WITRICITY

-WIRELESS ELECTRICITY

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WHAT IS WITRICITY

- WITRICITY is nothing but Wireless elecTRICITY.

- Transmission of electrical energy or power from one object to another object without the use of wires is called witricity.

- Because of witricity some of the devices wont require batteries to operate.

HISTORY OF WIRELESS POWER

- In 1891,nikola tesala proposed a method of wireless power transmission ,as it is in radiative mode ,most of the power was wasted and has less effeciency.
- In 2005,Dave Gerding coined the term WITRICITY which is being used today.

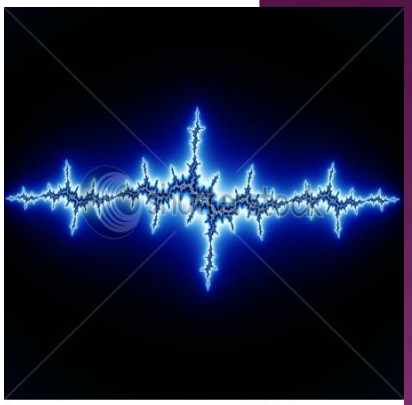
- Forgotten invention was reborn in 2007 by MIT (massachussets institute of technology) researchers.

BASICS OF WITRICITY

- Electricity
- Magnetism
- Energy coupling
- Magnetic induction
- Resonance
- Electromagnetism

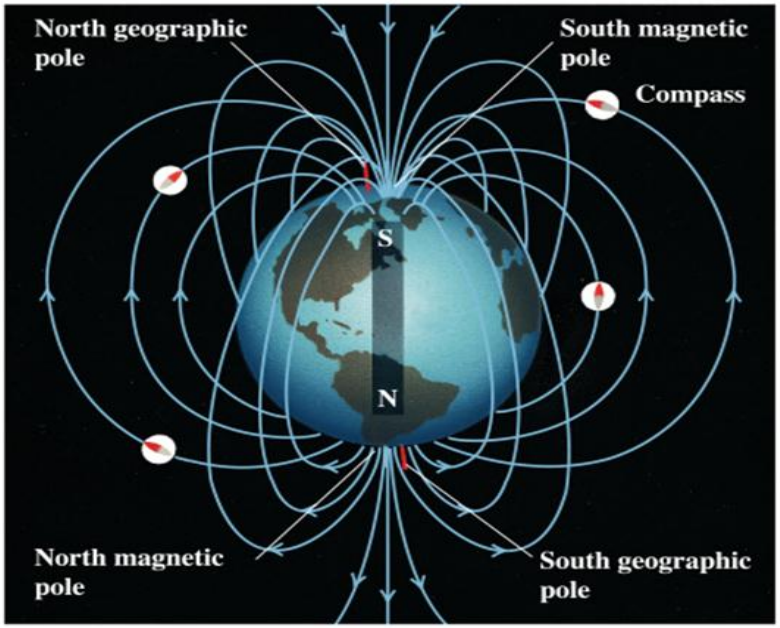
ELECTRICITY

The flow of electrons (current) through a conductor (like a wire) or charges through the atmosphere (like lightning).



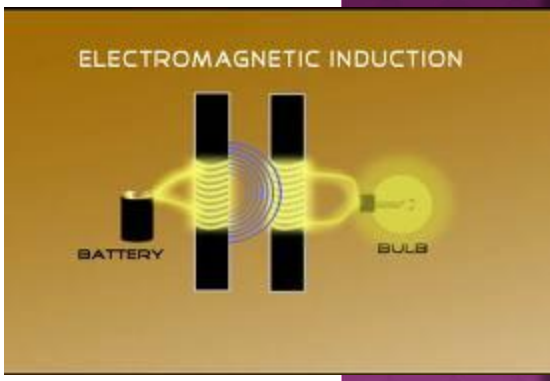
MAGNETISM

A fundamental force of nature ,which causes certain types of materials to attract or repel each other.

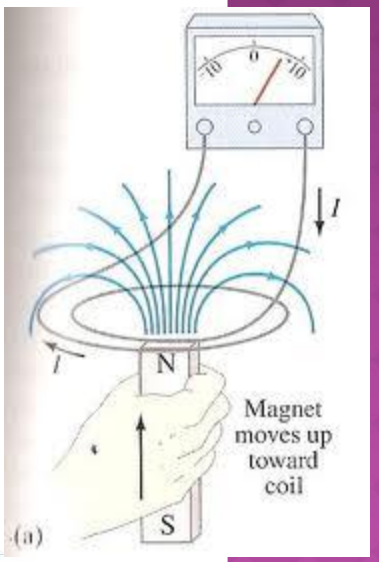


ELECTRO MAGNETIC INDUCTION

Is the production of voltage (induced current)across a conductor moving through a magnetic field



For example,it turns out that an oscillating magnetic field produces an electric field and an oscillating electric field produces an magnetic field.



ELECTROMAGNETISM

- A term for the interdependence of time varying electric and magnetic field .

ENERGY/POWER COUPLING

- It occurs when an energy source has a means of transferring energy to another object.

WITRICITY TECHNOLOGY

- The **Transfer of Electricity** from one place to another **without wires** is known as ***"Witricity"*.**

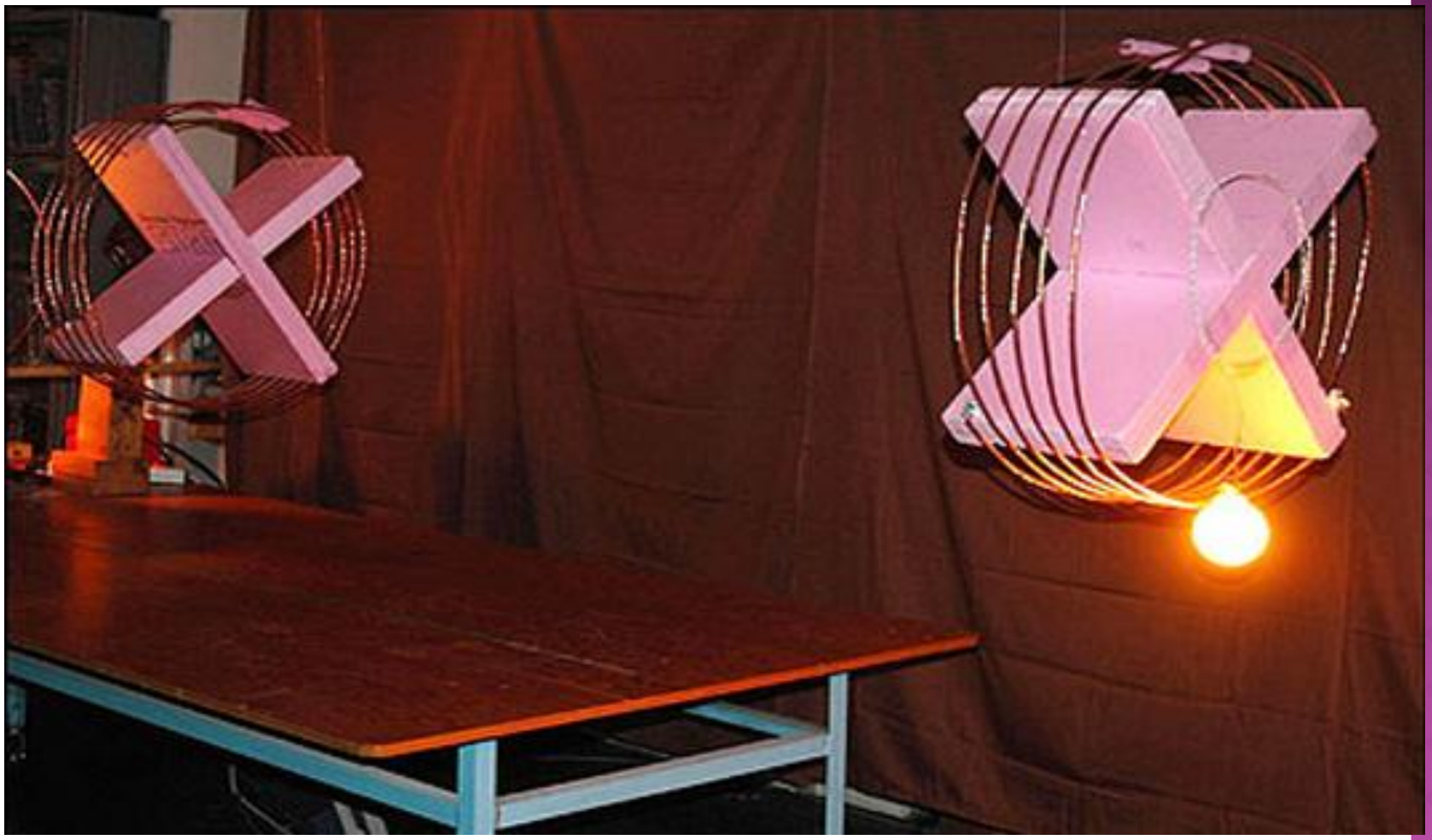
- There are **witricity power sources(transmitter)** and **capture devices(receiver).**

- ***Power source*** provides power to the devices where as **capture device** captured it to work.

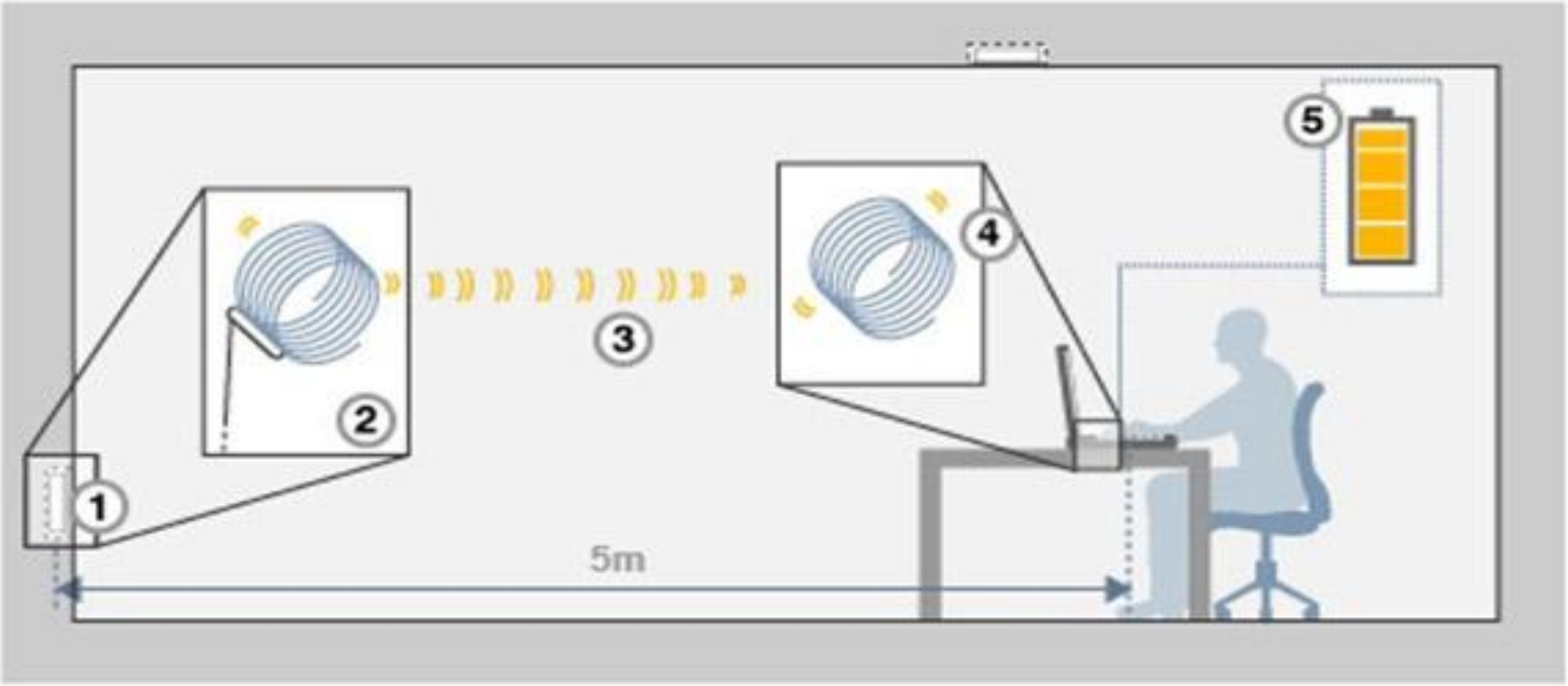
- **Power source** and **capture devices** are specially designed **magnetic resonators.**

- **Magnetic resonators efficiently transfer power over large distance via the magnetic near-field.**

PRINCIPLE BEHIND WITRICITY

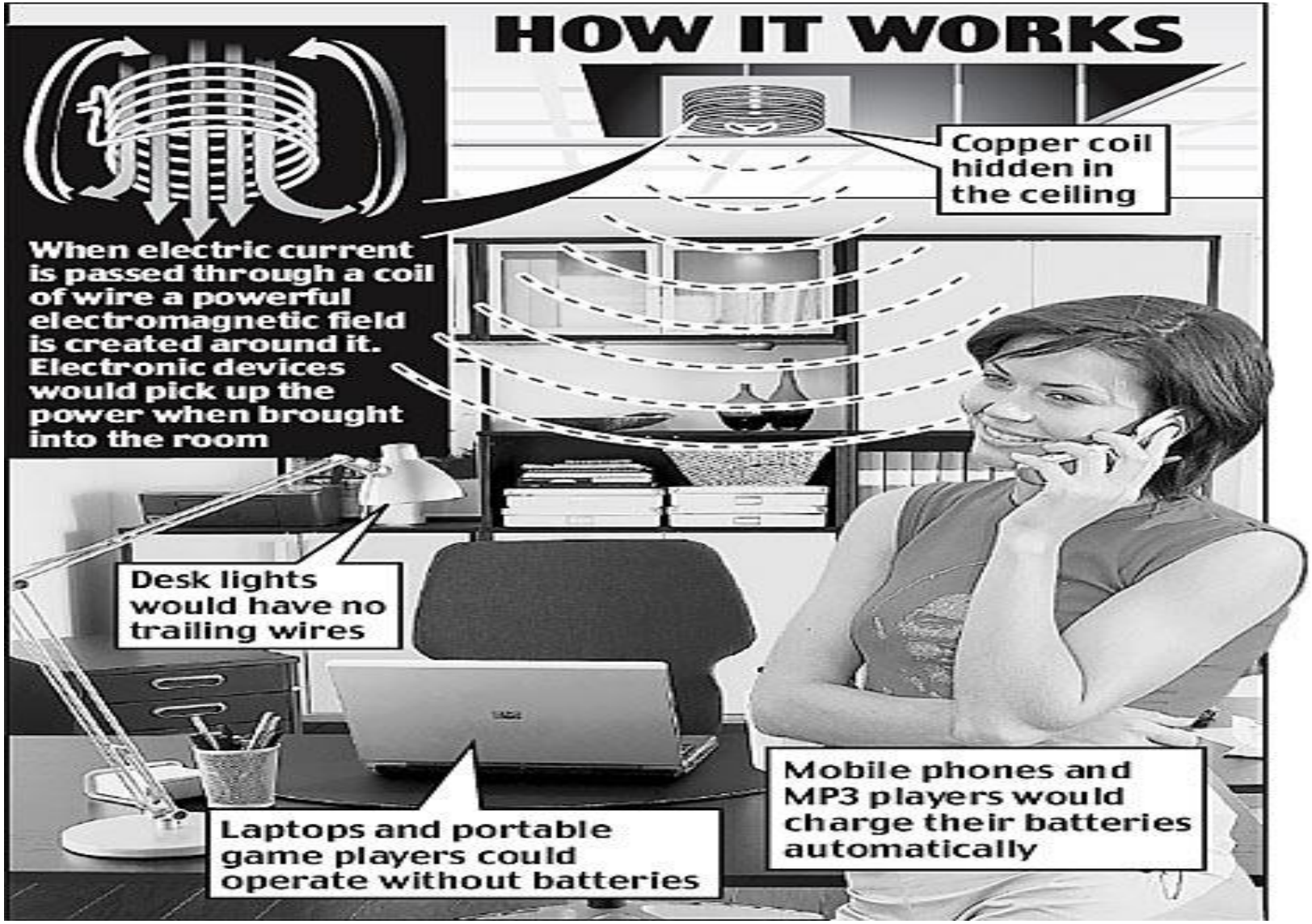


HOW WIRELESS POWER WORKS



- 1. Magnetic coil (Antenna A) is housed in a box and can be set in wall or ceiling.
- 2. Antenna A, powered by mains, resonates at a specific frequency.
- 3. Electromagnetic waves transmitted through the air.
- 4. Second magnetic coil (Antenna B) fitted in laptop/TV etc resonates at same frequency as first coil and absorbs energy.
- 5. Energy charges the device.

WITRICITY IN OUR DAILY LIFE.



Features and benefits

Witricity's Technology	Technology Benefit
Highly resonant strong coupling	High efficiency over distance
Energy transfer via magnetic near field	Can penetrate and wrap around obstacles
Non radiative energy transfer	Safe for living beings and other environmental objects
Scalable design	From mW to kW
Flexible geometry	Device that can fit into OEM (original equipment manufactures)products

APPLICATIONS

- Consumer electronics
- Industrial
- Transportation…

ADVANTAGES

- No need of line of sight.
- No need of power cables and batteries.
- Does not interfere with radio waves.

WE CAN REDUCE TRILLION OF TOWERS WHICH ARE AROUND US

Production of 40 Billion Disposable Batteries / Yr can be reduced

DISADVANTAGE

- Wireless power transmission can be possible only in few meters.

- Efficiency is only about 40%.

REFERENCES

- Wireless Power Transfer via Strongly Coupled Magnetic Resonances André Kurs,Aristeidis Karalis,Robert Moffatt,1 J. D. Joannopoulos,Peter Fisher, Marin Soljac ˇ*ic* ´ .

- **Efficient wireless *non-radiative mid-range energy transfer*** Aristeidis Karalis*, J.D. Joannopoulos, and Marin Soljačić *Center for Materials Science and Engineering and Research Laboratory of Electronics Massachusetts Institute of Technology, 77 Massachusetts Avenue, Cambridge, MA 02139, USA .*
- *http://www.witricty.com*
- *http://www.witricity power.com*
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GOOD BYE WIRES ☺….