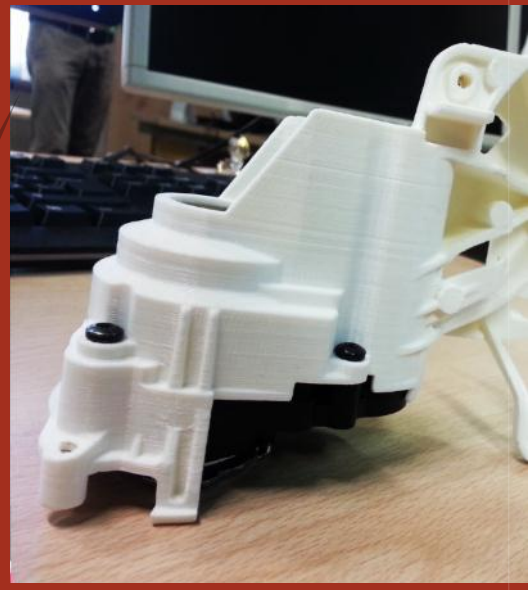
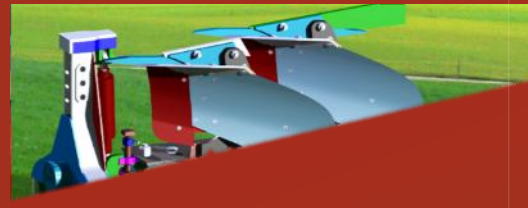
November

2019

DAuto Newsletter





DAuto Newsletter 113th Edition

Edition 2019

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

December 2018 refresh

- ✓ *Mercedes-Benz Vision Urbanetic Concept*
- ✓ *Researchers monitor electron behavior during chemical reactions for the first time*
- ✓ *Extremely strong and yet incredibly ductile multicomponent alloys developed*
- ✓ *Nissan GT-R50 by Italdesign confirmed for production*
- ✓ *Engineers develop first method for controlling nanomotors*
- ✓ *BMW Vision iNEXT Concept explores the future of personal mobility*
- ✓ *First 3d Printer For Construction In India Made By IIT Madras Engineers, Alumni*

Edition
January 2019

Icon meets Progress,
Perfection meets Passion

The 2018 model of BMW Motorrad's largest-selling model, the R1200GS gets updates for 2018, including new colors, a TFT screen instrument panel and an "emergency call" option.

The Bavarian motorcycle manufacturer has been the market leader in the adventure scene with their promising GS motorcycles running the show for more than 35 years. Topping this chart is their flagship workhorse, the R 1200 GS Adventure and its flat-twin boxer engine that is undoubtedly the best companion for exploring the unexplored.

Tried, tested and proven under the highest stain again and again: the twin-cylinder boxer engine with 125 HP(92 KW) is noticeably efficient and has very high torque-for noticeable riding enjoyment in any situation. The boxer is not only legendary for its reliability, it is also known for being extremely good-natured. The wet clutch with anti-hopping function and the electronic throttle facilitate a fine dosage of power.

Optional features for the 2018 BMW R1200GS Adventure include pro-riding modes with additional "Dynamic Pro" and "Enduro Pro" modes. The pro riding mode features ABS Pro, dynamic brake light, Dynamic Traction control as well as a Hill start Control System. The GS Adventure also gets optional electronic suspension with automatic self-levelling function. As part of the Touring Package, keyless ignition is also offered and the Dynamic Package includes the BMW shift Assistant Pro.

The BMW R1200GS and the top-spec BMW R1200GS Adventure have been BMW Motorrad's bestselling models globally. In 2016 the R1200GS models accounted for nearly 47000 of the 1,45,032 motorcycles sold. In fact, in India too, the R1200GS models account for more than half of the BMW Motorrad' s sales since the German branded officially started operations earlier this year.

Edition
January 2019

Rolls Royce Cullinan is the first-ever All-terrain vehicle from the British Carmaker's

Rolls Royce will launch its first-ever SUV, the Cullinan, in India in late November 2018. India deliveries will commence in 2019, along with other markets in Asia.

There is no official word on pricing yet but Autocar has learnt Cullinan prices will start at Rs 8.75 crore (ex-showroom), although optional extras can easily add Rs 1 crore or more to the price. Certain features, offered as options abroad, will be offered on India-spec cars as standard- including a rear-seat entertainment system.

The Cullinan is powered by a 6.75-litre, twin-turbocharged V12, which produces 517hp and 850Nm of torque. Aside from being the marque's first SUV, the Cullinan is also the first all -wheel-drive offering from Rolls-Royce .Also part of the package is trick self-levelling air suspension, which Rolls-Royce claims will help provide the famed 'Magic Carpet' ride quality across any terrain.

Inside, the Rolls-Royce Cullinan is near-identical to the phantom. It gets a smaller steering wheel with a thicker rim, an all-digital instrument console, the trademark analogue clock on the dash, a touchscreen infotainment system- a first for Rolls-Royce - and the rotary Spirit of Ecstasy controller on the centre console, Buyers will also have a comprehensive menu of hides and colors to choose from.

SUV- shape aside, the Cullinan's presence and ground clearance are what could make it a hit amongst Rolls-Royce models in India. It has the makings of being the luxury carmaker's best-seller in this markets, just as the Urus is on -the course to becoming one for Lamborghini.

Edition
January 2019

It's called "Plimp",and the name describes just what it is: a hybrid plane and blimp flying machine

The PLIMP Airship is a unique aircraft that can manoeuvre and move quickly like fixed-wing aircraft, hover and vertically take off and land like a Helicopter, and operate efficiently and safely like a blimp-all on a single platform.

What happens when you cross a blimp with a plane, and give it a few helicopter features? A lighter -than -air plump -hybrid airship is born, according to Seattle based company looking for investors.

For $4 million plus overages, investors can buy their own Model J-a19-foot-long aircraft that can carry up to 10 people, or about 2,000lbs.through the air, thanks to its helium-filled blimp-like body, gas-electric hybrid engines and rotational wings with propellers.

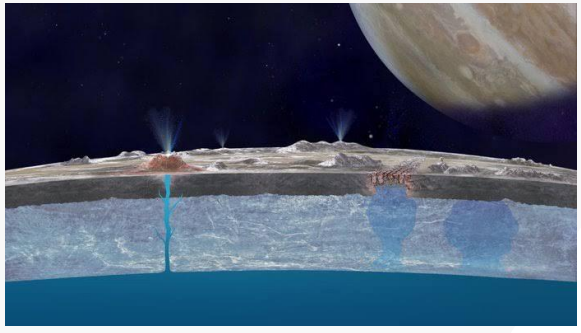
But don't call it a plump outright. That word is trademarked and meant to be use as an adjective, said James Egan, a Seattle-based attorney who is the CEO of Egan Airships, maker of the plump-hybrid aircraft. The helium in the blimp part of the plimp-hybrid aircraft is key, Egan said. "That decreases your unpowered descent rate to that of a parachutist, "he said.

The plimp-hybrid airship is actually faster and safer than a blimp, which has to off gas during unpowered descent, Egen said. The plimp airship are part of a growing trend in the aviation industry, with many companies designing small aircraft that can transport just a handful of people.

"It's an absolute game changer",Egen said.
"This is a brand-new form of aircraft."

Edition
January 2019

Scientist propose a nuclear Tunnelbot to hunt life in Europa's Hidden ocean



A group of scientists want to send a nuclear-powered "Tunnelbot" to Europa to blaze a path through the Jovian moon's thick shell of ice and search for life.

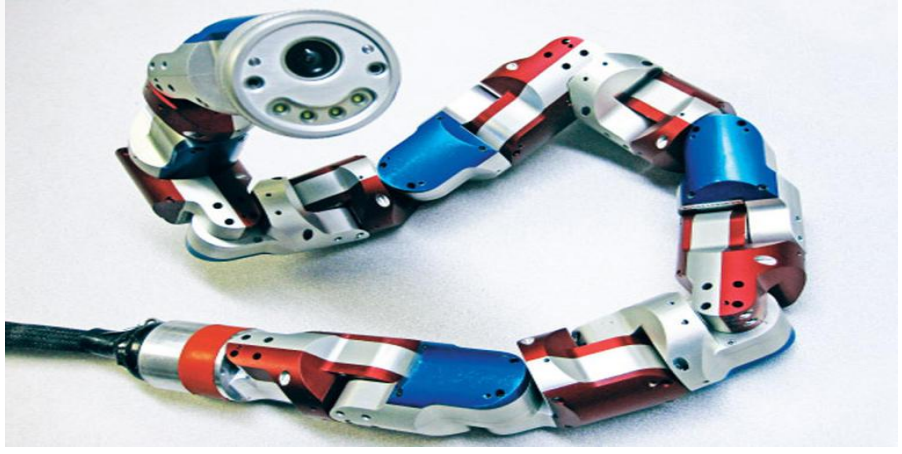
Europa, the fourth largest of Jupiter's 53 moons, is one of the best candidates in our solar systems for hosting alien life. Researchers believe that its icy crust hides a liquid water ocean and that vents through the crust might deliver the necessary heat and chemical ingredients for life into the ocean. To peak beneath that thick veil of ice, researchers on the NASA Glenn Researchers COMPASS team think they have come up with the Tunnelbot.

The Tunnelbot, the researchers reported, could use either an advanced nuclear reactor or some NASA's radioactive "general-purpose heat bricks" to generate heat and power, through the radiation would present some design challenges. Once on the frozen moon, the Tunnelbot would move through the ice, also hunting for smaller lakes inside the shell or evidence that the ice itself might contain life. As it burrows deeper, it would spit out a long fibre-optic cable behind itself\ leading up to surface and deploy communications relays at depths of 3, 6 and 9 miles

At this stages, this is just a rough theoretical proposal. The researchers haven't actually designed the payload for sampling Europa's water and ice, or figured out how to get the Tunnelbot onto the moon. Still, the proposal provides a fascinating window into what a future robotic missions to Europa might look like, and how we might eventually begin to explore whether the distant moon harbours life.

Edition
January 2019

Snakes Robots: Can you watch this without Squirming?



Snake robots aren't just interesting creepy crawlies, they offer us a chance to explore our world and enhance rescue efforts.

Are you afraid of snakes? What about robots? What about snake robots? Now here's one of those new innovations in robotics that's solving problems by combining two things that don't seem to go together at first thought.

Having the flexibility and movements of a slithering reptile allows these robots to squeeze into spaces that their human-form, mechanical cousins, and we are humans, haven't been able to explore. They can do so much more! We will be able to identify structural problems in hidden places, perform minimally invasive surgery, and find survivors in fragile search and rescue missions

Just think about of the many dirty jobs that, performed by humans, endanger lives. Or the jobs that require access to small spaces, spaces that even conventional robots with limbs or wheels, could never access. Consider the possibility of assisting in minimally-invasive surgery, for inspection of power plants, for aiding in search and rescue efforts, in archeological digs.

When you think about all of the fields of work and disciplines of study in which we humans are engaged, and the number of associated problems we are trying to solve, it becomes clear that the snake robot has an immense amount of potential.

The impressive innovation, which obviously has adopted its looks from a little friend in nature, is just one incredible example of Biomimicry;a growing field of science at the intersection of engineering, design, and biology .

Simply put, invention like snake robot remind us to look to nature in search for solutions to our many problems.

Just think about it for a moment: humans have been perking along, solving problems with clever inventions since the dawn of simple machines, like the wheel. That about 5,500 years. But Mother has been barreling along ,solving every challenge an organism can face on this earth for 3.5 billion years!

Edition
January 2019

Detecting Malaria with Magnets

Each year, malaria kills about half a million people around the world. Health officials say a fast, cheap, accurate way to test for people infected with the malaria parasite would be extremely helpful in combating the disease. Now some engineers in California say they've invented a device they hope someday will do just that.

"Healthy blood is non-magnetic," explains Andrea Armani, Irani Professor of Engineering and Materials Science at the University of Southern California. "So if you take a healthy blood sample, you put a magnet next to it, your signal isn't going to change.

According to the Centers for Disease Control and Prevention, in 2016 around 445,000 people died of this disease, with 216 million clinical episodes reported for the treatment of malaria. This is due to a parasite commonly found in poor, tropical and subtropical areas of the world, and is transmitted via mosquitos. Astonishingly, nearly half the world's population, 3.2 billion people, live in places where they are at risk of contracting malaria.

With such a global impact, malaria is one of the greatest problems in public health. While prevention efforts like bed nets are remarkably helpful, it's the actual detection of malaria that still remains a problem.

That's where the ingenuity of "low tech" solutions comes into play. When University of Southern California professor of engineering and materials science Andrea Armani heard about the need for a better way to detect malaria, she set her students to work to find a solution. The answer? Something as familiar to all of us as lasers and magnets.

The device takes advantage of the fact that the malaria parasite produces tiny crystals inside infected red blood cells. These crystals have a magnetic property. Put a magnet next to a drop of infected blood, and the crystals move toward the magnet.

The device works by shining a laser light through a drop of blood, measuring how much light is transmitted, and then holding the magnet close to the blood sample and taking another measurement.

Edition
January 2019

Getting energy from Food Scraps

The impact that an affordable and portable anaerobic digestion unit like this could have on local waste management issues, renewable energy production and reduced transportation emissions is potentially huge, even without coupling it to a low-carbon transport model. But if, impact Bioenergy sees it, the electrical output from a HORSE was used to power an electric cargo trike, then the 'horsepower' from these units could truly be a game changer.

Hold onto your horses because the word “horse” is about to have a completely different meaning after this. This one is giving value to our food scraps!

There’s a big push in innovation these days to find different ways to make the energy we need to fuel the world we’ve created. And a startup in Seattle, Washington, United States is tackling this challenge by teaming our table scraps up with microbes! So let’s find out how this HORSE works.

You’ve heard about composting before, but this system goes even further. The HORSE from Impact Bioenergy transforms table scraps into electricity and biofertilizer with zero waste involved!

Restaurants, grocery stores, breweries, and farms all have a lot of organic waste, so just think about all of the resources that could be saved if more people are able to adopt innovations like this! No trucking the materials to the compost facility or a landfill. Just clean energy that brings the food full circle and helps a new generation thrive.

This portable system (yes, food trucks and festivals could definitely use it!) combines the scraps with microbes that get to work breaking down the organic material, generating energy as they do that we can then harness.

According to Impact Bioenergy, each HORSE unit is capable of converting 25 tons per year of organic waste into about 5400 gallons of liquid fertilizer and up to 37 MWh (megawatt-hours) of energy. With a daily input rate of 135 lb (61.2 kg) of organic waste, a single HORSE could produce up to 360,000 BTU of energy per day, and 2.5 kW per hour in electric output, with virtually no waste, using the power of microbes to do the heavy lifting. Each unit is said to cost $43,300 USD, and to take the device from prototype to a containerized production model, Impact Bioenergy is seeking crowdfunding with a Kickstarter campaign.

Edition
January 2019

AI can now decode Words directly from Brain waves

The third paper, posted Aug. 9, 2018, relied on recording the part of the brain that converts specific words that a person decides to speak into muscle movements. While no recording from this experiment is available online, the researchers reported that they were able to reconstruct entire sentences (also recorded during brain surgery on patients with epilepsy) and that people who listened to the sentences were able to correctly interpret them on a multiple choice test (out of 10 choices) 83 percent of the time. That experiment's method relied on identifying the patterns involved in producing individual syllables, rather than whole words.

The goal in all of these experiments is to one day make it possible for people who've lost the ability to speak (due to amyotrophic lateral sclerosis or similar conditions) to speak through a computer-to-brain interface. However, the science for that application isn't there yet

Neuroscientists are teaching computers to read words straight out of people's brains

Kelly Servick, writing for Science, reported this week on three papers posted to the preprint server bioRxiv in which three different teams of researchers demonstrated that they could decode speech from recordings of neurons firing. In each study, electrodes placed directly on the brain recorded neural activity while brain-surgery patients listened to speech or read words out loud. Then, researchers tried to figure out what the patients were hearing or saying. In each case, researchers were able to convert the brain's electrical activity into at least somewhat-intelligible sound files.

he first paper, posted to bioRxiv on Oct. 10, 2018, describes an experiment in which researchers played recordings of speech to patients with epilepsy who were in the middle of brain surgery. (The neural recordings taken in the experiment had to be very detailed to be interpreted. And that level of detail is available only during the rare circumstances when a brain is exposed to the air and electrodes are placed on it directly, such as in brain surgery.)
As the patients listened to the sound files, the researchers recorded neurons firing in the parts of the patients' brains that process sound. The scientists tried a number of different methods for turning that neuronal firing data into speech and found that "deep learning" — in which a computer tries to solve a problem more or less unsupervised — worked best. When they played the results through a vocoder, which synthesizes human voices, for a group of 11 listeners, those individuals were able to correctly interpret the words 75 percent of the time.

The second paper, posted Nov. 27, 2018, relied on neural recordings from people undergoing surgery to remove brain tumors. As the patients read single-syllable words out loud, the researchers recorded both the sounds coming out of the participants' mouths and the neurons firing in the speech-producing regions of their brains. Instead of training computers deeply on each patient, these researchers taught an artificial neural network to convert the neural recordings into audio, showing that the results were at least reasonably intelligible and similar to the recordings made by the microphones.

Edition
January 2019

Getting Energy from our Food Scraps!

Take a minute to think about the speed of advancements happening at the intersection of technology and medicine. It's truly a remarkable space for growth. Luckily, pioneers like the NeuroLife and Ian are changing the future of possibility for us all. Together, we can push the boundaries of our knowledge, our technologies, and ourselves.

It's easy to take for granted the way our fingers automatically race across a keyboard, swipe a credit card, or open a bottle. But what if a spinal cord injury breaks those vital connections between our brain and our limbs? Is it game over? Maybe not.

Spinal injuries are some of the most difficult injuries to recover from. When trauma occurs that severs the connections between the brain and the rest of the body there has always been little hope of "reattachment". But while paralysis may have always seemed inevitable for many patients, there is an astonishing new technology making movement possible again!

Battelle, a research institute dedicated to solving the world's most pressing problems, and Ohio State University are hard at work developing NeuroLife. This system utilizes a brain implant, computer algorithms, and electrodes to bridge the connection between brain and body, and gives paralyzed
patients the ability to use their limbs once again. Seems a little too good to be true, yeah? Just wait until you see it in action!

Ian Burkhart is NeuroLife's first test subject. After a swimming accident left much of his body paralyzed, he is helping the NeuroLife team develop new, life-changing technologies, for individuals like himself.

In the 1950s we barely had an understanding of DNA, the very thing that makes us possible! Now, less than a century later we are completely reshaping our understanding of ourselves and what is possible in medicine.

Robotics are helping change the lives of amputees in ways we never dreamed! First generations of hearing-impaired individuals are reaching adulthood experiencing life with cochlear implants!

Edition
January 2019

Honda's Self-driving AWV is a multi- Talented quad bike built for off-grid missions

Japanese Carmaker Honda has developed an autonomous work vehicle(AWV) platform built off its ATV architecture. Basically an agriculture 4WD quad bike that uses AI,GPS and visuals sensors,to serve as a small self-driving wagon, the AWV has been designed to transport supplies, equipment and water to hard-to-reach locations.

The AWV is based on Honda's all terrain vehicle(ATV) chassis, a rail accessory mount system for limitless accessories and attachments, and onboared power plug-ins.

Its compact size and off-road capabilities make it highly manoeuvrable and perfect for a variety of locations, from dense forests to urban pedestrian zones. Autonomous capabilities let you set i8t to "follow me","pattern" or "A" to "B" modes, which make it useful across a fairly broad range of applications.

Honda has been testing prototypes in search and rescue, firefighting, construction, agriculture, landscaping and snow removal applications, and is looking for partners to come on board to further the technology. It has tested with a mower towed behind it, keeping weeds and grass down at a 178-acre (72) solar plant in North Carolina. In following firefighters around , carrying heavy gear as they work their way through steep and difficult terrain on their way to control forest fires.

Honda showed its vision of the autonomous work vehicle as a concept at CES 2018, and we've been testing in real-world scenarios to demonstrate the value and capabilities of this unique machine," said Pete Wendth, senior planner in advanced product planning, Honda R&D Americas.

Honda is taking Vehicle to CES, where they were first launched last year. The company hoped to meet partners that can help develop the technology further, or collaborate to built autonomous attachments to broaden its utility.

Edition
January 2019

Hyundai and Kia paranomic solar roof to boost batteries in vehicles

Hyundai and Kia have unveiled a new paranomic solar roof. The electricity-generating solar panels will be incorporated into the roof or the hood of vehicles, and will support internal combustion, hybrid and battery electric vehicles with additional electrical power, increasing fuel efficiency and range.

The Solar charging Technology is being developed to support the vehicle's main power source, improving mileage and reducing CO2 emissions. It can change charge batteries of not just eco-friendly vehicles, including electric and hybrid vehicles, but also of internal combustion engine (ICE) vehicles, thereby improving fuel efficiency.

Hyundai motor group is developing three types of solar roof charging systems: the first-generation lightweight solar-lid on the vehicle's body. The first-generation solar roof system, which will be applied to hybrid models, includes a structure of mass-produced silicon solar panel that are mounted on an ordinary roof. This Systems can charge 30 to 60 percent of the battery per day, depending on the weather condition and the environment.

The second-generation semi-transparent solar roof system will be applied to vehicle with the internal combustion engines, for the first time in the world. Differentiated from the first- generation system provides transmissive panel option, also satisfying consumers who desire a sense of openness.

The third-generation lightweight Solar-lid system, currently in the process of pilot study for applying to eco-friendly models, includes a structure that mounts solars panels on a bonnet and roof combined, in order to maximize energy output.The solar charging system is composed of a solar panel, a controller, and a battery. Electricity is produced when solar energy form the sun touches the solar panel's surface, which converts this by using photons of light from the sun and then creating the electron-hole pairs in silicon cells to generate solar electricity.

Applying Solar charging Systems to internal combustion engine vehicles will contribute to the increase in vehicle exports, by enabling laws that regulate CO emission.

Edition
January 2019

Honda super cub motorcycle kitted up by K-speed and Aeropart

The Classic Honda “Super cub” motorcycle is as popular as ever-just take a look at the “firefly” customs by deus ex machine or the “eCUB 2” electric bike by shanghai customs. Building upon this trend is the Honda “super cub” by k-speed, which now featured even more parts thanks to a collaboration with storm aeropart.

Storm Aeropart has created new plastic pieces for the bulky body of K-speed’s Honda “super cub”, which features a dark brown and black colorway. The most distinctive parts of the re-design is the front, section, trimmed rear end a pair of drilled side panels. As well as the reworked cockpit that includes new bars, grips and a speedo, the motorcycle includes a hot of new details such as the carbon wheel covers, new foot pegs, rear shocks, a diablo exhaust and an upholstered leather saddle. To complete it, oversized 17” wheels are fitted to even further define the design.

Edition
January 2019

Student's Corner

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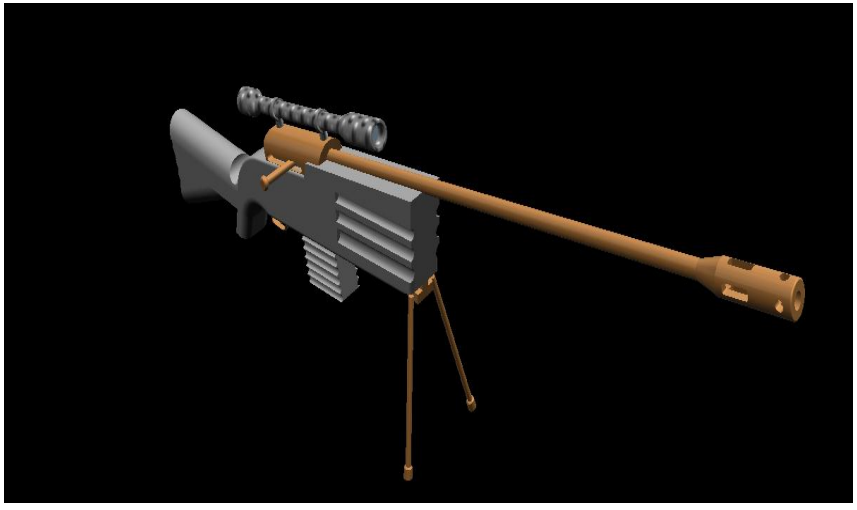

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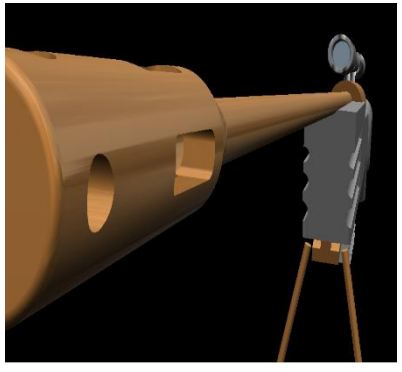

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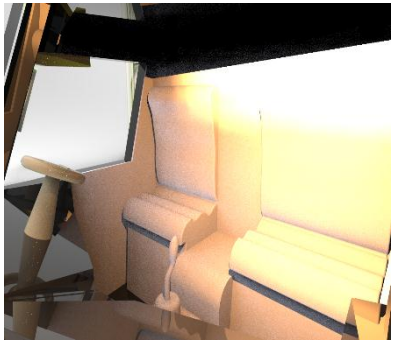
Student's Corner

DAuto Training Yield



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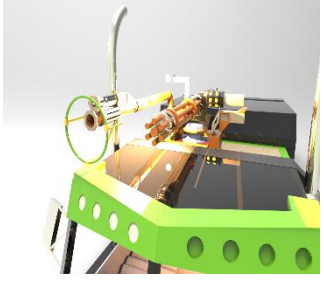

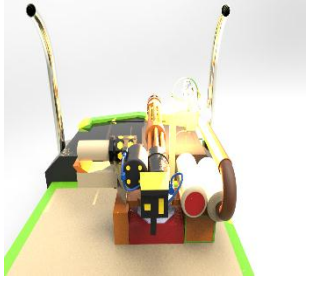

> **Never be satisfied with inaction. Question and redefine your purpose to attain progress**
>
> *Jeffrey K. Liker, The Toyota Way*

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