



# CTC(T&IT), CRPF



Monthly

# e-Newsletter

April - 2022



Never stop learning, Because life never stop Teaching

**"We cannot solve our problems with the same thinking we used when we created them.".."**

**— Albert Einstein**

**APR-2022, Published on APR-30-2022**

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## **READER'S CENTER**

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- 2. Touchless Touchscreen Technology**
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# Energy Star and Hybrid Technology

## Energy Star History

Energy Star is a U.S. Environmental Protection Agency voluntary program that helps businesses and individuals save money and protect our climate, through superior energy efficiency. The Energy Star program was first developed in 1992 by the US Environmental Protection Agency (EPA) as a method to identify and promote products that are the most energy-efficient.

Since its initial onset, the government has partnered with other industry members, to promote and expand the scope of this project to include, not only major appliances but also new homes and buildings. So the Energy Star rating program encompasses a wide variety of products.

There have also been many major advances in technologies, leading to such energy savers as LCD lighting and "stand-by" product features. Research and development are still on-going, as manufacturers strive to deliver low-cost energy products.

An appliance which sports the Energy Star label is not necessarily a better product than a comparable model, but in order to be Energy Star qualified, it must meet strict energy efficiency guidelines, as set out by that program. Look for this label when shopping for an appliance if you want to reduce your energy costs.

When purchasing appliances, watch for the Energy Star rating and other energy efficiency information. Note that an appliance labeled "energy-efficient" may use less energy than others in its class, but may not meet the strict standards to be an Energy Star product. So the term is rather vague and can often be misleading.

Appliances carrying the Energy Star rating typically are 10 percent to 20 percent more energy efficient than non-rated models. This means, you'll not only save money by purchasing an appliance with the lowest Energy Guide rating, but you'll also reap additional energy savings if that appliance is also Energy Star qualified. This is a great way to increase your energy savings, plus also help your environment as well.

## What Is an Energy Star Rating?

Energy star ratings indicate that a product meets federally mandated guidelines regarding energy efficiency. Though not all appliances come with an Energy Star Rating, many do, which contribute to sustainability. Products such as air conditioners, air purifiers, and refrigerators usually come with an energy star rating.

## The Energy Guide Label

While you'll find the Energy Star logo only on qualifying energy-efficient products, there is another program that is designed to help you further understand energy costs and which can serve as a useful comparison tool, when shopping for an appliance. The Energy Guide label comes with new large appliances and offers consumers insight on that particular model's estimated annual energy use under average conditions.

While the actual energy consumption of any appliance will vary per household, the Energy Guide does provide a way to compare usage estimates, before buying a certain model. The label will show typical usage under average conditions, in kilowatt-hours (kWh) per year.

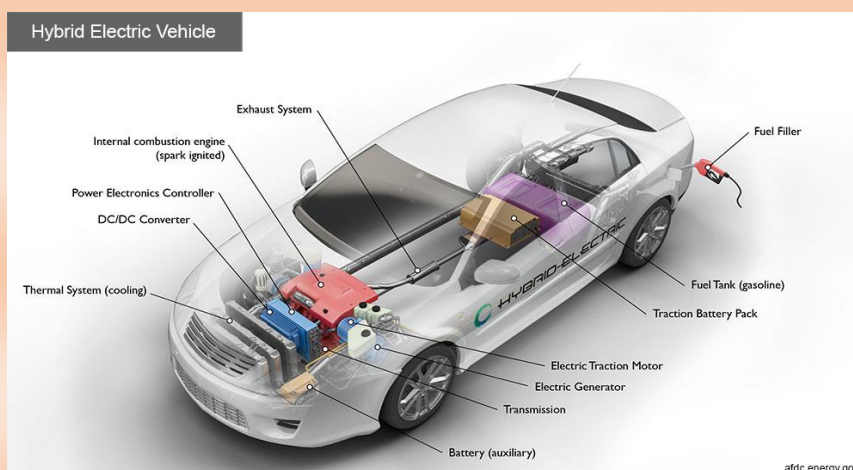
As a consumer, you can compare the energy labels of the appliances on your shortlist, when trying to decide which one to purchase. The lower the energy number, the more cost-efficient it is to operate. That translates into reduced energy bills at month-end.

## The CEE Tier

There is another rating that consumers should pay attention to, especially if your local utility supports purchases of efficient appliances. The CEE tier shown on new washers, dishwashers, refrigerators or air conditioners, means that the appliance is likely more efficient.

Check the specification or visit your local utility website for up to date information, since these tiers and the measurements used are always a step ahead of the technology. While the CEE rating does not replace an Energy Star rating, it complements it.

## How Do Hybrid Electric Cars Work?



Hybrid electric vehicles are powered by an internal combustion engine and an electric motor, which uses energy stored in batteries. A hybrid electric vehicle cannot be plugged in to charge the battery. Instead, the battery is

charged through regenerative braking and by the internal combustion engine. The extra power provided by the electric motor can potentially allow for a smaller engine. The battery can also power auxiliary loads and reduce engine idling when

stopped. Together, these features result in better fuel economy without sacrificing performance. Learn more about hybrid electric vehicles.

## **Key Components of a Hybrid Electric Car**

**Battery (auxiliary):** In an electric drive vehicle, the auxiliary battery provides electricity to start the car before the traction battery is engaged and also powers vehicle accessories.

**DC/DC converter:** This device converts higher-voltage DC power from the traction battery pack to the lower-voltage DC power needed to run vehicle accessories and recharge the auxiliary battery.

**Electric generator:** Generates electricity from the rotating wheels while braking, transferring that energy back to the traction battery pack. Some vehicles use motor generators that perform both the drive and regeneration functions.

**Electric traction motor:** Using power from the traction battery pack, this motor drives the vehicle's wheels. Some vehicles use motor generators that perform both the drive and regeneration functions.

**Exhaust system:** The exhaust system channels the exhaust gases from the engine out through the tailpipe. A three-way catalyst is designed to reduce engine-out emissions within the exhaust system.

**Fuel filler:** A nozzle from a fuel dispenser attaches to the receptacle on the vehicle to fill the tank.

**Fuel tank (gasoline):** This tank stores gasoline on board the vehicle until it's needed by the engine.

**Internal combustion engine (spark-ignited):** In this configuration, fuel is injected into either the intake manifold or the combustion chamber, where it is combined with air, and the air/fuel mixture is ignited by the spark from a spark plug.

**Power electronics controller:** This unit manages the flow of electrical energy delivered by the traction battery, controlling the speed of the electric traction motor and the torque it produces.

**Thermal system (cooling):** This system maintains a proper operating temperature range of the engine, electric motor, power electronics, and other components.

**Traction battery pack:** Stores electricity for use by the electric traction motor.

**Transmission:** The transmission transfers mechanical power from the engine and/or electric traction motor to drive the wheels.

SI/RF J.S RANA

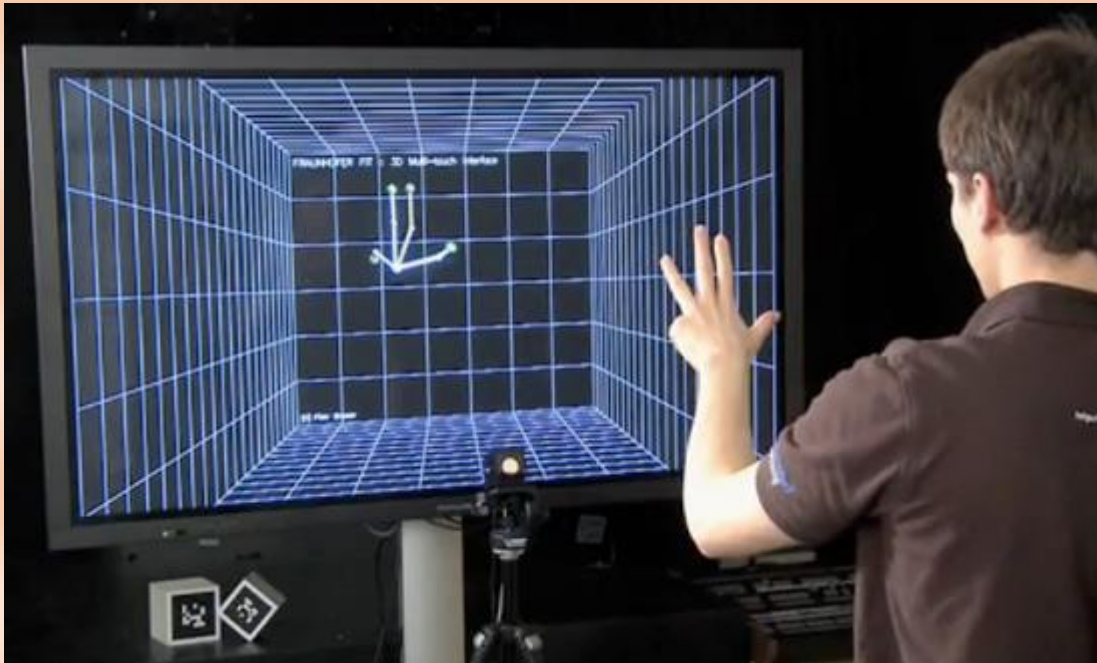
# Touchless Touchscreen Technology

## ABSTRACT:

It was the touch screens which initially created great furore. Gone are the days when you have to fiddle with the touch screens and end scratching up. Touch screen displays are ubiquitous worldwide. Frequent touching a touchscreen display with a pointing device such as a finger can result in the gradual de-sensitization of the touchscreen to input and can ultimately lead to failure of the touchscreen. To avoid this a simple user interface for Touchless control of electrically operated equipment is being developed. EllipticLabs innovative technology lets you control your gadgets like Computers, MP3 players or Mobile phones without touching them. A simple user interface for Touchless control of electrically operated equipment. Unlike other systems which depend on distance to the sensor or sensor selection this system depends on hand and or finger motions, a hand wave in a certain direction, or a flick of the hand in one area, or holding the hand in one area or pointing with one finger for example. The device is based on optical pattern recognition using a solid state optical matrix sensor with a lens to detect hand motions. This sensor is then connected to a digital image processor, which interprets the patterns of motion and outputs the results as signals to control fixtures, appliances, machinery, or any device controllable through electrical signals.

## INTRODUCTION:

The touch less touch screen sounds like it would be nice and easy, however after close examination it looks like it could be quite a workout. This unique screen is made by TouchKo , White Electronics Designs , and Groupe 3D. The screen resembles the Nintendo Wii without the Wii Controller. With the touchless touch screen your hand doesn't have to come in contact with the screen at all, it works by detecting your hand movements in front of it. This is a pretty unique and interesting invention, until you break out in a sweat. Now this technology doesn't compare to the hologram-like IO2 Technologies Heliodisplay M3 , but thats for anyone that has \$18,100 laying around. You probably wont see this screen in stores any time soon. Everybody loves a touch screen and when you get a gadget with touch screen the experience is really exhilarating. When the I-phone was introduced, everyone felt the same. But gradually, the exhilaration started fading. While using the phone with the finger tip or with the stylus the screen started getting lots of finger prints and scratches. When we use a screen protector; still dirty marks over such beautiful glossy screen is a strict no-no. Same thing happens with I-pod touch. . Most of the time we have to wipe the screen to get a better unobtrusive view of the screen



Thanks to Elliptic Labs innovative technology that lets you control your gadgets like Computers, MP3 players or mobile phones without touching them. Simply point your finger in the air towards the device and move it accordingly to control the navigation in the device. They term this as “Touchless human/machine user interface for 3D navigation”.

## CONCLUSION:

Today's thoughts are again around user interface. Efforts are being put to better the technology day-in and day-out. The Touchless touch screen user interface can be used effectively in computers, Cell phones, Webcams and laptops. May be few years down the line, our body can be transformed into a virtual mouse, virtual keyboard and what not??, Our body may be turned in to an input device!

ASI/T SOHAN

# Edge Computing

Formerly a new technology trend to watch, cloud computing has become mainstream, with major players AWS (Amazon Web Services), Microsoft Azure and Google Cloud Platform dominating the market. The adoption of cloud computing is still growing, as more and more businesses migrate to a cloud solution. But it's no longer the emerging technology trend. Edge is.

As the quantity of data organizations is dealing with continues to increase, they have realized the shortcomings of cloud computing in some situations. Edge computing is designed to help solve some of those problems as a way to bypass the latency caused by cloud computing and getting data to a data centre for processing. It can exist "on the edge," if you will, closer to where computing needs to happen. For this reason, edge computing can be used to process time-sensitive data in remote locations with limited or no connectivity to a centralized location. In those situations, edge computing can act like mini datacenters.

Edge computing will increase as use of the Internet of Things (IoT) devices increases. By 2022, the global edge computing market is expected to reach \$6.72 billion. And this new technology trend is only meant to grow and nothing less, creating various jobs, primarily for software engineers.

Keeping in line with cloud computing (including new-age edge and quantum computing) will help you grab amazing jobs like:

- Cloud Reliability Engineer
- Cloud Infrastructure Engineer
- Cloud Architect and Security Architect
- DevOps Cloud Engineer

HC/RO ZAFAR EQBAL

# Robotic Process Automation (RPA)

Like AI and Machine Learning, Robotic Process Automation, or RPA, is another technology that is automating jobs. RPA is the use of software to automate business processes such as interpreting applications, processing transactions, dealing with data, and even replying to emails. RPA automates repetitive tasks that people used to do.

Although Forrester Research estimates RPA automation will threaten the livelihood of 230 million or more knowledge workers or approximately 9 percent of the global workforce, RPA is also creating new jobs while altering existing jobs. McKinsey finds that less than 5 percent of occupations can be totally automated, but about 60 percent can be partially automated.

For you as an IT professional looking to the future and trying to understand latest technology trends, RPA offers plenty of career opportunities, including developer, project manager, business analyst, solution architect and consultant. And these jobs pay well. An RPA developer can earn over ₹ 534K per year - making it the next technology trend you must keep a watch on!

Mastering RPA will help you secure high paying jobs like:

- RPA Developer
- RPA Analyst
- RPA Architect

HC/RO B.CHATTOPADHYAY

## **Acknowledgement**

We are highly thankful for reading out this compilation and hope it will be useful for you in day to day professional and personal life .We would like to hear your interest areas, suggestions from you to make this newsletter more informative and interesting. Your views will definitely help us to create this newsletter as an effective medium to reach you with latest development in the fields of communication and technology.

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