



# CENTRAL TRAINING COLLEGE

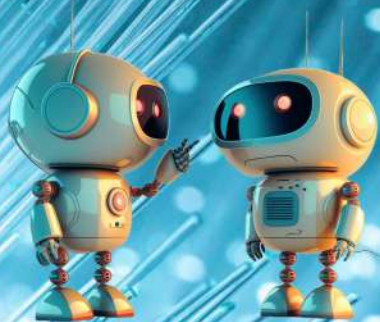
## *Telecom & Information Technology*

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# e-Newsletter

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it brings people together”*

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# “A World Without Cords” Wireless Charging

Charging is an optimized inductive charging, also known as “wireless charging” allowing you to charge your devices wirelessly. Only compatible devices’ batteries are charged by using induction transfer without requiring separate chargers, cables or adapters... Simply place your compatible device on top of the wireless pad and watch your device charge

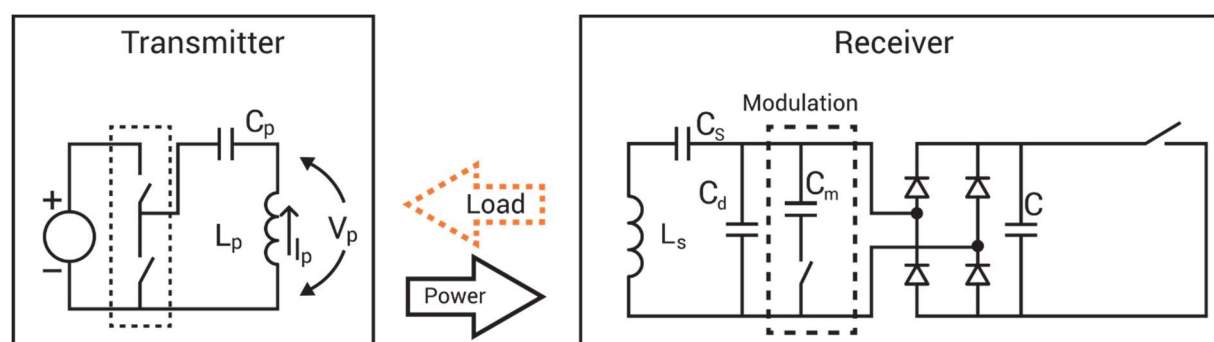
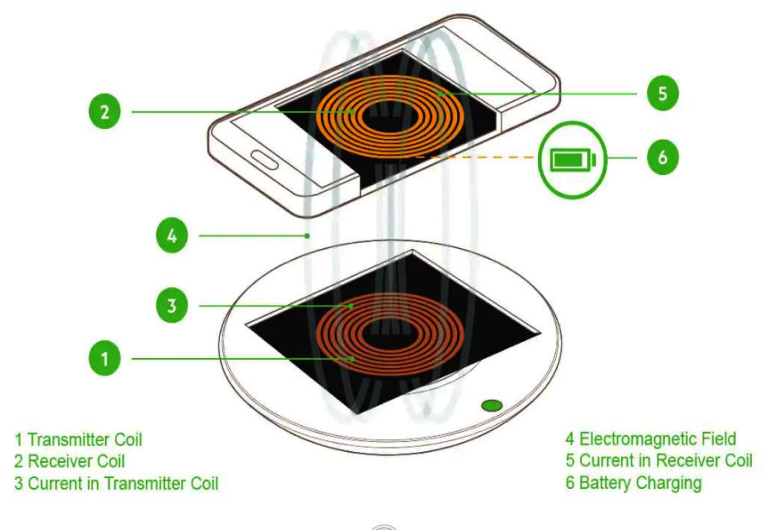
## How wireless charging

chargers that use loosely-coupled or radiative electromagnetic resonant charging that can transmit a charge a few centimetres; and uncoupled radio frequency (RF) wireless charging that allows a trickle charging capability at distances of many feet.

There are two charging technologies: electromagnetic resonant and radio frequency, which offers the ability to move around a space and still have your mobile device charge.

Both technologies offer distinct advantages in terms of spatial freedom, ease of use, and ease of installation

That's because loosely coupled charging provides more spatial freedom – the ability to simply drop a phone, tablet or laptop on a desktop and have it charge.



There are two coils: one in the transmitter and the other in the receiver. A magnetic field is generated with an alternating current in the transmitter coil, and this magnetic field induces voltage in the receiver coil. In a real scenario, the receiver in the mobile device takes power from the electromagnetic field and converts it into electrical current to charge the battery.

Mobile device manufacturers that are working with this standard includes: Asus, HTC, Huawei, LG Electronics, Motorola Mobility, Nokia, Samsung, BlackBerry, and Sony. All the devices with Qi logo are compatible to wireless chargers

- system comprises
- Base station
- Mobile devices
- Power conversion
- Communication

Let's take a look at how these devices operate in order to charge a battery.

### **Base Station:**

It contains one or more power transmitters that comprise of a transmitting coil, which generates an oscillating magnetic field. The base stations are typically of flat surfaces i.e. Interface Surface, on which multiple devices can be placed.



### **Mobile Devices:**

These are the devices that consume inductive power. They can be either smartphones or tablets and hold a receiver coil that contains a power receiver. This receiver provides power to the battery. Communication and control units are also there in power receivers.

### **Power Conversion:**

The transmitter in the base station has a power conversion unit that converts electrical power to wireless power signal. Whereas, the receiver in the mobile devices comprises of a power pick-up unit that converts wireless power signal back to electrical power.

### **Communication:**

The communication and control unit are present in power receivers and this communication is always followed by a technique called modulation.

What is the best choice from inductive and resonant mode?

Tightly-coupled systems are best suitable due to their high-power transfer and their low heat production. This is an advantage for heat-sensitive devices such as smartphones. The downside is that tightly coupled coils are sensitive to misalignment.

Loosely-coupled systems have low-power transfer efficiency. Such types of systems are best suitable for the applications that have tight electromagnetic induction or electromotive force.

The best choice depends on your needs.

### **Charging Power:**

wireless charging with low power is able to deliver up to 5 Watts of power at the receiver output whereas Qi charging with medium power can deliver up to 120 Watts. Also, the communication between transmitter and receiver should be enabled during charging process; the charging process will not start without any interoperable communication.

In comparison to the traditional charging, wireless charging is considered slower but the good news is that it causes no harm to humans since wireless chargers emit non-ionizing radiations.

### **Advantages:**

Wireless technology has the biggest advantage of having compatibility with all cell phones and chargers from different manufacturers.

Non-radiative energy is transferred and so it is not harmful to humans.

No need to constantly plug and unplug the device for charging purposes.

It has protected connections with no corrosion.

### **Disadvantages:**

Loosely-coupled systems have lower efficiency that waste heat.

Charging is slow as compared to traditional charging.

Complex and increased cost of manufacturing.

## **ROBOTIC PROCESS AUTOMATION (RPA)**

Robotic Process Automation is the technology that allows anyone today to configure computer software, or a “robot” to emulate and integrate the actions of a human interacting within digital systems to execute a business process. RPA robots utilize the user interface to capture data and manipulate applications just like humans do. They interpret, trigger responses and communicate with other systems in order to perform on a vast variety of repetitive tasks. Only substantially better: an RPA software robot never sleeps and makes zero mistakes.

### **How is RPA different from other enterprise automation tools?**

In contrast to other, traditional IT solutions, RPA allows organizations to automate at a fraction of the cost and time previously encountered. RPA is also non-intrusive in nature and leverages the existing infrastructure without causing disruption to underlying systems, which would be difficult and costly to replace. With RPA, cost efficiency and compliance are no longer an operating cost but a by product of the automation.

### **How does Robotic Process Automation work?**

RPA robots are capable of mimicking many—if not all—human user actions. They log into applications, move files and folders, copy and paste data, fill in forms, extract structured and semi-structured data from documents, scrape browsers, and more.

### **Essentially any high-volume, business-rules-driven, repeatable process qualifies for automation.**

An HR service provider from Europe was processing 2,500 sick leave certificates per month with an average handling time of four minutes per item. Within three weeks they implemented an RPA solution and achieved 90% process automation. The RPA robot extracts data from a transaction in SAP, inserts the information into the customer’s systems, and prints it. The HR service provider achieved a return-on-investment within six months, with error rates reduced to 0%, manual effort reduced to 5%, and processing time reduced by 80%.

## **Reduce effort in the back office**

A global retailer was using its store closing reports to validate closing information for each of its registers across hundreds of stores. The store's employees used a manual and sluggish process to pull up these reports. By automating the process, the store freed up its employees to now focus on more customer-centric activities. The RPA robots now move the closing reports to one server, then read and consolidate the needed information for the store's closing reports.

## **Improve customer service in the front office**

A trade credit insurance company with over 50,000 clients worldwide automated the credit limit request underwriting process. Underwriters were previously gathering information manually, from internal (Risk & Policy) to external (Customer Site, Google News) sources. With RPA, they saved 2,440 hours of human work a month. Employees now use that time to work directly with customers.

## **What are the business benefits of RPA?**

Robots are here to stay. The faster you harvest their potential, the faster you create a competitive edge for your business. Robotic Process Automation delivers direct profitability while improving accuracy across organizations and industries. Enabling RPA to handle any processes will not only transform and streamline your organization's workflow. It will allow for superior scalability and flexibility within the enterprise, doubled by fast, tailored response to specific needs. Software robots are easy to train and they integrate seamlessly into any system. Multiply them, and instantly deploy more as you go. They constantly report on their progress so you can go even bigger and better by using operational and business predictability, while improving strategically.