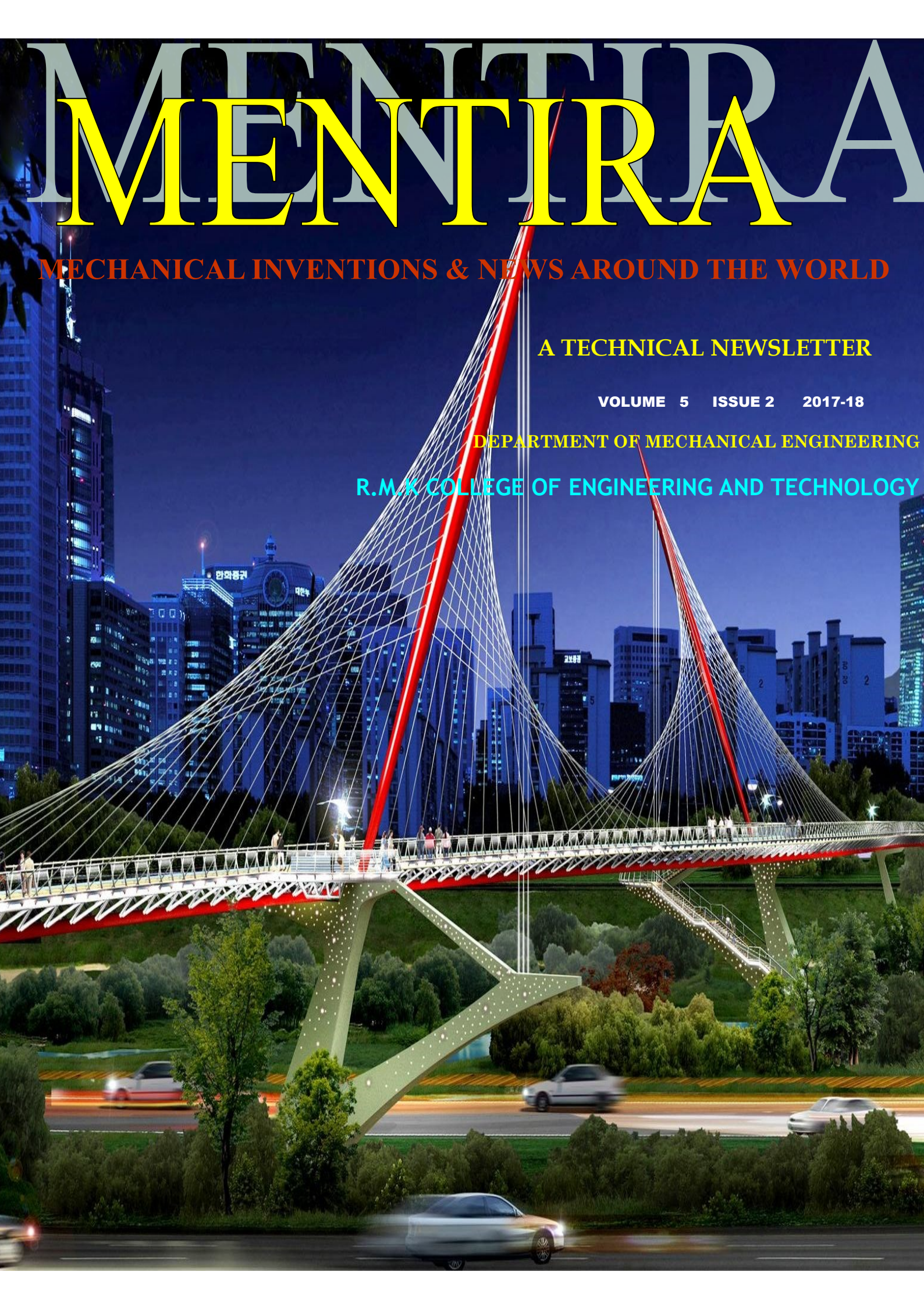
MENTIRA

MECHANICAL INVENTIONS & NEWS AROUND THE WORLD

A TECHNICAL NEWSLETTER

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DEPARTMENT OF MECHANICAL ENGINEERING
R.M.K COLLEGE OF ENGINEERING AND TECHNOLOGY



NASA AREE



The NASA AREE is a boxy tank-like robot that rolls around on treads, allowing it to pass through the craters, trenches, and whatever other rough terrains the planet sends its way. Instead of powering from a battery, it uses a wind turbine that generates power from the planet's wind gusts, which it stores inside mechanical springs before distribution to the rover's multiple moving parts. In simplified terms, the rover functions more like a complicated clock mechanism, rather than the modern robots that rely primarily on electronic systems.

Since rovers are meant to get as much data as possible about the planet it's been sent to, they're usually fitted with a gaggle of sensors and data transmitters. Since those things will likely be fried under Venus' extreme temperatures, they're going with mostly mechanical alternatives instead. We don't know exactly what things they're actually going to load into the machine, but we're guessing it includes reinforced versions of high-temperature furnace imaging cameras and other industrial systems. In a similar manner, the NASA AREE won't be using a two-way radio to transmit data. Instead, it's going to use an optical reflector that will transmit data in the form of flashing radar light similar to Morse code. Those flashes will be sent to orbiting satellites at a projected rate of around 1,000 bits per day, so this won't be sending a whole lot of information, especially when compared with the Mars Curiosity 1's daily transmission of one million bits. The idea is to be able to facilitate a broader and more sustained gathering of information, despite the communication having much less details.



THREE WHEELED MOTORCYCLE



The world's first leaning three-wheeled production motorcycle, The vehicle will definitely confuse onlookers as they try to figure out whether they're seeing one motorcycle or two motorcycles running side-by-side. I mean, it's weird as heck. If you're willing to put up with being an absolute attention-grabber on the road, though, you'll get to enjoy riding a full-fledged motorcycle that's capable of leaning at extreme angles any time you feel like making the ride just a little more fun. The 2019 Yamaha Niken combines a conventional chassis from the headstock to the rear (it's essentially the same as the MT-09) with an Ackermann dual-axle steering mechanism with dual upside-down forks on the front, creating the motorcycle's unusual profile. Each fork's twin tubes sit on the outside of the

wheels, giving it a cantilevered suspension system and allowing the two front wheels to be positioned closer to each other. Equipped with adjustable rebound and compression damping, the forks allow the motorcycle to lean at a maximum angle of 45 degrees, with the dual tires providing enough grip to keep it from falling off at whatever speeds you're riding.

It's powered by a three-cylinder 847cc engine that's hooked up to a six-speed transmission and a slip-assist clutch, allowing you to shift and control the revs at any time. For this implementation of the engine, Yamaha update the fuel injection settings and replaced the crankshaft, which, the outfit claims, gives the bike a smoother start while improving its overall riding experience.



PYTHON PLUNGER

The Python Plunger's flexible rod measures 18 inches long, so it can reach reasonably deep into toilets and pipes, all while stashing neatly inside the handle when you pull the slider back. Even better, the rubber cup is designed to squeegee off the rod while it retracts, automatically cleaning off any material still stuck to it. The rod, by the way, is cut in self-lubricating plastic to ensure all materials easily slide

off while being naturally anti-bacterial.

Suffice to say, this is a much more hygienic way of unclogging a toilet than using a separate plunger and plumbing snake. The rotating head on the plumbing snake is removable, by the way, and can be replaced with a drain cleaning head for those times you want to use the plunger to clear out a clogged shower drain or sink. Granted, the 18-inch reach probably won't be enough to solve every clogging

problem, but it does give you a very accessible option before having to call a professional for help (or running to the hardware store to get pro-grade tools).



GRIP LOCK



The Grip-Lock works with any handlebars that measures between 1 and 1.5 inches in diameter, which means you should be able to use it whether with a 1000cc sports bike, a recreational off-roader, or even a snowmobile. Measuring just 5.9 x 1.8 x 2 inches (length x width x depth), it's also compact enough that you can keep it in the back pocket of your pants or a pouch on your backpack, as well as under the saddle of your motorcycle if you'd rather have it on the bike full-time. Because of the prominent placement on the handlebars, the lock immediately

serves as a visual deterrent, making your motorcycle a lot less likely target for thieves. The same prominent placement means you'll immediately notice it as soon as you're on the saddle, so there's little chance you'll forget to remove it before turning the ignition on – something that, no doubt, has happened a few times to anyone who uses a chain lock or a disk lock. It comes in 10 colorways, including brighter colors, so they can appear even more prominent.



MOTORIZED SKATES

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.

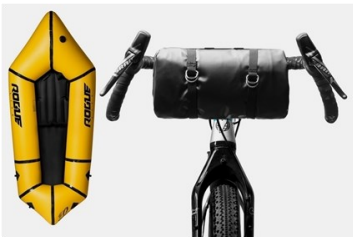


When strapped on, the rear wheel of the powered skates are designed to be positioned slightly above the ground, so you can still walk normally even with the darn things on. To start skating, simply put your powered foot out front and raise the tip of your toes until the rear wheel touches the ground. As soon as that happens, the 80-watt gear-driven motor automatically activates, propelling you forward at speeds of up to 10 mph. Yes, using this looks just as goofy as wearing a pair of Heelys (actually, it's goofier because Heelys' wheels are pretty discreet), but we definitely see a reason for it if it gets you to work or school much faster. The Razor Turbo Jetts can fit children's shoes and adult shoes up to size 12, so Razor is expecting both young ones and grownups to use this. Do note, the maximum supported weight is just 176 pounds, so this isn't a likely fit for taller and heavier adults. If you were hoping to use these as replacement for a motorized skateboard, you might want to think twice, since it can only keep you moving at up to 30 minutes between charges. Considering the max speed (10 miles per hour), there's a good chance it might not be enough to get you where you're going, depending on how far you plan to travel using the skates.



PACKRAFT

A single-person packraft, the boat is designed to handle the rigors of lakes and rivers, all while packing comfortably inside your backpack, along with the rest of your gear. Whether for fishing on a lake, exploring a creek, or crossing a river during a hike, this thing should make for a handy addition to all of your backcountry adventures. The Kokopelli Rogue Packraft comes in two variants: Rogue and Rogue-Lite. Rogue comes with a backband similar to a kayak, so it provides support for your back, while giving you better leverage when paddling your way through the water. And, yes, the front section of the band can be used to hold light cargo, so you should be able to bring a small stash of gear along. It measures 90 x 37 inches (length x width) when fully-inflated, all while packing down to a compact 12 x 9 x 6 inches, so you can stash it in a bag or tie it down to your bicycle's handlebars. Six D-rings around the boat (two near the front, four in the rear) allow you to tie it down, apart from securing your gear when on the water. It weighs 7.5 pounds. Rogue-Lite, on the other hand, is styled like a standard inflatable raft, with raised sides and a wide open floor. It measures 85 x 37 inches (length x width) when fully inflated, so it's a little smaller than the standard model, all while packing to the same 12 x 9 x 6 inches. Because it's shorter and ditches the backband, the whole thing is lighter at just 4.9 pounds, making it ideal for solo adventurers going on foot, apart from having two less D-rings at four (all of them at the rear section).



ZAPATA FLY RIDE



We're big fans of Zapata's line of "hydroflyers," which use the propulsion from PWCs like jet skis to send people soaring way above the water. It's a great way of simulating the kind of experience hoverboards will probably give us in the future. The latest addition to the line is the Zapata Flyride, which comes in a form factor resembling compact personal watercrafts (PWC).

Arguably the most accessible model yet in Zapata's line of PWC-propelled rides, the device is, basically, a jet ski that you attach to the propulsion of another jet ski, so you can hover over the water in a flying motorcycle. With a seat to keep your body stable and handlebars to keep a tight grip on, it gives beachgoers a PWC-propelled ride that should be safe to ride even for kids. The Zapata Flyride's handlebars are perfectly functional, by the way, which means you can turn it left or right to have it move towards that direction. There's also a special barrel roll button that will automatically spin the ride with a single push, although the ride needs to be a certain height above the water before triggering the move.

It can work with any personal watercraft between 155 and 400 horsepower, although it requires a 300-horsepower motor at the minimum to reach the ride's full potential. When set up with such a motor, it can support up to 440 pounds of weight, all while reaching top speeds of 22 mph. The battery, by the way, is good for up to seven hours of riding time, so you can have a good load of fun on this thing before having to recharge the 8,000 mAh battery.



UGEARS'S ROBOT



The Ugears Robot Factory is a 598-piece 3D puzzle that lets you put together a robot workshop with a quasi-Victorian steampunk theme. No, it's not just a static model, either, as the factory has functional moving parts that allow you to manufacture little wooden robots the way it would actually happen if this was a real assembly line. Seriously, with all the little gears turning, axles moving, and joints bending to assemble the robots, there's plenty to admire here long after you've finished the puzzle. To commence building a robot, simply put all the different robot parts in place, turn the wind-up mechanism, and watch the robot get built on the assembly line. Once it's at the end, you simply need to manually attach a couple of nuts to secure the robot's arms and legs in place to finish your brand-new articulated robot.

We don't know how many robots' worth of parts are included, so you can't quite use a single set to build a wooden robot army, although you can buy multiple sets if that's what you have in mind (we're not quite sure if they sell the robots separately). The Ugears Robot Factory requires no glue for assembly, with all the parts slotting together using built-in connectors. Do note, you will need to use rubber bands in some sections of the build, where they act as belts to help make all the mechanical parts run. The factory, by the way, churns out fully-articulated robots with moving joints in the arms and legs, apart from being able to rotate its body. Other elements include a monorail that allows the forklift to move forwards and backwards, a ramp, small freight crates, and miniature wooden figures representing factory workers. Oh yeah, there's also a Stirling steam engine powering the entire thing (it's only decorative, though, so don't actually expect it to work).

GARMIN XERO A1I BOW SIGHT



When you're using a hunting bow, estimating the distance of the target is an important part of the process, as it lets you know exactly where to aim to compensate for distance. Problem is, we're human, so our estimates aren't always going to be accurate. Heck, it's actually going to be very poor a lot of the time. That's where hunting aids like the Garmin Xero A1i comes in. Billed as a "groundbreaking auto-ranging bow sight," the device can automatically measure the distance to any target at the push of a button, then provide a precise virtual pin to help you see exactly where the arrow is going to hit. According to Garmin, it will help take the guesswork

out of ranging a target more than any other bow sight before it, improving your target of hitting that elk, boar, or deer immensely. The Garmin Xero A1i can read the distance up to 100 yards (300 yards if the target is reflective), all while compensating for variations in elevation (it also measures angle), so this thing will make precise calculations whether you're shooting at a target in the same plane, uphill, or downhill. It can show either a single-pin or a multi-pin layout, depending on which one you prefer, with an ambient light sensor automatically adjusting the pin's brightness. There are also manual controls for adjusting the display's brightness on the fly.



COCKPIT RACER

The Polaris RZR RS-1 provides the driver with better visibility (you can see both tires from the center cockpit), increased balanced, and improved driving feel, all while creating extra room to enable greater arm and leg movements, making it easier to steer and operate the UTV even in the most hectic conditions. Because there's only one seat, they were able to narrow it down to 64 inches, making for a UTV that's more agile, maneuverable, and looks genuinely different from the norm. Combined with the compact 83-inch wheelbase, Polaris claims the vehicle bears the most balanced chassis they have ever created. A four-stroke ProStar 1000 DOHC engine delivers an impressive 110 horsepower to the wheels, ensuring you can

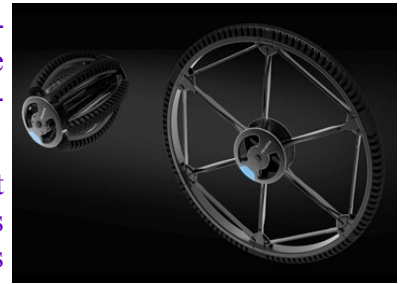


enjoy satisfying top speeds and acceleration, whether you're driving through grassy fields, sandy deserts, or muddy trails. Cooling the engine down is a rear-mounted dual-fan radiator, while a new race-hardened drivetrain provides instantaneous power any time you need it. It adopts the same racing trailing-arm suspension of the RZR XP 1000 for the rear and dual A-arm suspension with stabilizer bar out front, allowing it to absorb all the bumps, shakes, and rattles the off-road path sends your way for the smoothest possible driving experience. The Polaris RZR RS-1, naturally, comes outfitted with everything it needs to perform at a high level, from electronic power steering and on-demand all-wheel drive to 16-position adjustable shocks and four-wheel hydraulic disc brakes. A maximum ground clearance of 13 inches allows it to clear obstacles on the path in a capable manner, while 29-inch Maxxis Bighorn tires provide a strong grip on any terrain. Other features include a full range of instrumentation, bolstered bucket seats with sliders, LED head lights and tail lights, and cast aluminum wheels.



REVOLVE BICYCLE WHEEL

Folding bicycles are awesome, as they can collapse the bike into an impressively compact frame. Problem is, that frame is still limited by the diameter of the wheel, since the darn thing will have to retain its full diameter. The Revolve Folding Wheel can potentially change that.



That's right, it's a folding bicycle wheel that can collapse into a compact bundle, effectively cutting down the diameter into nearly a third of its original form. It shrinks it enough that you can throw two of these wheels into most backpacks without any problem, all while leaving enough room to hold other gear. Seriously, these wheels could be the key to making folding bikes that we can actually put inside a backpack or duffel. The Revolve Folding Wheel is a 26-inch spoked wheel designed for use in bicycles and wheelchairs just like any conventional wheel. During collapse, each of the spokes fold in from the hub, shrinking the erstwhile round 26-inch wheel into a bundle measuring just 8.9 inches in diameter, giving it a shape that lends itself well for transport and storage. According to the outfit, the

collapsed form takes up 60 percent less space than the wheel's original shape, making it immensely easier to squeeze in a bag, carry by hand, or tuck inside a drawer. The folded spokes and the hub even make for functional handles, giving you a convenient place to hold it, whether you're carrying it or stashing it somewhere. The wheel sports a universal hub design that should work with nearly any bicycle and wheelchair, with a magnetic key for easily locking and unlocking the folding mechanism while avoiding accidentally having it collapse in the middle of a ride. It uses aluminum for the



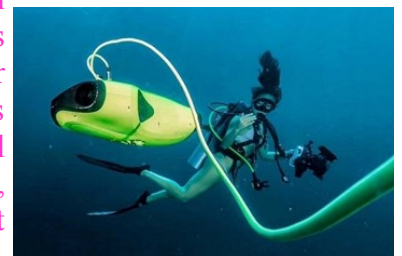
frame to give it a light weight and durable build that can withstand the rigors of the road, as well as an airless tire to eliminate the hassle of flats.

UNDERWATER FOOTAGE



There are several underwater drones currently in the market, such as the SeaDrone, the OpenROV Trident, and the TT Robotix Seawolf. The Qysea Fifish P3 is the latest addition to the category, putting advanced video recording capabilities into the forefront.

Clad in a shape that's optimized for underwater navigation, the robot should move through any body of water with ease, allowing you to capture footage that's smooth and stable. Qysea promises superior



hydrodynamic performance, allowing you to explore most underwater areas up to certain depths. The Qysea Fifish P3 sports a 1-inch 20-megapixel Sony CMOS sensor and a wide-angle lens with a 162-degree field of view, along with an Ambarella chipset similar to the ones found in the current generation of action cams. It can shoot in 4K, 1080p, and 720p at 30 fps, with a maximum ISO of 12800 providing increased contrast, so it can capture more detail even in the deep sea's darker environments. Since it's dark out there, it's fitted with integrated LED lighting putting out up to 4,000 lumens, ensuring there's enough illumination to let it capture underwater footage that's bright and clear.

Unknown facts about Indian Sports

The popular "International Sports"-Chess was originally invented in India.

The original and the early game of 'Chess' was called "Chaturanga"/"Chaturangam".

The "Martial Arts"/"Art of Self Defence' originated and created first in India.

And later the 'martial arts' was spread to the Asian countries by the Buddhist-monks and missionaries.

India had participated in the 'Olympic Games' for the first time in the year 1900.

Indian athlete Norman Pritchard participated in the 1900 Olympics representing India and won two medals.

India has won only 26 medals since 1900 till 2012 in Olympic Games.

India's "Indian Premier League" /"IPL"-Cricket is the second-richest sports league after the "National Basket Ball Association" /"NBA" of the United States of America/USA, according to Forbes gazine.

The "Snakes and Ladders"-Games was created in India, by a 13th century poet-Saint Gyadev.

The original name of the game was "Paramabhadham"/"Mokshapath".

The Cards Games/Playing Cards originated from India and further modified by other countries.

The Polo sports also originated from India and further modified by other countries.

P.T. Usha was the first Indian woman to reach Olympic finals. She reached the finals of the 400 metres hurdles in the 1984 Los Angeles Olympics. Usha lost the bronze by 1/100th of a second.

Anju Bobby George is the first Indian athlete to win a medal in World Athletics Championship. Anju entered record books when she won the bronze medal in Long Jump at the 2003 World Championships in Athletics in Paris. She won the medal with a jump of 6.70 m in the penultimate round.

First Olympic Gold Medal Won by India was in 1928 Olympics in hockey. India defeated the host country Holland 3-0 in the finals.

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Dr.T.G.Loganathan. Associate Professor

Mr.A.Senthil Kannan. Assistant Professor



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Manivannan, Srivathsan / Final Year

Barath , Syed Sulthan / Third Year

Sabarish, Prabanjan/ Second Year

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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