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“ As we express our gratitude, we must never forget that the highest appreciation is not to utter words, but to live by them”-

John F.Kenedy.



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Recent Advances in Solar Technology

Solar power was earlier generated only by means of ground-mounted or rooftop panels. Solar is set to become lighter, more flexible, and applicable everywhere. Imagine all this tech is available and you visit another city. You can buy food at a solar-powered food cart, eat it while traveling on a solar-powered highway, and charge your phone from your solar-powered clothes. This is what the near future looks like.

And there are actually lots of other innovative residential solar technologies in development or currently being rolled out in 2020. Perhaps the most promising new tech is Perovskite solar cells, which could soon be used to create solar paint.

Floating solar farms:

Silicon panels are becoming cheaper and more efficient day-by-day. According to experts, if photovoltaic panels are placed on reservoirs and other water bodies, they offer even greater efficiency as well as a plethora of other benefits.

“Floatovoltaics” are photovoltaic solar power systems created for

floating on reservoirs, dams, and other water bodies. Floating solar farms can generate huge amounts of electricity without using valuable land or real estate. The installation costs of floating photovoltaic panels are less than land-based photovoltaic panels. Also, research showed that the power production of floating solar panels is greater by up to 10% due to the cooling effect of water.

Besides producing clean solar power, floating solar farms can help with water management. They reduce the loss of water to evaporation as they limit air circulation and block sunlight from the surface of the water. Also, floating solar farms prevent noxious algae production, lowering water treatment costs. Furthermore, the water beneath keeps solar panels clean and minimizes energy waste.

Solar skins

Solar skins are a novel PV technology to integrate custom designs into solar panel systems. The solar skin technology is similar to the ad wraps displayed on bus windows.

Sistine, the manufacturer of solar skins, is testing the technolo-

gy at the United States National Renewable Energy Laboratory to increase its efficiency. Solar thin-film skins maintain high efficiency due to its selective light filtration advancements. The sunlight falling on solar skins is filtered to reach the solar cells beneath it. As a result, it simultaneously displays the custom image and provides solar energy.

Solar Applications:

Solar PV modules can be retrofitted on to a pitched roof above the existing roof-tiles, or the tiles replaced by specially designed PV roof-tiles or roof-tiling systems.



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III-ME

Mechanical Ventilators

Mechanical ventilation is a form of life support. A mechanical ventilator is a machine that takes over the work of breathing when a person is not able to breathe enough on their own. The mechanical ventilator is also called a ventilator, respirator, or breathing machine.

Right now, Ventilators are in high demand to treat Covid patients. So, it is very easy to manufacture and supply required number of ventilators to save our nation. Day by day the number of cases are increasing in such a rapid manner that many hospitals may go out of ventilators and patients may suffer. So, it is very important for us to know the working procedure and manufacturing process of ventilators. Who knows one of us might find a new way to manufacture it.

How does the ventilator work

The power source consists of something to supply the gas which will be delivered to the patient, as well as the energy required to run the ventilator components. Thus, this category encompasses the gas supply system, the batteries and power source for the mechanical ventilator.

The controls are some means of regulating the timing and characteristics of the delivered gas. These components consist of an entire array of parts, each of which probably merits an entire chapter of their own.

The circuit, that wobbly mess of corrugated tubing, is often forgotten in discussions of ventilator equipment, but it plays an important role (try to ventilate the patient without one). Its characteristics, for example its compliance and resistance to air flow, are important features.

The monitors are means of sensing and presenting the characteristics of gas

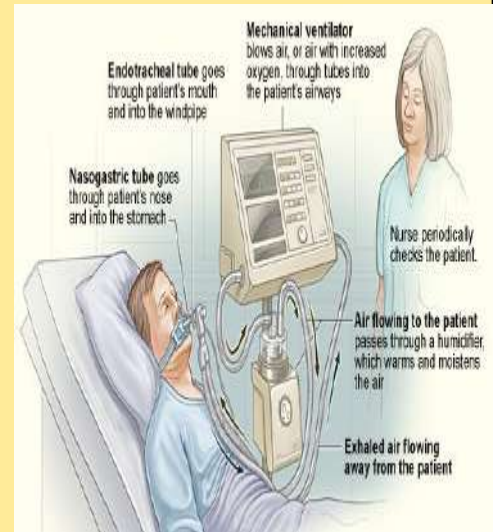
delivery so that one might be able to assess the ventilator's performance (and probably also the patient's condition).

The safety features are some devices and measures which ensure that the patient does not come to any additional harm from being ventilated (beyond the already brutal effects which are integral to the process). These consist of filters and alarms.

How long is a ventilator used

A ventilator can be life saving, but its use has risks. It doesn't fix the problem that led to the person needing the ventilator in the first place; it just helps support a person until other treatments become effective, or the person gets better on their own. The health care team always tries to help a person get off the ventilator at the earliest possible time. "Weaning" refers to the process of getting the patient off the ventilator. Some patients may be on a ventilator for only a few hours or days, while others may require the ventilator for longer. How long a patient needs to be on a ventilator depends on many factors. These can include overall strength, how well their lungs were before going on the ventilator, and how many other organs are affected (like the brain, heart and kidneys). Some people never improve enough to be taken off the ventilator.

The ventilator itself does not cause pain, but the tube may cause discomfort because it can cause coughing or gagging. A person cannot talk when an ET tube passes between the vocal cords into the windpipe. He or she also cannot eat by mouth when this tube is in place. Masks are better than ventilators so wear a mask. Masks are better than ventilators so wear a mask.



Mechanical ventilation is a "life-sustaining treatment". It is a treatment that can prolong life. It may be needed for only a short time. However, some people cannot be weaned off the ventilator and do not want to stay on the machine. Other people who know they have a very severe lung or health problem may not even want to use a ventilator at all because the ventilator cannot fix their underlying disease. Some people have very specific thoughts about if and when they should be placed on a ventilator. Although the healthcare team helps people and their families make tough decisions about the end of life, it is the person him or herself who has the final say.

Weaning from mechanical ventilation, hospital discharge and early mobilization are important aspects of how to identify weaning candidates-screening and planning how release from mechanical ventilation (ventilatory options, protocols), reintubation, rehabilitation and goals-directed mobilization.



PVNS. HARIPRIYA

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II-ME

Autonomous Self Driving Cars

A self-driving car, also known as an autonomous vehicle (AV), driverless car, or robo-car is a vehicle that is capable of sensing its environment and moving safely with little or no human input

Self-driving cars combine a variety of sensors to perceive their surroundings, such as radar, sonar, GPS, odometry and inertial measurement. Advanced control systems interpret sensory information to identify appropriate navigation paths, as well as obstacles and relevant signage.

Hybrid navigation

There are different systems that help the self-driving car control the car, including the car navigation system, the location system, the electronic map, the map matching, the global path planning, the environ-



ment perception, the laser perception, the radar perception, the visual perception, the vehicle control, the perception of vehicle speed and direction, and the vehicle control method.

Automobile industry

The traditional automobile industry is subject to changes driven by technology and market demands. These changes include breakthrough techno-

logical advances and when the market demands and adopts new technology quickly. In the rapid advance of both factors, the end of the era of incremental change was recognized.



When the transition is made to new technology, new entrants to the automotive industry present themselves, which can be distinguished as mobility providers such as Uber and Lyft, as well as tech giants such as Google and Nvidia. As new entrants to the industry arise, market uncertainty naturally occurs due to the changing dynamics. For example, the entrance of tech giants, as well as the alliances between them and traditional car manufacturers causes a variation in the innovation and production process of autonomous vehicles.

Additionally, the entrance of mobility providers has caused ambiguous user preferences. As a result of the rise of mobility providers, the number of vehicles per capita has flatlined. In addition, the rise of the sharing economy also contributes to market uncertainty and causes forecasters to question whether personal ownership of vehicles is still relevant as new transportation technology and mobility providers are becoming preferred among consumers.

Challenges with Autonomous Cars

Fully autonomous (Level 5) cars are undergoing testing in several pockets of the world, but none are yet available to the general public. We're still years away from that. The challenges range from the technological and legislative to the environmental and philosophical. Here are just some of the unknowns.

Lidar and Radar

Lidar is expensive and is still trying to strike the right balance between range and resolution. If multiple autonomous cars were to drive on the same road, would their lidar signals interfere with one another? And if multiple radio frequencies are available, will the frequency range be enough to support mass production of autonomous cars.

Weather Conditions

What happens when an autonomous car drives in heavy precipitation? If there's a layer of snow on the road, lane dividers disappear. How will the cameras and sensors track lane markings if the markings are obscured by water, oil, ice, or debris?

Accident Liability

Who is liable for accidents caused by an autonomous car. The manufacturer. The human passenger. The latest blueprints suggest that a fully autonomous Level 5 car will not have a dashboard or a steering wheel.



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I-ME

Comic



Most of the time, festive seasons involve...

2 years later ~



... the recycling of unwrapped gifts.

We couldn't go out to meet the family this time round,



But I did try a spot of festive sweet-making.



The first dish I ever made, and my parents loved it!

On festive occasions,



I receive my older brother's extra large clothes.

But he's stranded abroad.



So, no new festive hand-me-down clothes this year, only video calls.