

**MAY 2023** 

# YASHODA SHIKSHAN PRASARAK MANDAL, SATARA YASHODA TECHNICAL CAMPUS DEPARTMENT OF E &TC ENGINEERING

# Department of Electronics & Telecommunication Engineering Technical Magazine (ASHOTECH-ELECTRONES 2022-23 [EVEN SEM]

# YASHODA INSTITUTES, SATAR



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**TECHNICAL MAGAZINE** 

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Today's reader can be a tomorrow's leader !

## **President's Desk**

i welcome you to YSPM's Yashoda Technical Campus, Satara, an Institution which inculcates true values while disseminating quality education for shaping the career of our students. All our institutes are approved by the concerned statutory bodies and fulfill all the norms and standards laid down by them. Our technical campus is located in a lush, green, pollution free, picturesque environment. Our institutes have well qualified, experienced and student caring faculty, well equipped laboratories, spacious lecture halls and tutorial rooms, well maintained rich library, e-library, Wi-Fi Campus, Computer with Internet Facility, and a play ground with sports facilities. We emphasize on overall personality development of our students. Our faculty pays attention to each students a platform to excel not only in academics but also in co-curricular and a multi disciplinary study culture. Amenities provided by our institutes include transport facility, hostel facility, reprographics facility, canteen, STD PCO, medical centre, sports centre etc.

We are committed to import value based quality education along with development of positive attitude, skills and abilities to apply knowledge in order to meet the challenges of future. I extend my best wishes for your bright and prosperous future.

> Prof. Dasharath Sagare Founder President YSPM - YSS, Satara



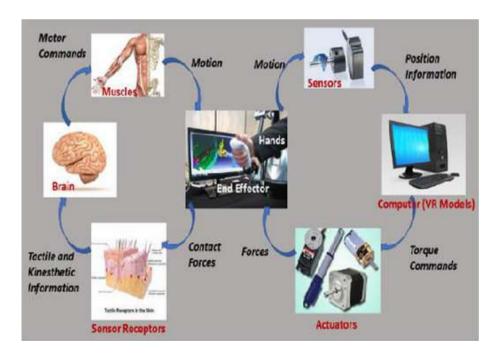


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## HAPTIC TECHNOLOGY

Haptics is the science of applying touch (tactile) sensation and control to interact with computer applications. Haptic device gives people a sense of touch with computer generated environments, so that when virtual objects are touched, they seem real and tangible. Haptic technology refers to technology that interfaces the user with a virtual environment via the sense of touch by applying forces, vibrations, and/or motions to the user. This mechanical stimulation may be used to assist in the creation of virtual objects (objects existing only in a computer simulation), for control of such virtual objects, and to enhance the remote control of machines and devices. This paper includes how haptic technology works, about its devices, its applications and disadvantages.







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HAPTIC DEVICES: Haptic devices (or haptic interfaces) are mechanical devices acts as mediator in communicating between the user and the computer. Typically, a haptics system includes;

Sensor(s)

Actuator (motor) control circuitry

🛛 One or more actuators that either vibrate or exert force

Real-time algorithms (actuator control software, which we call a "player") and a haptic effect library

Application programming interface (API), and often a haptic effect authoring tool

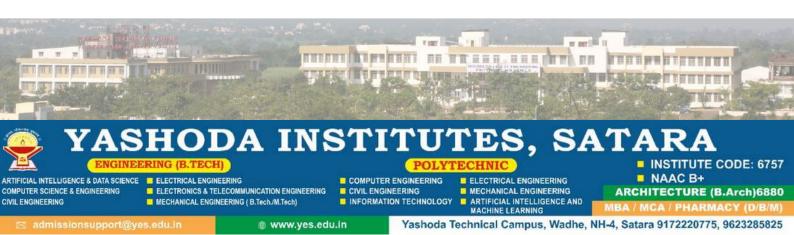
In The Immersion API is used to program calls to the actuator into your product's operating system (OS).

**APPLICATIONS:** Haptic technology is widely used in many applications such as in gaming, surgical simulation and medical training, military training in virtual environment, Robotics, Virtual arts and design, mobile devices, research and entertainment.

**DISADVANTAGES:** Implementation of haptic technology is expensive. Haptics applications can be extremely complex, requiring highly specialized hardware and considerable processing power.

**CONCLUSION:** As technology evolves and computer power grows, haptic devices and effects evolve and get more realistic. This technology has proved that virtual objects can also be touched, felt and controlled.

### NALAWADE SAYALI RATAN, SY





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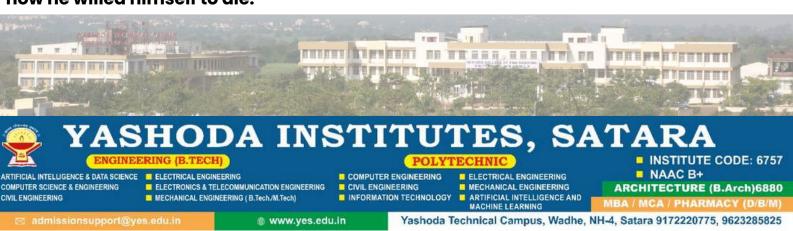
## All Is In The Mind!

There was a man who worked for the railroad. One day, he went into the freezer compartment to do his routine work. The door accidentally closed and he found himself trapped in the compartment. He shouted for help but no one heard him since it was midnight. He tried to break down the door but he could not. As he lay in the freezer compartment, he began to feel colder and colder. Then he began to feel weaker and weaker, and he wrote on the wall of the compart-ment, "I am feeling colder and colder; and I am getting weaker and weaker. I am dying, and this may be my last words". In the morning when the other workers opened up the compartment they found him dead. The sad twist to the above story is that the freezing apparatus there had broken down a few days ago. The poor worker did not know about it and in his mind the freezing apparatus was working perfectly. He felt cold, got weaker and literally willed himself to die. Moral Our sub-conscious mind can be cheated. The sub-conscious mind can only accept and act on information passed to it by the conscious mind. It has no capacity to reject or decline any instruction or infor-mation passed to it by the conscious mind. In the case of the poor worker, he consciously thought that he was getting colder, weak-er and dying and the sub-conscious mind accepted the above instructions and affected his physical body. That was how he willed himself to die.

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#### SHINDE OM NITIN, SY





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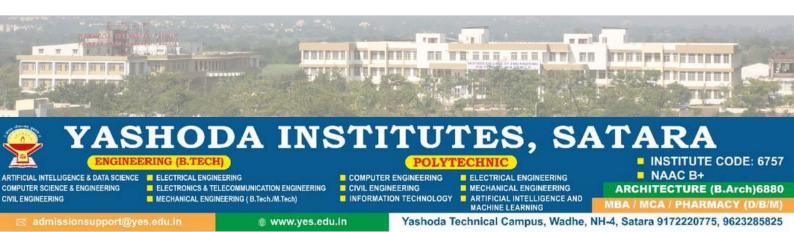
## Fear Offers Two Choices

If you face constant failures in your life, just learn the mistakes from them and wait for the even more beautiful future you are destined to live in. A person who wants to be a winner, learns less and wins his/ her life in the first attempt. But a person who is LEGENDARY tries with many attempts to succeed while learning many valuable things and finally wins in his last attempt. A winner is just a HISTORY who wins his life; while a LEGEND is beyond history who wins the world. FEAR has two meanings. The choice is yours... Choice 1 – Forget Everything And Runforward to be a winner. Choice 2 – Face Everything And Rise, accepting all your defeats, to be a legend.

## **Sharpen Your Axe**

John, a woodcutter, worked for a company for five years but never got a raise. The company hired Bill and within a year he got a raise. Then John resented Bill's getting a raise after only one year and went to his boss to talk about it. The boss said, "You still cut the same number of trees you were cutting five years ago. We are a result-oriented company and would be happy to give you a raise if your productivity goes up". John went back and started hitting harder and putting in longer hours but he still wasn't able to cut more trees! He went back to his boss and told him his dilemma. The boss told John to go talk to Bill."Maybe there is something Bill knows that you and I don't." John asked Bill how he managed to cut more trees. Bill answered, "After every tree I cut, I take a break for two minutes and sharpen my axe. When was the last time you sharpened your axe?" When was the last time you sharpened your axe? Past glory and education don't count much. We have to continuously sharpen the brain.

#### **KENJALE SHRUTI DATTATRAY, SY**





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## The Value of Time Management Is a Symbol Of Genius

To realize the value of ONE YEAR, ask a student who failed a grade. To realize the value of ONE MONTH, ask a mother who gave birth to a premature baby. To realize the value of ONE WEEK, ask the editor of a weekly newspaper, To realize the value of ONE HOUR, ask the lovers who are waiting to meet. To realize the value of ONE MINUTE, ask a person who missed the train. To realize the value of ONE SECOND, ask a person who just avoided an accident. \$A minute now is better than a minute later! Treasure every moment! Yesterday is history. Tomorrow is mystery! Today is a gift. That's why it's called the present. KNOWING IS NOT ENOUGH; WE MUST APPLY WILLING IS NOT ENOUGH ; WE MUST DO. Watch your thoughts, for they become words, Watch your words, for they become actions, Watch your actions, for they become habits,

Watch your habits, for they become character, Watch your character, for it becomes your destiny. Don't wait. The time will never be just right.



**RAJE SAYALI TUKARAM- TY** 





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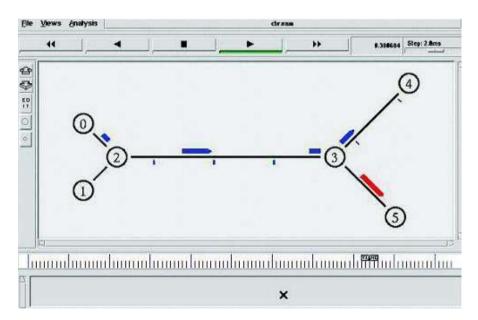
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## **Designing Networks Made Easy**

Most network simulators use discrete event simulation, in which a list of pending "events" is stored, and those events are pro-cessed in order, with some events triggering future events—such as the event of the ar-rival of a packet at one node triggering the event of the arrival of that packet at a down-stream node. Examples of notable network simulation software are:

• NS (open source) – NS2 and NS3 • OMNeT++ (open source) • Glomosim (open source)

• OPNET (proprietary software) • NetSim (proprietary software) • QualNet (proprietary software)



#### MAHADIK SMITA DATTATRAY, TY



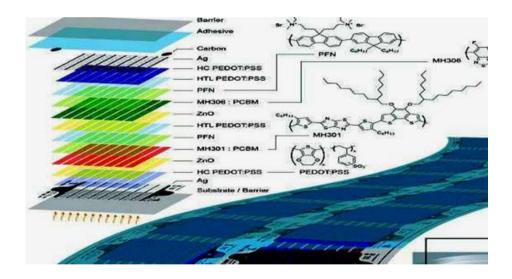


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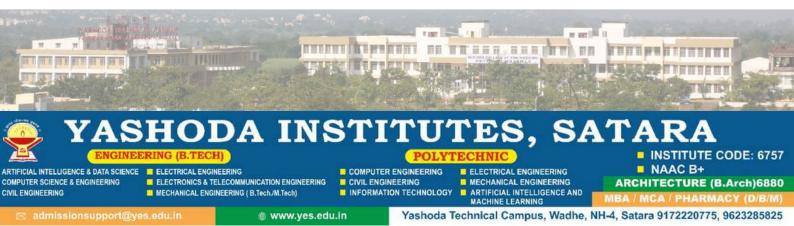
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## **Organic Solar Cell New Light on Sustainability**

In an impressive feat of engineering, scientists in Denmark have devised a rapid, scalable and indus-trially viable way to manufacture large sheets of flexible organic tandem solar cells. Their successful application of roll-to-roll processing is a significant achievement for this emerging renewable technol-ogy. An Organic PhotoVoltaic(OPV) solar cell is a polymer-based thin film solar cell. OPV solar cells have been the focus of much research as they are lightweight, flexible, inexpensive, highly tuneable and potentially disposable. They are also unparalleled in the number of times that they can pay back the energy used in their manufacture.



#### **AAWRUTTI VIJAY GURAV, TY**





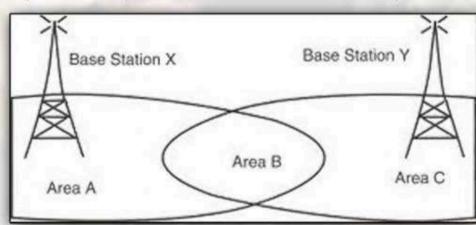
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## Simulcast Transmission

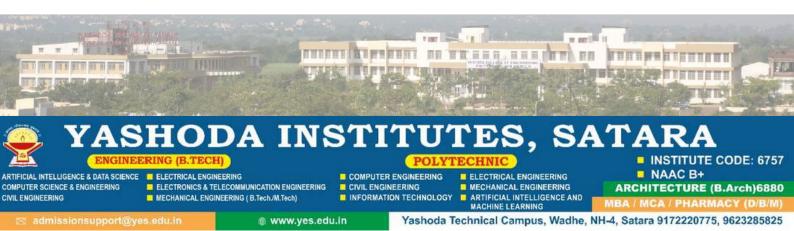
"Talk-out" coverage can be greatly improved by simulcast transmission. Simulcast is the concatenation of two words "simultaneous" and "broadcast". It is the simultaneous transmission of audio on the same frequency from two or more sites. Wide area coverage is possible with multiple transmitters. Normally if two or more transmitters were to transmit the same signal, a receiver in the field would "lock" or "capture" the stronger of the signals. If the signals are within +/- 10 dB of each other, the signals either constructively or destructively combine in the receiver. To ensure that they "constructively" add

together requires complex "synchronizing" transmitter equipment such that the signals are transmitted at exactly the same time (within microseconds) of each other. A Transit and Public Safety system requires a robust land mobile radio communication system for its day-to-day operations as well as routine system maintenance.The system must meet the



growing concerns for the homeland security and provide best service to its patrons. These challenges are achievable by careful design and implementation of a modern simulcast trunked radio system which provides seamless system-wide radio coverage.

## PATIL DIGVIJAY DEEPAK, B.TECH





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NASA's Mars Space Laboratory(MSL) successfully landed CURIOSITY, the car-sized, robotic rover to explore the Gale craters on Mars on August 6th 2012. So how exactly does the Curiosity Rover communicate with Earth?

Curiosity has three antennas that serve as both its "voice" and its "ears." They are located on the rover equipment deck (its "back"). Having multiple antennas provides back-up options just in case they are needed.

Curiosity will likely use its high-gain antenna to receive commands for the mission team back on Earth. The high-gain antenna can send a "beam" of information in a specific direction, and it is steerable, so the antenna can move to point itself directly to any antenna on Earth. The benefit of having a steerable antenna is that the entire rover doesn't necessarily have to change positions to talk to Earth. Like turning your neck to talk to someone beside you rather than turning your entire body, the rover can save energy by moving only the antenna

Curiosity will likely use its low-gain antenna primarily for receiving signals. This antenna can send and receive information in every direction; that is, it is "omni-directional."

# CURIOSITY ROVER BURG In the final seconds,

the rocket stage hovered as cables delicately lowered the rover to the ground. After landing, it cut the cords and the rocket stage flew out of the way, crashing 610m from the landing site.

Speeding at 161km/hr, the high-speed impact kicked up a plume of dust which showed up in Curiosity's

field of view.

The

Curiosity rover is a car-sized robotic rover exploring Gale Crater on Mars as part of NASA's Mars Science Laboratory mission (MSL).

#### GHADGE VIJAY JAGNNATH, B.TECH





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re connection - Electronics and the Sup We are living in the age ruled by electronics and obviously we are very familiar with it. And what is supernatural.....? Literally this word denotes something beyond scientific understanding or the laws of nature. In popular culture, the word 'supernatural' usually denotes ghosts and demons (at times holy things as well). But what electronics has got to do with ghosts and demons. Yes, it has something to do with the paranormal things (don't think the ghosts have become a geek.....:D). Commonly electronics are used in detecting the presence of ghosts and few devices play their role in communicating with spirits (don't confuse with the oujja board). There are two notable ways in which the supernatural is connected to electronics. First, there is a connection believed to exist between electromagnetism and ghosts. Ghost hunters believe that ghosts create electromagnetic radiation or consist of electromagnetic energy. Second, a straight forward connection between electronic devices and the supernatural is often strongly accepted. The most common form of this claim is the so-called EVP (electronic voice phenomena). These occur when individuals claim that spirits of the departed, communicate through the static in electronic devices (but somehow the ghosts act as a B00! techie) .Some modern day movies are based on our topic. 'One Missed Call' is a movie about a catty ghost that travels from cell phone to cell phone, killing each owner



and then moving on to another number listed on that phone (don't get chilled when your cell phone rings the next time ......). The connection between ghost and electronics is not new. There is an old story about Thomas Alva Edison trying to make an electric device to contact the dead, yeah!!!!! (really he is a wizard by all means). These things denote that electronics is mingled with all areas that exist (also with those that are believed to exist)....

#### MANE MONALI NATHURAM, B.TECH



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Old Sayings	Present Day Sayings
Haste makes waste.	The early bird gets the worm.
He who lives by the sword dies by the sword.	Attack is the best form of defense.
Clothes make the man.	You cannot judge a book by its cover.
Home is where the heart is.	Familiarity breeds contempt.
Money is the root of all evil.	Money makes the world go around.
Absence makes the heart grow fonder.	Out of sight, out of mind.
Good things come to those who wait.	He who hesitates is lost.
Stop and smell the roses.	Make hay while the sun shines.
Hard work pays.	Smart work pays.
Many hands make light work.	Too many cooks spoil the broth.
You get what you pay for.	The best things in life are free.
Nothing ventured, nothing gained.	Better safe than sorry.
The more, the merrier.	Two's company; three's a crowd.
Early to bed, early to rise, makes a man healthy,wealthy and wise.	Eat, drink, and be merry for tomorrow we die.

#### TALEKAR AVINASH UCCHAPPA, B.TECH

