The New Year is all about future – hopes, expectations and shape of things to come. In the same spirit, we are beginning the New Year on a highly futuristic note. The current issue of TESSTalk is dotted with ongoing research, innovations, concepts and prototypes that could redefine the way we know of cars, tyre labels or even the ubiquitous traffic lights.

Biggest innovations in Auto industry are yet to come. This is a perpetually true statement ever since first car landed on the roads. Our Technology section is replete with some of the revolutionary innovations in Auto Tech that could soon become a reality.

Did you know that traffic lights could win design awards or could let drivers know their maximum speed limits, road conditions, and weather information or lights could be powered by pedestrians i.e. using electricity generated by pedestrians as they walk across a busy intersection. Some of the futuristic traffic lights we have covered in this edition.

If we talk about Auto Tech, a discussion on Auto Emissions can’t be far behind. Environment section dwells at the new research on CO2 emissions and CO2 capturing technologies being employed by Auto & Tyre sectors.

It is heartening to note that several prominent organisations are coming forward to join hands with ATMA and ITTAC in our drive towards Tyre Safety awareness. ATMA has been mandated for accelerating awareness on Tread Wear Indicators (TWI) by Ministry of Road Transport & Highways (MoRTH). Honda Cars has collaborated with ATMA & ITTAC for the same. As a first step, large boards explaining importance of checking TWI have been placed at strategic locations in corporate office and shop floor of Honda Cars.

Here is wishing you a very Happy New Year!

V. K. Misra
Chairman, ITTAC
About ITTAC
Indian Tyre Technical Advisory Committee (ITTAC) is a specialised resource of Indian tyre industry comprising technical representatives drawn from all member companies. ITTAC came into being as an outcome of a dialogue amongst key stakeholders to set up, establish, support & develop for India, a competent body for dealing with Technical aspects of pneumatic tyres, tubes, rims and valves used in automotive vehicles.

ITTAC ensures that member companies representing 95% of the tyre industry in India are able to offer common basic dimensions for tyres and related products thereby ensuring that these items are dimensionally interchangeable, irrespective of “make” or “brand”. ITTAC brings out a Standards Manual which is one of the most trusted reference documents on standards for Tyre, Rim and Valve. ITTAC also publishes Tyre Guides for different category of tyres as a comprehensive compilation of different types of tyre damages, their appearances and recommendations which reflect the consensus of the members of ITTAC.
Futuristic Vehicles – Innovations in Automobile

Since the invention of the internal combustion engine, there have been many incredible innovations made in the auto industry. Manufacturers created new body styles and market segments, automatic transmissions and power steering were introduced, and safety features such as airbags made passengers much safer. Computers were even added into cars to optimize performance and provide GPS for navigation purposes.

In short, vehicles got cheaper, lighter, stronger, safer, cleaner, faster, and more luxurious. But despite this, there is a strong case that the biggest innovations in the auto industry are yet to come.

Let us see some of the innovative developments in Automobile Industry.

SKAI

The Skai can take off and land vertically from rooftops and parking lots. It runs on ecofriendly hydrogen fuel cells that can be 95% reused; the remaining 5% can be 99% recycled, and its only emission is pure water.

As for safety, Alaka’i Technologies—its developers—have concentrated on fault-tolerant engineering. This means that even in the event of a failure, the vehicle can continue to operate without any danger to its passengers.

For example, the Skai comes with six rotors but can still land safely if any fail. Besides, it is also fitted with an airframe parachute if the power gives out.

The aircraft, which uses advanced fly-by-light controls, has a flight range of up to 650km, four hours of flight time, and can carry 4-5 people at a time. The company plans commercial production by 2020, and to get these into the market at a price of around $2,00,000.
**VOLVO VERA**

The Volvo Vera is a self-driving, fully electric vehicle—sans a driver compartment—that’s designed to take the place of trailer trucks on the highway. It is meant to ply short, repetitive routes, and operates at low speeds—up to 40kmph—to ensure safety.

This hauler is fully functional: Volvo has used the same driveline and battery pack found in its existing electric vehicles for zero emissions and low noise levels. It is also equipped with over 30 sensors that allow it to log location information (within centimetres), analyse vehicular traffic around it, and respond accordingly.

Each Vera communicates with a control centre that monitors its progress and position constantly, along with information like battery status, cargo load, service requirements, etc.

Volvo is already collaborating with DFDS a ferry and logistics company—to transport goods from its centre to the port terminal in Gothenburg, Sweden.

**WAYMO & YANDEX**

**WAYMO**

Waymo began as the Google Self-Driving Car Project in 2009. And in December 2018, after nearly a decade of testing, it started a self-driving taxi service called “Waymo One” in Phoenix, Arizona, USA. Its cars are completely driverless, and customers can use an app to request a cab.

Till date, the Waymo project team has equipped various car models—Toyota Prius, Audi TT, Fiat Chrysler Pacifica, and Lexus RX450h—with their self-driving equipment, which includes cameras, radar and laser-based lidar.
WAYMO

The cars are built for full autonomy with sensors that provide 360-degree views and lasers that detect objects up to 300 metres away. Short-range lasers detect and focus on objects near the vehicle, while radar is used to gauge surroundings and track objects in motion.

The interiors include buttons for riders to control certain functions: Help, Lock, Pull over, and Start ride. The Waymo system drives cars at the speed limit it has stored on its maps and maintains its distance from other vehicles using sensors.

As part of its testing, Waymo has autonomously driven nearly two million kilometres, encountered over 2,000 stop signs, and 180 million other vehicles.

Waymo, for its part, has highlighted four uses for its tech:
- Taxicab services
- Trucking and logistics
- Urban last-mile solutions for public transport
- Passenger cars (where it will license its autonomous tech to vehicle manufacturers.)

YANDEX

Similarly, Russia-based software giant Yandex has been carrying out its own ‘autonomous car’ tests. Earlier this year, it kicked off testing in Tel Aviv, Israel; conducted test drives on public roads in Las Vegas, USA, and completed over 2,000 taxi trips for passengers in Russia.

A car equipped with Yandex tech successfully drove itself from Moscow to Kazan, covering 750km in 11 hours. Also, the company has collaborated with Hyundai to showcase the self-driving prototype of a 2020 Hyundai Sonata.

DREAM CHASER

Even before it retired all its space shuttles in 2011, NASA was working with the US-based Sierra Nevada Corporation to develop the Dream Chaser Space System that would carry two-to-seven astronauts, along with cargo to orbital destinations such as the International Space Station (ISS).

But in 2014, the Dream Chaser was repurposed as a "Commercial Resupply Services" vehicle that would ferry up to five tons of supplies to the ISS, and return with up to 1,750kg to earth.
DREAM CHASER

As of date, it is **capable of autonomous launch, flight, and landing capabilities**. In August this year, it was announced that the spacecraft will provide a minimum of six cargo missions for NASA starting in 2021. The aircraft will be carried into orbit by the new Vulcan launch vehicle but will return from space by gliding and landing on an airport runway.

The **Dream Chaser has also been selected by The United Nations Office for Outer Space Affairs (UNOOSA)** for its first space launch in the same year. The UN mission is intended to provide space access to member states that have no space programmes of their own.

EINRIDE POD

Volvo isn’t the only company that’s running autonomous truck trials. **Swedish company, Einride, has developed the all-electric ‘Pod’ to help cut down CO2 emissions.** It is a driverless vehicle that is remotely controlled by a human operator and can cover a distance up to 32km on a single charge of its 200kWh battery.

The truck is based on Drive, Nvidia’s AI-based autonomous driving platform, with DeepMap’s hi-def mapping technology and 5G communication networks provided by Ericsson and Telia.

Its modular trailer design also allows for customisation to suit the payload it has to carry. For instance, its “timber Pod” truck is only meant for hauling logs and has a carrying capacity of 26 tons.

The company is currently working with DB Schenker to transport cargo from its warehouse to its facility via a public road in an industrial area. Soon, it will also **transport goods from a Coca-Cola bottling partner’s warehouse outside Stockholm to a food retailer situated in the same area.**
CORMORANT

The Cormorant is an unmanned, Vertical-Take-Off-and-Landing (VTOL) aircraft developed by Israel-based Tactical Robotics for emergency evacuations.

Designed to fill in for choppers, its compact frame allows for its use in search and rescue ops in difficult locations like city streets, forested area and mountainous terrain.

It can hover in place and even operate in harsh weather. The Cormorant has a load carrying capacity of 764kg and can evacuate two casualties at a time.

It can also be utilised for inspection, delivery of essential goods like food, water, and medical supplies. And—as a failsafe—it comes with a rocket-deployed parachute that can safely land it in the event of a malfunction.

BLACKFLY

Like the Skai and Cormorant, the Blackfly—by US-based Opener—is a VTOL vehicle. The single-seater craft does not require a pilot’s license to fly; it boasts of a carbon-fibre-reinforced epoxy body, along with an all-electric battery-powered engine and eight propellers.

The Blackfly is controlled via a joystick system that’s backed by real-time alerts and notifications. For emergencies, it comes with a low-power glide mode, a return-to-base mode, an auto-land feature and an optional Ballistic Parachute System (BPS).

The vehicle is designed to be extremely portable: It can be disassembled to fit within a small trailer and reassembled in less than 30 minutes. Plus, its batteries can be charged at up to 80% in just 25 minutes. It has a cruise speed of 99kmph with a range of 40km on a full charge.

Already, Opener has conducted 2,800 test flights and believes that, soon, the Blackfly could cost about the same as an SUV. The first 30 production units will be available for sale by next year.
The Future Bus is a fully-functional semiautonomous transport vehicle that runs on the proprietary CityPilot platform, which can recognise traffic lights, obstacles and pedestrians, and apply the brakes without intervention.

The bus uses long and short-range radar systems to monitor the route, uses GPS for location, and has 10 cameras fitted all around to “watch” for obstacles in its path, a bend in the road, bus stops, etc. That said, a driver is always present to manually override the system in case of an emergency.

This bus made its first appearance three years ago in a demo run—at speeds up to 70kmph—along a Bus Rapid Transit (BRT) route in Amsterdam. Its success means this tech will be implemented on a larger scale soon. However, it is best suited for cities that have a BRT system—with dedicated lanes for public transport—in place.

Yara Birkeland is the world’s first autonomous ship. Yara, which is essentially into developing crop solutions, wants to cut down its carbon footprint by replacing 40,000 truck trips per year with an electricity-driven vessel and zero emissions.

So the Norwegian company teamed up with shipbuilders Vard, cargo handlers Kalmar and technology partner Kongsberg for its sensors (radar, lidar, infrared…) and integration with ship’s drive, battery and propulsion control systems.

The ship is also equipped with an automatic mooring system that does not require human intervention.

Yara has tested a scaled model in seawater in 2017. It will begin with manned operation next year and transition to a fully autonomous ship over the next two years.
However, most hydrogen technologies would require development of cost-effective technologies for photo catalytic water splitting in addition to new distribution network, with its associated costs. The transition from IC engine to EV will take time owing to the development of technology, addressing infrastructure issues, affordability, etc.

Research suggests that combustion of one gallon of gasoline produces 8.9 kg of CO₂ (United States Environmental Protection Agency, 2011a).

Over a year, atypical passenger vehicle (assuming 21 miles per gallon and 12,000 annual miles) generates 5.1 metric tons of CO₂. Alternative technologies to reduce or eliminate carbon emissions from motor vehicles have focused on the production of electric vehicles, or using hydrogen as a fuel. Hydrogen has the advantage that it is the cleanest fuel, producing no CO₂ emissions when used to power vehicles.

The 2015 Paris Agreement set a goal of limiting human-caused (anthropogenic) warming to “well below” 20°C and an ambition of staying below 1.5°C. Meeting this ambition will require the use of “negative emissions technologies” to contain the amount of CO₂ in the atmosphere, according to the Intergovernmental Panel on Climate Change (IPCC).

In the year 2014, CO₂ emissions due to human activities accounted for about 65% of greenhouse gas (GHG) emissions globally.

Transportation sector was accountable for about 28% of CO₂ emissions in USA in 2016. According to the European Environment Agency, road transportation sector contributed about 0.746 giga tons of CO₂ emissions in 2016.

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New technology - Turning CO\textsubscript{2} into fuel

Scientists have developed a new technology that could cut carbon dioxide emissions from trucks and buses by almost 90% by capturing CO\textsubscript{2} within the exhaust system, converting it into a liquid and storing it on the vehicle. The liquid CO\textsubscript{2} would then be delivered to a service station where it will be turned back into fuel using renewable energy, according to the researchers from the Swiss Federal Institute of Technology, Lausanne (EPFL).

The proposal to capture CO\textsubscript{2} and convert it from a gas to a liquid in a process that recovers most of energy available onboard, such as heat from the engine. First, the vehicle's fuel gases in the exhaust pipe are cooled down and the water is separated from the gases.

CO\textsubscript{2} is isolated from the other gases with a temperature swing adsorption system. Once the material is saturated with CO\textsubscript{2}, it is heated so that pure CO\textsubscript{2} can be extracted from it, the researchers said.

High speed turbo compressors developed by Jurg Schiffmann’s laboratory at EPFL use heat from the vehicle’s engine to compress the extracted CO\textsubscript{2} and turn it into a liquid. That liquid is stored in a tank and can then be converted into conventional fuel.

“The truck simply deposits the liquid when filling up with fuel,” said Francois Marechal from EPFL. The whole process takes place within a capsule placed above the driver’s cabin. “The weight of the capsule and the tank is only 7% of the vehicle’s payload,” said Marechal. The researchers’ calculations show that a truck using one kg of conventional fuel could produce 3kg of liquid CO\textsubscript{2}, and that the conversion does not involve any energy penalty. Only 10% of the CO\textsubscript{2} emissions cannot be recycled, and the researchers propose to offset that using biomass.

However, this study is an initial effort for capturing CO\textsubscript{2} from vehicles, and it may require several years to realize such system in practice due to the mobile nature of the CO\textsubscript{2} source, relatively smaller production rate, discontinuous emissions, space limitation, and on-board CO\textsubscript{2} storage.
Environment

Tyre Industry

As a responsible corporate citizen, globally the Tyre Industry is also paying a close attention to science-based CO₂ emission reduction goals. From raw material procurement to developing tyres with reduced rolling resistance, reducing Tyre weight, and most importantly reducing abrasion rate, which incidentally will be added in tyre labeling, abrasion residue deposited on roads is cause of concern particularly, as abraded tread residue seeps into Ground Water, better permeability inner liners, which helps reduction in pressure drop: one of the primary reason for Higher RRC and Higher Wear Rates in otherwise low RRC tyres, increasing awareness on tyre maintenance and extending the life of a tyre through retreading, the Tyre Industry aims to reduce the carbon footprint.

Source: Various reports on internet / print media
A political agreement was reached in late-November regarding a new labeling regulation that will update the current label from May 2021 onward. It will also introduce the option of a pictogram for snow and/or ice performance, based on a European Commission proposal from May 2018. The text of the new regulation must be approved by Council and the European Parliament and validated in all EU languages before it can be formally adopted and published in the EU Official Journal.

The new rules replace a previous regulation and introduce a number of important changes:

1. The label design is updated and includes icons for snow and ice grip, in accordance with international standards.

2. Labels will become more visible to consumers due to new rules on how to display them, including for distance-selling and in online advertisements.

3. The lowest fuel efficiency classes, which are no longer in use, are deleted to make the scale clearer and easier to understand.

4. Tyres for trucks and buses (C3 tyres) will in future also have to carry the label.

5. Enforcement is improved thanks to an obligation to register tyres in a product database.
EU Tire Label Revision

In addition, the regulation includes re-treaded tyres within its scope. The new rules will apply to them once a suitable testing method has been developed. It also includes provisions for adding parameters on mileage and abrasion once suitable testing methods are available. This is expected to have an impact on reducing the amount of microplastics getting into the environment due to tyre abrasion.

New label:

I. Supplier’s name or trademark;
II. Supplier’s model identifier, where ‘model identifier’ means the code, usually alphanumeric, which distinguishes a specific tyre type from other type with the same trade mark or supplier’s name;
III. QR code;
IV. Fuel efficiency;
V. Wet grip;
VI. External rolling noise;
VII. Snow grip;
VIII. Ice grip.
Label design specifications:

The label shall be at least 90 mm wide and 130 mm high. Where the label is printed in a larger format, its content shall nevertheless remain proportionate to the specifications as below:
The objective of the tyre labelling system is to

- Increase road safety and public health
- Reduce greenhouse gas emissions
- Reduce noise pollution in the transport sector.

The regulation aims to achieve this by better informing consumers about the fuel efficiency, safety and noise parameters of the tyres they buy. Road transport is responsible for about 22% of the EU's total greenhouse gas emissions, and tyres, mainly because of their rolling resistance, account for 20-30% of a vehicle's fuel consumption. A reduction of the rolling resistance of tyres therefore contributes to lowering emissions while also providing cost savings to consumers thanks to lower fuel consumption.

Repealing the current legislative framework had become necessary after its review showed that the tyre labelling scheme was not fully reaching its objective of improving safety and reducing greenhouse gas emissions in the transport sector due to low visibility of the labels and a lack of proper tools to ensure enforcement.

**Background**

Road transport is responsible for about 22% of the EU's total greenhouse gas emissions, and tyres, mainly because of their rolling resistance, account for 20-30% of a vehicle's fuel consumption.

**Reaction from Tyre Industry**

ETRMA (European Tyre & Rubber Research Association) has welcomed the fact that the proposed new text will address shortcomings of the existing regulation, including the lack of market uptake of high-graded tires and low market-surveillance activities in some EU member states.

“The review is a positive step toward an ambitious, forward-looking Tyre Labelling Regulation,” added ETRMA secretary general FaziletCinaralp. “The European tire industry particularly recognizes the benefits of the tire label in creating healthy competition between manufacturers to produce the highest performing tires and informing consumers.”

Seven years after the original tire label’s implementation, ETRMA believes that the slow market uptake of high-grade tires, as demonstrated by the European Commission's impact assessment and the ETRMA-commissioned Lizeo study, indicates that limited awareness surrounding the label persists and that the label system needs to establish itself further to deliver its full potential.

ETRMA welcomes the inclusion of improved surveillance through sanctions and penalties, increasing the visibility of the label and introducing stronger obligations for member states. Further, the Product Information Database should strengthen the information chain between tire manufacturers and authorities. It also supports a renewal of the label’s appearance to include a QR code, as well as logos indicating whether the tire is suitable for use in snow and/or ice conditions.
ETRMA also agrees with the European Commission’s commitment to the development of a suitable and reliable test method to measure tire tread abrasion before assessing the feasibility of adding this information to the label. The process is still in its infancy and needs to be completed before any measure can be introduced in this – or other – regulations, according to ETRMA.

The European tire industry is fully engaged in the environmental challenges of tires, including the need for development of a reliable test method to measure abrasion performance, a work already initiated by the industry, “Our ambitions are high, and we remain devoted to providing technical solutions that respond to societal needs,” as concluded by Fazilet Cinaralp.

Nokian tyres also welcome the revision and said that that winter tire consumers will benefit from the revised label’s information concerning grip on snow and ice and believes that that the new labels make it easier to compare tire models and will help online shoppers.

According to Mr. Jarmo Sunnari, manager of Standards, Regulations and Approvals for Nokian Tires “The biggest problem so far has been that not all tires marketed as winter tires are suitable for all winter conditions. Tires designed for the central European winter are completely different from Nordic winter tires [where ice grip is more important]. Wet grip and ice grip are mutually exclusive characteristics; the consumer may end up purchasing the wrong tires if the information on the label is not right. The new ice grip marking will distinguish tires that are suitable for Nordic countries from other winter tires. The snow grip marking will be allowed for tires with snow performance high enough for the Central European winter.”

Next steps

The new rules will be formally adopted by the Council and the Parliament at a later stage.
Traffic lights are a ubiquitous part of any busy intersection. Their design has changed little over the years but futuristic traffic lights hope to change all that.

One of the world’s first ever traffic lights were introduced in London in December of 1868. But they wouldn’t last long.

Not because of vandalism by disgruntled road users, the signal actually exploded less than a month into its operation.

This traffic light was gas-lit and its unfortunate self-immolation actually resulted in injuring its policeman-operator. After this brief experiment, semaphore-based designs began to spring up around the world in the first two decades of the 20th Century.

**Electric-based light was introduced in 1912 in Utah**, with automatic systems becoming common in the 1920s. Since then they have become an integral part of road-safety the world over.

Although their designs vary around the world, the basic concept remains the same, or similar. So much so, they are pretty much easily understood by all motorists wherever they drive abroad.

**Futuristic Traffic Lights That Could Make Roads Safer**

A Russian designer, ArininEvgeny, unveiled their vision of the future of traffic lights in 2017. He proposes **a series of differently shaped lights for every intersection**. Instead of the traditional colored blobs and arrows we are all familiar with, he proposes **more intuitive shapes of color to avoid any doubt what the light is indicating**.

These lights are not just road safety devices but actual works of art in their own way.
2 | This strip lamp traffic light is very futuristic

The Mobious Strip Lamp designed by Kisung Lee is very futuristic, indeed. Sleek and elegant it really does reinvent the concept of the traditional traffic light. These are not just traffic lights, but also street lamps making each one a multi-functional piece of tech. Concept art of these traffic lights also indicates that the stop and go modes of each light also integrate a countdown timer, which is a nice touch.

The main idea is to reduce the visual mishmash of lights and get them composed into one neat strip. The design won the Red Dot Concept Design Award in 2010.

Source: Yanko Design

3 | This Chilean design is interesting

Designed by Chilean product and car designer, Roberto Vackfroes, this futuristic traffic light concept is very interesting. He hopes to replace traditional traffic lights with his 'smart' traffic lights.

Called Control, his design proposes a solar-powered system that not only acts like a normal traffic light but performs other functions, too. They perform normal traffic light functions using LED lighting, but also let drivers know their maximum speed limits, road conditions, and weather information etc.

They also streamline traffic flow using smart sensors that also prioritize emergency vehicles at any crossroads or junctions to pass. His smart traffic lights also integrate security camera’s to check for road nuisance and other issues.
These interesting futuristic traffic lights have been specifically designed for those who have trouble discerning the differences between red and green.

This is obviously a major issue for colorblind since these are the standardized colors to indicate stop and go signals on traditional traffic light systems.

Although, in most cases, the position of indicator lights are usually standardized. It could be potentially very confusing for stoplight systems that have a horizontal, rather than a vertical, design.

This great concept, called UNISignal, was created by four innovative designers and uses shapes along with colors to help alleviate any potential confusion. A simple yet great idea to help those who suffer from colorblindness to never be confused about when to stop or go ever again.

Designed by Damjan Stankovic, these futuristic traffic lights could help with air pollution in cities. Called EkoLight, the concept’s mission is to help reduce cars’ idling during long waits at stop lights.

This is achieved by enabling the driver to know how long they will need to be waiting at the lights so they can, in theory, turn off their engine. It does this using a countdown indicator around the red light.

Armed with this information, drivers can better prepare for the time when the lights will turn green again so they can drive off. Whilst similar lights do already exist, usually incorporating a numerical countdown, the design is very fresh and aesthetically pleasing indeed.
6 IBM wants to control your car's engine at traffic lights

Similar in concept to the Eko Stoplight above, IBM patented, in 2010, an idea that would force the issue. They foresee a system that could automatically override your control of the car's engine at stop signals.

This system would actually shut off your car's engine during long stops and then automatically start it again just before the lights turn green. The idea is that this would not only help you save on wasting fuel but also inhibit the possibility for drivers to run any red stop lights.

This, they believe, will reduce emissions in the affected areas and drastically help reduce road traffic accidents at intersections and crossroads.

Obviously, this design will not be very popular with everyone and the very idea of having control of your car overridden by a third party is a little worrying. But don’t worry, this is just theoretical at present.

7 The Luxofor traffic light reinvents the classic traffic light

Designed by the Russian art studio, Art Lebedev, the Luxofor reinvigorates the design of traffic lights. The new design is actually pretty simple but very pleasing to the eye.

Called Luxofor, their design doesn’t rely on gimmicks or other integrated technology, but rather makes them more visible. Instead of round lights (which were originally designed to accommodate light bulbs), this system uses square LED panels instead.

The shape of lights and use of LED technology makes them more visible and, therefore, a lot easier for motorists to read.
Whilst not the best design for colorblind motorists, this design is a very interesting concept indeed. The idea behind them is that it is only ever beneficial to provide motorists with as much information as possible to better make decisions when approaching, or waiting, at traffic lights.

Instead of simple light indicators, like most existing lights, it uses an hourglass as its main indicator. This hourglass changes color accordingly what empties accordingly to show how much time is left to either go or stop.

It also has a numerical countdown function during the amber phase to better inform drivers how long they still have to wait or get ready to stop. Pretty neat.
9 These futuristic traffic lights keep pedestrians and traffic separated using lasers

Designed by Hojoon Lim, these futuristic traffic lights actually use lasers to keep pedestrians safe at crossings. **Pedestrians are obviously very vulnerable on the road and anything that can help prevent accidents is a bonus.**

That’s where this interesting design for futuristic traffic lights comes into its own. Lim’s design envisages solar-powered traffic lights that would, in theory, greatly decrease the chances potential collisions at pedestrian crossings.

The system has a set of four signals at each intersection that consists of a sphere mounted on a pole with flat faces at each 90-degree face. **Each face includes visual graphics indicating it’s safe to cross or not.**

But it goes further. The system utilizes thin laser beams that ‘block’ the way. The designer hopes that this will add a useful and intuitive extra visual cue to make it harder to ignore red stop lights.

10 This traffic light was ahead of its time

Whilst not technically a traffic light of the future, in fact, it’s the complete opposite, we had to include it for its brilliant design.

The Marshalite actually developed in 1936 by Charles Marshall, and is a brilliantly simple and intuitive concept and, dare we say, a very futuristic design for the time.

Unlike traditional traffic lights, the Marshalite was of a mechanical design. It employed a physical pointer that swept around a colored background, much like a mechanical clock.
Back in 2011, a group of three students devised an interesting concept for futuristic traffic lights. Not only were the signals themselves intuitive to understand but the way they are powered is very revolutionary indeed. The concept is to generate electricity using kinetic power as pedestrians cross a busy metropolitan intersection. This self-sustaining traffic intersection would help save cities some money in energy costs for running the signals.

But it goes further than that, if pedestrian-power could be captured more widely it might also be able to power other things like LED street lamps, cameras, and other devices. Although purely theoretical at present, this could be something to explore in the cities of the future.
ATMA & Honda Cars join hands to create awareness on Tyre Safety

Continuing their association towards the cause of Tyre Safety, Tyre Industry represented by Automotive Tyre Manufacturers Association (ATMA) and Honda Cars India have joined hands to spread awareness on the hazards of worn out tyres and the need to check Tread Wear Indicators (TWI). TWI are present in tyres as a visual indicator of the degree of tyre tread wear. Indian Tyre Technical Advisory Committee (ITTAC), the technical arm of ATMA is driving the initiative.

“Usage of worn out tyres on Indian highways has emerged as a safety hazard. TWI is an easy to understand feature designed to help motorists replace tyres well within time and preempt accidents”, said Mr V K Misra, Chairman ITTAC.

New tyres have a tread depth of 8mm. Tread Wear Indicators (TWI) are the projections within the tread grooves with a depth of 1.6 mm, the legal minimum tread depth. Tyres need to be replaced when the tread is worn to the level of TWI. There are marks on the shoulder region of tyres which point to the location of TWIs.

Motorists are largely unaware of the degree of wear of the tyre tread. Worn out tyres require longer distance to stop which could lead to accidents.

“In collaboration with Ministry of Road Transport & Highways (MoRTH), ATMA and ITTAC are raising awareness about TWIs so that mishaps due to worn-out tyres could be minimized. With Honda joining hands in the initiative, the drive will gather further momentum”, said Mr Rajiv Budhraja, Director General ATMA.

As a first step, Honda has positioned large posters creating awareness on TWI at their corporate office and manufacturing unit at Greater Noida for the benefit of all the employees.

The posters depicting TWI and its usage were released by Mr. Anil Srivastava, former head of mobility vertical, NITI Aayog at ATMA Partners’ Summit 2019.
ATMA & Honda join hands to create awareness on Tyre Safety

New Delhi, 26th December 2019. Worn out tyres on Indian highways has emerged as a safety hazard. TWI is an important tool to understand feature designed to help motorists replace tyres well before they reach the end of their useful life. The initiative, the drive will gather further momentum, said Mr. Rajiv Budhiraja, Director General ATMA. As a first step, Honda has positioned large posters creating awareness on TWI at their workshops to warn out-tyres could be monitored. With Honda joining hands in the initiative, the drive will gather further momentum, said Mr. V.K. Misra, Chairman ITIAC, to spread awareness on the hazards of Motorists are urged to check the degree of wear on their tyres and the need to check at least once a month to ensure the safety of the journey.

Media coverage

National

ATMA & Honda join hands to create awareness on Tyre Safety

New Delhi

Continuing their association towards the cause of Tyre Safety, Tyre Industry represented by Automotive Tyre Manufacturers Association (ATMA) and Honda Cars India have joined hands to spread awareness on the hazards of worn out tyres and the need to check Tread Wear Indicators (TWI). TWI are present in tyres as a visual indicator to warn out-tyres are at the risk of bursting.

The initiative, the drive will gather further momentum, said Mr. V.K. Misra, Chairman ITIAC, to spread awareness on the hazards of Motorists are urged to check the degree of wear on their tyres and the need to check at least once a month to ensure the safety of the journey.

In a significant move, Honda joins hands with ATMA to create awareness on TWI.

Honda cars India have joined hands with ATMA to create awareness on TWI.

New Delhi, 26th December 2019. Worn out tyres on Indian highways has emerged as a safety hazard. TWI is an important tool to understand feature designed to help motorists replace tyres well before they reach the end of their useful life. The initiative, the drive will gather further momentum, said Mr. Rajiv Budhiraja, Director General ATMA. As a first step, Honda has positioned large posters creating awareness on TWI at their workshops to warn out-tyres could be monitored. With Honda joining hands in the initiative, the drive will gather further momentum, said Mr. V.K. Misra, Chairman ITIAC, to spread awareness on the hazards of Motorists are urged to check the degree of wear on their tyres and the need to check at least once a month to ensure the safety of the journey.

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Technical Leadership

ITTAC brings out a Standards Manual which is one of the most trusted reference documents on standards for Tyre, Rim and Valve. ITTAC also publishes Tyre Guides for different category of tyres as a comprehensive compilation of different tyre damages, their appearances and recommendations.
ITTAC Main Committee

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Mr. Tom Thomas
Mr. V K Misra
Mr. V Sivaramakrishnan

Dr. Sarat Ghosh
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India’s largest rubber stakeholder meet in MAMALLAPURAM
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Theme: Rubber Resurgence Through Innovations

Venue:
RADISSION BLU RESORT TEMPLE BAY,
MAMALLAPURAM, TAMIL NADU, INDIA
28 & 29 FEBRUARY 2020

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