



BHILAI INSTITUTE OF TECHNOLOGY, DURG
DEPARTMENT OF ELECTRONICS AND
TELECOMMUNICATION



DIASPORA
NEWSLETTER

Vision:

To create Globally Competent Electronics and Telecommunication Engineering Professionals by delivering Value based Quality Education to serve the Society.

Mission:

To create a Learning Ambience in the department so as to inculcate Innovative and Research skills and an urge for lifelong learning among students for professional skills and ethical values.

The Programm Educational Objectives (PEOs) are:

- PEO1:** To impart the basic fundamental concepts of Electronics Engineering.
PEO2: To provide theoretical and practical knowledge of Electronics & Telecommunication Engineering to enable them to devise and deliver efficient solutions to challenging problems in Electronics, Communications and Applied Disciplines.
PEO3: To develop an ability to apply the technical skills for design and development of systems to meet the industrial and societal needs.
PEO4: To inculcate an ability to adapt to evolving environment with professional ethics.

THEME:

HAPTIC TECHNOLOGY

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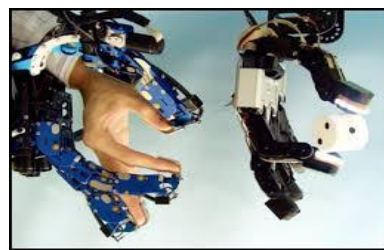
M.Nivedita, Kumari Surbhi

EDITOR'S DESK:*Dear Readers,**Greetings!*

The joy of life comes from encounters with new experiences and hence there is no greater joy than to have an endlessly changing horizon. The process of compiling, editing this newsletter and guiding the young talents who invested their time and energy in their endeavor to learn the intricate details of journalism has been both emotionally and intellectually fulfilling experience.

This issue majorly focuses on "HAPTIC". Along with some mind-boggling fun facts and an electronic crossword to work up those brain muscles of yours, this issue promises to pamper the geek in you.

Enclosing, I extend my sincere gratitude to those involved, directly or indirectly and contributed in making this issue a success.



What is Haptic Technology:-

Haptic (pronounced as HAP-tiks) is the science of applying touch sensation & control to interaction with computer applications. It offers additional dimensions to a virtual reality or 3-D environment & is essential to the impressive mass of those environments.

➤ **Pros:-**

- ❖ Correspondence is concentrated through touch and the computerized world can act like this present reality.
- ❖ Attempting time may be decrease since things might a chance to be apprehended, controlled, modified and rescaled digitally.
- ❖ With haptic equipment and programming, the architect can move the part and feel the outcome, as though he/she were taking care of the physical object.
- ❖ Improve user involvement in the video game.

➤ **Cons:-**

- ❖ Implementation of this technology is costly.
- ❖ Troubleshooting issues—these are confused since they include ongoing information examination.
- ❖ With just a feeling of touch, haptics interfaces can't convey notices.

History of Haptic Technology:-

In 1995 Norwegian Geir Jensen described a wrist watch haptic device with a skin tap mechanism, termed Tap-in. It would connect to a mobile phone via Bluetooth. Tapping-frequency patterns would identify callers to a mobile and enable the wearer to respond by selected short messages. It was submitted for a governmental innovation contest and received no award.

The Tap-in device by Jensen was devised facing the user to avoid twisting of the wrist, see image. It would adapt across all mobile phone and watch brands. In 2015 Apple started to sell a wrist watch which included skin tap sensing of notifications and alerts to mobile phone of the watch wearer.



Haptic Technology:-A future of sense by touch

Imagine a woman preparing a meal from her workplace using the latest in haptic technology. All she has to do is move her arms about in the 3D shape projected by her haptic holographic screen for the wirelessly connected electronic arm to follow the movements. From vibrating cell phones that alert you to an incoming message or call, to technology that lets you feel things without touching them, haptic technology has opened up a myriad of possibilities for the future.

For instance, haptic technology that uses ultrasound to create 3D shapes in mid-air that can be felt by users can be used in CT scans and in complicated neurosurgery. The ultrasound technology determines the shape of the object in question using sound waves and the 3D holographic tech combined with haptic forces recreate the shape of the object.

The entertainment industry has also expanded on haptic utilities to improve user experiences. Imagine going for a 3D haptic movie, where you not only feel like you are part of the film, but can also feel the rain on your face or the wind through your hair. Even video games are using haptic feedback to help gamers immerse themselves into their fantasy world.

Imagine shopping online for a sweater, and being able to feel the material using haptic tech, and even try it on to see if it fits. Such a revolutionary application could change the face of online shopping altogether.

Haptic technology could truly revolutionize user experiences in multiple ways. It can give rise to opportunities to research various scientific aspects, from bacteria to extra-terrestrial surfaces in a safe and secure environment.

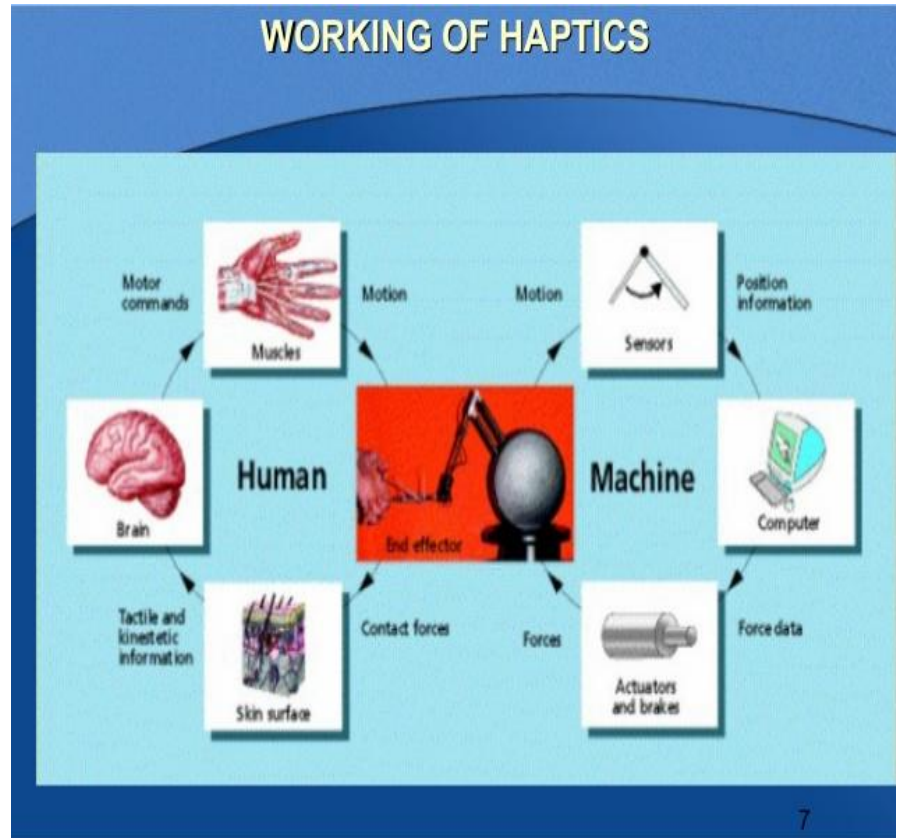


Riddles:

- 1) You can drop me from the tallest building and I'll be fine, but if you drop me in the water I die. What am I?
- 2) What turns everything around, but does not move?
- 3) You answer me, but I never ask you a question. What am I?
- 4) Before Mt. Everest was discovered, what was the highest mountain in the world?
- 5) What walks on four feet in the morning, two in the afternoon and three at night?
- 6) What did the scientist say when he found 2 atoms of helium?
- 7) Most people need it, some ask for it, some give it, but almost nobody takes it. What is it?
- 8) How can you give someone \$83 using exactly 7 bills, without using any one dollar bills?

Team Diaspora

Working of Haptic Technology:-



Basically haptic system consists of two parts:

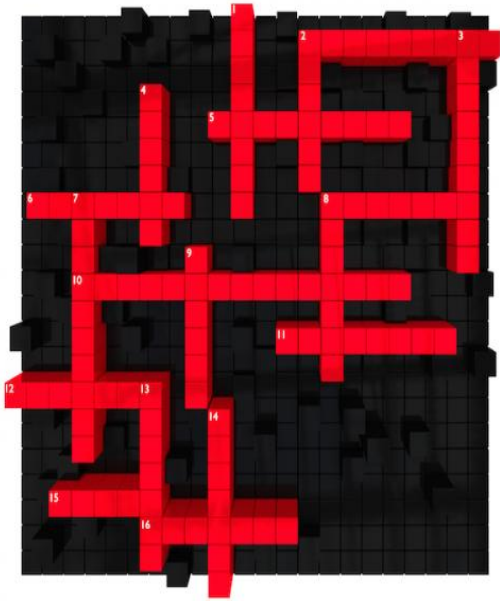
- Human Part
- Machine Part

From the figure above, human part (left) controls the position of the hand, while the machine part (right) exerts forces from the hand to simulate contact with a virtual object. Also, both the systems will be provided with the necessary sensors, processors and actuators. In case of the human system, nerve receptors perform sensing, brain performs processing and muscles perform actuation of the motion performed by the hand while in the case of the machine system, the above mentioned functions are performed by the encoders, computer and motors respectively.

ANSWERS to Riddles:

1) Paper 2) Mirror 3) The Telephone 4) Mt. Everest 5) Man 6) HeHe 7) Advice 8) Give them, 1 fifty dollar bill, 1 twenty dollar bill, 1 five dollar bill and 4 two dollar bills.

Electronics Puzzle:



- Across:** 2. A diagram that the electrical connections of the electronic components
5. Current is considered to be the movement of _____.
6. A voltage source that converts chemical energy to electrical energy
8. A flow of electric charge
10. A characteristic of a secondary cell
11. A material that is composed of a mixture of elements
12. The term used to designate electrical pressure
15. A short circuit will have a _____ current flow.
16. The part of an atom that has no electric charge

- Down:** 1. A voltmeter is used in _____ with the circuit.
2. A device that opens or completes an electrical path
3. A material that opposes the movement of free electrons
4. One coulomb passing a point in one second
7. A resistive component that is designed to be temperature sensitive
8. A unit of charge that contains 6.25×10^{18} electrons
9. An atom's atomic number is determined by its number of _____.
13. A substance that is found only in its pure form
14. It is used to measure current.

ANSWERS TO THE CROSSWORD:

- Across-2.** SCHEMATIC
5. ELECTRON
6. BATTERY
8. CURRENT
10. RECHARGEABILITY
11. COMPUND
12. VOLTAGE
15. LARGE
16. NEAUTRON

- DOWN- 1.** PARALLEL
2. SWITCH
3. INSULATOR
4. AMPERE
7. THERMISTOR
8. COULOMB
9. PROTON
13. ELEMENT
14. AMMETER

PSU Insights:

Hindustan Aeronautics Limited (HAL) is an Indian state-owned [aerospace](#) and [defense](#) company based in [Bangalore, Karnataka](#). It is governed under the management of the [Indian Ministry of Defense](#).

Group discussions Mantra:

- 1) When speaking in a GD, your job is to articulate your point of view in a way that is easy for others to comprehend.
- 2) The key to prepare is to read more, develop a key

Alumni:

- 1) **Manoj Verma** (1993 batch) -Director-Telecommunication engineering centre, Ministry of Communication and Information Technology, Government of India.
- 2) **Alok Soni** (1990 batch)-General Manager -Tata Communications Limited (VSNL). Mumbai.

Scope in Electronics Industry:

- Airport Authority of India
- Bharat electronics Limited
- Hindustan Aeronautics Limited.
- Hindustan Petroleum Corporation Ltd.
- Oil and Natural Gas Corporation Ltd.