Sipna Shikshan Prasarak Mandal's

SIPNA COLLEGE OF ENGINEERING & TECHNOLOGY, AMRAVATI

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Department of Information Technology

TECHNOCRAT

Departmental Newsletter

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COVER STORY

AR VR TECHNOLOGY

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TECHNOCRAT

SIPNA COLLEGE OF ENGINEERING AND TECHNOLOGY, AMRAVATI.

DEPARTMENT OF INFORMATION TECHNOLOGY

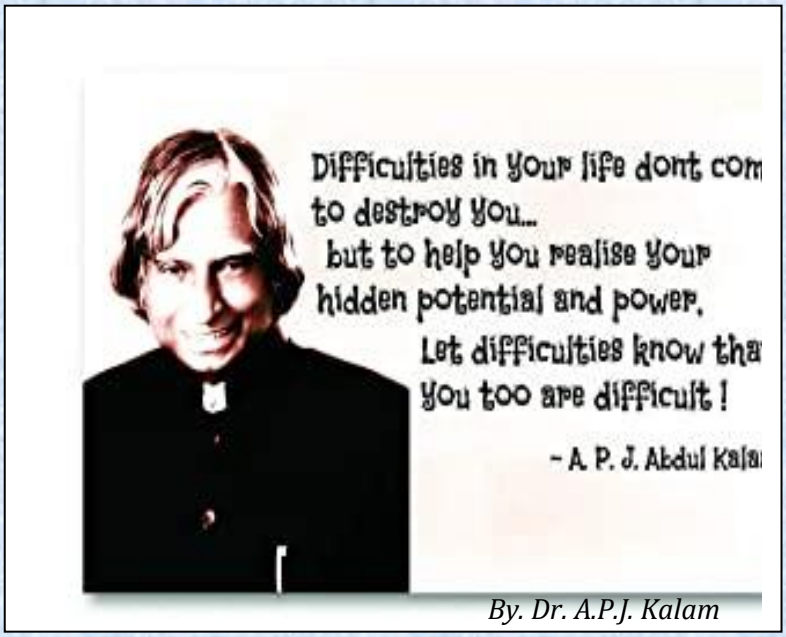
Editor

Ms. S. R. Kamble

Inside this Issue

About Department	Pg. 3
Objectives, Vision and Mission of Department	Pg. 3
Program Educational Outcomes and Program Outcomes	Pg. 4
Program Specific Objectives	Pg. 5
Cover Story: AR VR Technology	Pg. 6
Seminars and Workshops taken under Student Activity	Pg. 8
Staff Achievement	Pg. 13
Placements	Pg. 16
About Institution	Pg. 17
Technical articles	Pg.18

INSPIRATIONAL QUOTE



By. Dr. A.P.J. Kalam

About Department

- *Use of Information Technology is growing in the Government and industrial sector. The multi-national companies are building applications based on Cutting Edge Technology. They are using IT in their operations and decision making. Due to this exponential growth, computer user community is facing shortage of manpower, trained in developing quality solutions, and planning for long term IT requirements. The need for human resources in the IT industry is being addressed at various levels.*
- *Some degree programs are available at various universities, which are providing required technical manpower in IT industries of the country. These degree programs focus mainly on entry level knowledge, whereas the IT industry needs and much more refined skills for training, research and development. Our IT branch provides sophisticated academic program that will have the necessary depth and focus to meet the needs of both the user and the IT industry.*
- *The following UG, PG and Ph. D. programs are offered by the college.*

Undergraduate	***Post Graduate***	***Doctorate of Philosophy***
B. E. (Information Technology) 120 seats	*M. E. (Information Technology) 18 seats*	*Ph. D. (Information Technology)*

Objectives

- *Create leaders, trend-setters for the next generation of the IT industry.*
- *Offer state-of-art information technology education.*
- *Train individuals who would contribute substantially to the ambitious IT goals of the country.*
- *Undertake joint R & D with IT industry.*
- *Contribute to large developmental projects in government and public sector.*
- *Help the industry to create infrastructure that would facilitate the Indian IT industry.*

Vision of Department

- *Provide socially enriched and professional environment to transform the students into globally competent IT engineers*

Mission of Department

- *Provide learning ambience to impart quality technical education for students to develop into globally competent technology professionals.*
- *Prepare the students with strong fundamental concepts, analytical capability and problem solving skills.*
- *To provide a dynamic learning environment that emphasizes open ended design, team work, leadership and employability skills.*
- *To prepare graduates with positive professional attitude and ethical values with spirit of social commitment.*

Programme Education Outcomes

Engineering Graduates will be able to:

PEO.1:

Analyze and solve real-life problems through application of Information Technology and fundamental knowledge of mathematics and science courses

PEO.2:

Succeed in diversified and applied areas with analysis, design and synthesis of data to create novel products and solutions to meet current industrial and societal needs.

PEO.3:

Endure higher studies, research activities, and entrepreneurial skills and continue with lifelong learning.

PEO.4:

Adhere to professional and ethical values, soft skills, teamwork and communication.

Programme Outcomes

Engineering Graduates will be able to:

PO1: Engineering knowledge*:*

Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.

PO2: Problem analysis:

Identify, formulate, review research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences

PO3: Design/development of solutions:

Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations

PO4: Conduct investigations of complex problems:

Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.

PO5: Modern tool usage*:*

Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modeling to complex engineering activities with an understanding of the limitations.

PO6: The engineer and society*:Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice.*

PO7: Environment and sustainability*:*

Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.

***PO8: Ethics**:*
Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice

***PO9: Individual and teamwork**:*
Function effectively as an individual, and as a member or leader in diverse teams, and in multi disciplinary settings.
***PO10: Communication**:*
Communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.
***PO11: Project management and finance**:*
Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multi disciplinary environments.
***PO12: Life-long learning**:*
Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.

Program Specific Objectives (PSOs)

***PSO.1:** Problem solving using the knowledge of programming, Theory of Computation, Data Structures and Discrete Mathematics.*

***PSO.2:** Design and develop software and hardware solution by applying knowledge in Database, Operating Systems, Computer Network & Security, System Architecture, Basic Electronics and Software Engineering.*

***PSO.3:** Analyze given information by applying Web Engineering, Communication Engineering, Internet of Things and Artificial Intelligence in Concepts.*

***PSO.4:** Demonstrate Awareness towards Professional Ethics, Environment Aspects, Social Issues and Readiness for Lifelong Learning.*

AR VR TECHNOLOGY:

The Defining Technology of 2020-203

Virtual, augmented and mixed reality products have continued to receive high levels of funding and investment during the 2010 decade. There has also been immense hype over these products during the decade, with evangelists of the technology believing that it will be used in all aspects of day to day life. The growth of the technology over the COVID period has been noticeable, with many new use cases for the technology. IDTechEx predicts that this technology will grow to over $30bn by 2030. This article aims to explain the growth in demand behind this exciting technology.

What are some examples of augmented reality or mixed reality headsets?

The major players in the virtual reality market are Oculus and Vive headsets. There are many different use cases for virtual reality headsets, but one key application is for training in extreme environments. A virtual reality headset can model the different aspects of a dangerous environment without the trainee having to enter a difficult real-life situation.

Within augmented reality, the players are more broad. There are also more use cases, specifically in enterprise and industry, where augmented reality headsets provide a hands-free environment. Most augmented reality headsets are standalone, and have the computing power on the headset itself. This can provide a safer environment for workers who would otherwise have to carry a tablet to monitor/enter data as they work.

What is Augmented and Virtual Reality Technology?

The basic definition of these terms are as follows:

- *Virtual reality (VR). This replaces reality with a completely new 3D digital environment.*
- *Augmented reality (AR). This overlays digital content on top of the real world.*
- *Mixed reality (MR). This adds superimposed digital content that superficially interacts with the environment in real-time.*

What industries are using this technology?

There are a broad range of use cases and industries using augmented, mixed, and virtual reality technology. For example, manufacturing, remote assistance, education,

and training, to name but a few. These applications are used in many different industries. Two common use cases are discussed.

One of the most well-known uses of VR headsets is in gaming applications. Companies such as Oculus, HTC, and Sony, have created a range of products which consumers can use for a totally immersive gaming experience. However, there are also other applications for XR products such as remote assistance and training. This report from IDTechEx includes analysis of many key leaders in the AR, VR and MR fields, and provides you with a deeper understanding for the various applications for such products.

AR and MR products are being used to solve the "Skills Gap" problem. This problem occurs when skilled workers retire, and with them, their skilled knowledge they have gained. This knowledge needs to be transferred to new workers. The skilled workers can record workflows and processes which the new employees can follow in a safe hands-free environment. Furthermore, they can annotate the real world with technical specifications to aid the worker. Some companies, such as Vuzix, use their own products on their assembly floors.

Article By,

Ms. Snehal R. Kamble

Faculty IT dept

Seminars and Workshops taken under Student Activity

1. *Like every year, the students of the I. T. department, Sipna College of Engineering & Technology, Amravati showed the love and respect they feel for teachers in a very unique way. For the teachers who are the creators of all professions in this world, this year also the students carried forward the beautiful and unique concept of spending the money to help the needy people from our society instead of purchasing gifts for the teachers.*

The students collected donations for this initiative. From those donations, students purchased groceries. After this, some student members from our department's "Students' Activity Cell" donated these groceries at an orphanage named, "Sadashanti Balgruh" in the morning. Dr. V. S. Gulhane, HOD, Dept. of I. T., Prof. A. B. Deshmukh, Prof. L. K. Gautam, Prof. T. S. Rohankar, Prof. A.R. Thakur, Dr. N. M. Tarbani, and Prof. A. R. Bhuyar were also present at the orphanage. A short program was taken in presence of all the children and authorities of the orphanage, teachers, and students. This was followed by a small tree plantation program on their premises.

The IT dept. students also invited all the teachers teaching them, to the online celebration of

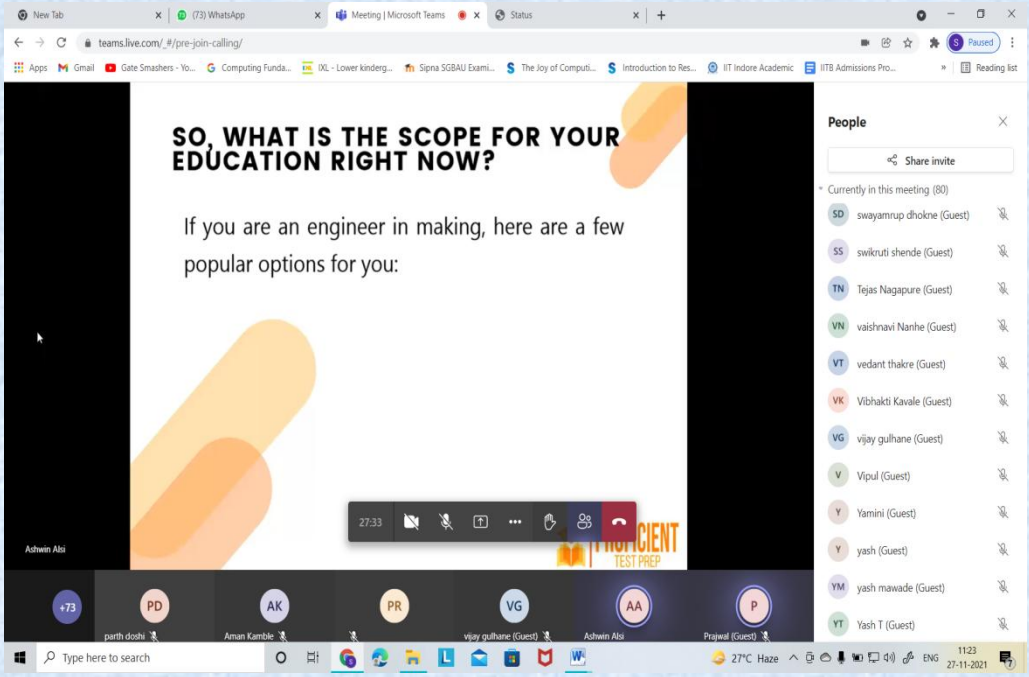
Teachers' Day that started at 5 pm on Microsoft Teams. This was followed by an "Open Mic" event organized for the teachers and students. Most of the students, as well as teachers, participated very energetically in the open mic.

2. *A Webinar on the topic* ***"Data Science and Machine Learning"*** *was organized on the occasion of Engineers' Day in association with the CSI Student Branch on 15/09/2021. Mr. Hemanka Sarmah was the speaker for the program. The webinar started with the verbal welcome of the speaker.*

   The Guest gave a detailed discussion on all the key concepts of Machine Learning, Introduction to Data Science, its process, lifecycle, applications, Python tools used for Data Science, Job Roles available in this field, Challenges faced by Data Science and the Last discussion was how to make a career in Data Science and Machine Learning. 134

participants from 2nd to Final year students of IT, CSE, and E&TC Departments participated in this webinar.

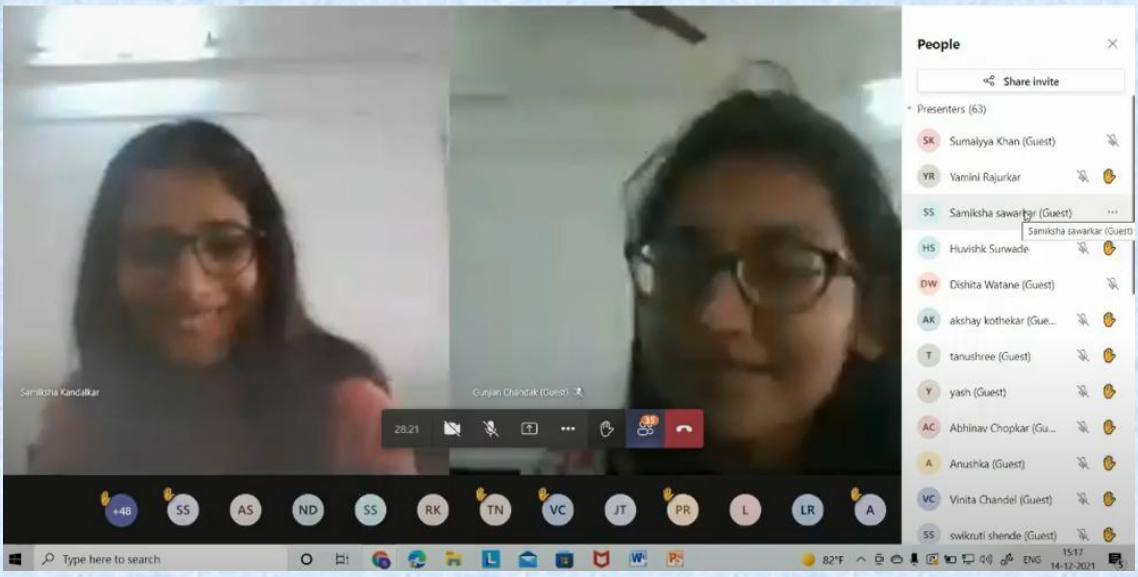
3. *A Webinar on "Abroad Education and Opportunities" was organized for all 3rd and 4th year students of the IT dept. on the 27th of November, 2021. We were obliged to have Mr. Ashwin Alsi as the chief guest of the webinar. Mr. Alsi completed his M.S. from the University of Illinois, Chicago, and had a rich industrial experience.*



The session aimed at informing the students about their future study prospects overseas. He guided them regarding the preparation for examinations like GRE, GMAT, and TOEFL which would help them to pursue their higher education abroad. He helped in clearing the most common misunderstanding/ dilemma of the students about the finances that occur in pursuing MS from foreign countries, which are the prime reason that students hesitated to go for abroad education. The guest also made the students know about the various earning opportunities that they can opt for while learning overseas to meet their expenses. Mr. Alsi also shared his experiences of how he had "earned while he learned" when in Chicago. The session was followed by an interactive query session in which the students cleared their doubts regarding the preparations for GRE, TOEFL, and GMAT exams.

4. *A Webinar on the topic "DevOps" was organized in association with CSI Student Branch on 04/12/2021. Mr. Ojas Kale, Senior Software Developer, Egen Solutions, Chicago. was the speaker for the program. The webinar started with the verbal welcome of the speaker. 129 students from the 2nd to Final year from the CSE department and IT department participated in this webinar.*

5. *An online interaction session with Final Year Placed Students was organized on 14th December 2021 for all 3rd year I. T. students through Microsoft Teams. Mr. Lakhan Rathi, Ms. Gunjan Chandak, Mr. Raghvendra Kaloo, Mr. Rutik Ekre, Ms. Samiksha Kandalkar, and Mr. Chaitanya Choudhari from final year shared their experiences and guided the students on how to grab the placement opportunities. They also solved their queries and shared some tricks that can be beneficial to their juniors.*



Staff Achievements

Dr. A. B. Deshmukh

Dr. H. N. Datir

Prof. A. B. Deshmukh has completed his PhD in Electronics and Telecommunication Engineering from of Sant Gadge Baba Amravati University in October 2021. Prof. H. N. Datir has also completed his PhD in Information Technology from Sant Gadge Baba Amravati University in December 2021.

Big Congratulations to them!!

Placements

Sr. No.	*Name of Student*	*Company Name*
1	*Atharva Suresh Thakare*	*Capgemini*
2	*Mohammad Ahmed Abdul Gaffar Panjwani*	*Capgemini*
3	*Gunjan Ashok Chandak*	*Capgemini*
4	*Lakhan Ramprakash Rathi*	*Capgemini*
5	*Rutik Yogesh Ekre*	*Capgemini*
6	*Shreya Nitin Dange*	*Capgemini*
7	*Sayali Manojrao Yadgire*	*Capgemini*
8	*Sachin Prakash Godselwar*	*Capgemini*
9	*Renuka Ajay Ganojekar*	*Capgemini*
10	*Kshitij Sanjay Sherekar*	*Capgemini*
11	*Abdul Taukir Abdul Kadir Sheikh*	*Capgemini*
12	*Yash Yogesh Mehta*	*Sicrama*
13	*Kshitij Sanjay Sherekar*	*TCS*
14	*Harshal Mahesh Joshi*	*TCS*
15	*Harshal Ravi Bhagwat*	*TCS*
16	*Om Sudhir Pawar*	*TCS*
17	*Harshal Vidhyadhar Madane*	*TCS*
18	*Anuj Sadanand Chirde*	*TCS*
19	*Prathamesh Vijay Kanherkar*	*TCS*
20	*Chaitanya Rajesh Choudhari*	*TCS*
21	*Samiksha Pramodrao Kandalkar*	*TCS*

22	Neesha Milind Lokhande	TCS
23	Bhumika Sanjay Sadani	TCS
24	Vipul Sanjay Kediya	TCS
25	Rutik Yogesh Ekre	TCS
26	Pranjali Sunil Patil	TCS
27	Dnyaneshwari Wasudeorao Pachkawade	TCS
28	Shivani Vinod Lohakpure	TCS
29	Arti Dnyaneshwar Mankar	TCS
30	Pooja Ramesh Sonwane	TCS
31	Mitrali Gajanan Makode	TCS
32	Shrirang Rajesh Pande	TCS
33	Dnyaneshwari Wasudeorao Pachkawade	Wipro
34	Samiksha Pramodrao Kandalkar	Wipro
35	Neesha Milind Lokhande	Wipro
36	Shiv Jaiwant Dhage	Wipro
37	Raghvendra Shriram Kaloo	Wipro
38	Ayushi Anil Khakse	Wipro
39	Shreya Sunildatta Akhare	Wipro
40	Chaitanya Rajesh Choudhari	Wipro
41	Vaishnavi Bharat Patle	Wipro
42	Anushree Dattatray Kakde	CSS Corp
43	Vaibhav Sheshraoji Gadge	Four Colors
44	Pooja Anil Kamble	Four Colors

45	*Rajashri Prakash Bhatti*	*Four Colors*
46	*Mayuresh Ashok Khupse*	*Tudip Technologies Pvt Ltd*
47	*Runal Pramod Banarse*	*Concourse Solutions Pvt.Ltd*

About Institution

DEPARTMENT

OF

INFORMATION TECHNOLOGY

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Sipna College of Engineering and Technology, Amravati.

Vision:

To provide quality professional education and conducive environment to students to emerge as a model proficient institute.

Mission:

- *To create scholarly and vibrant environment for professional excellence.*
- *To contribute to advancement of knowledge in basic and applied areas of engineering and technology.*
- *To be an institute of choice in the region by developing, managing and transferring contemporary technologies.*
- *To build mutually valuable terms with society, industry and Alumni.*

Website: www.sipnaengg.ac.in

Cloud Computing

In simple terms, cloud computing is a range of services delivered over the internet, or "the cloud." It means using remote servers to store and access data instead of relying on local hard drives and private datacenters.

Before cloud computing existed, organizations had to purchase and maintain their own servers to meet business needs. This required buying enough server space to reduce the risk of downtime and outages, and to accommodate peak traffic volume. As a result, large amounts of server space went unused for much of the time. Today's cloud service providers allow companies to reduce the need for onsite servers, maintenance personnel, and other costly IT resources.

There are three types of cloud computing deployment models: private cloud, public cloud, and hybrid cloud.

1 .Private cloud provides a proprietary cloud environment dedicated to a single business entity, with physical components stored on-premises or at a vendor's datacenter. Because the private cloud is only accessible to a single business, this model offers a high degree of control. Advantages include customized architecture, advanced security protocols, and the ability to extend computing resources in a virtualized environment as needed.

2. Public cloud uses the internet to store and manage access to data and applications. It's completely virtualized, providing an environment where shared resources are leveraged as needed. Because these resources are delivered over the web, the public cloud deployment model allows organizations to scale more easily.

3. Hybrid cloud combines private and public cloud models, allowing organizations to leverage the benefits of shared resources while using existing IT infrastructure for critical security requirements. The hybrid cloud model allows companies to store confidential data internally.

What are the benefits of cloud computing?

Cloud computing has gained popularity at a rapid pace because it offers a number of benefits. It's more cost-effective than on-site server installations and can provide faster service than a traditional installation. In addition , cloud computing models are easy to scale. The cloud extends alongside an organization needs making it easy to accommodate real time changes in computing power needs.

Examples of CLOUD COMPUTING are SaaS, PaaS, IaaS.

Article By,

Snehal Borkar

BLUE EYES TECHNOLOGY

The Blue Eyes technology aims at creating computational machines that have perceptual and sensory ability like those of human beings. It uses non-obtrusive sensing method, employing most modern video cameras and microphones to identify the user's actions through the use of imparted sensory abilities. The machine can understand what a user wants, where he is looking at, and even realize his physical or emotional states. The Blue Eyes Technology developed is intended to be a complex solution for monitoring and recording the operator's conscious brain involvement as well as his/her physiological condition. This shows yet another development in the field of Brain Computer Interface.

Introduction to the Blue Eyes Technology

Imagine yourself in a world where humans interact with computers. You are sitting in front of your personal computer that can listen, talk, or even scream aloud. It has the ability to gather information about you and interact with you through special techniques like facial recognition, speech recognition, etc. It can even understand your emotions at the touch of the mouse. It verifies your identity, feels your presence, and starts interacting with you. You ask the computer to dial to your friend at his office. It realizes the urgency of the situation through the mouse, dials your friend at his office, and establishes a connection.

Human cognition depends primarily on the ability to perceive, interpret, and integrate audio-visuals and censoring information. Adding extraordinary perceptual abilities to computers would enable computers to work together with human beings as intimate partners. Researchers are attempting to add more capabilities to computers that will allow them to interact with humans, recognize human presents, talk, listen, or even guess their feelings.

The basic idea behind Blue Eyes Technology is to give computer the human power i.e.

1. It uses non-obtrusive sensing method, employing most modern video cameras and microphones to identify the user's actions through the use of imparted sensory abilities.

2. The blue eyes system checks the physiological parameters like eye movement, heart beat rate and blood oxygenation against abnormal and undesirable values and triggers user-defined alarms when necessary.

3. Blue eyes technology requires designing a personal area network linking all the operators and the supervising system.

4. As the operator using his sight and hearing, senses the state of the controlled system, the supervising system will look after his physiological condition.

5. The use of a miniature CMOS camera integrated into the eye movement sensor will enable the system to calculate the point of gaze and observe what the operator is actually looking at.

Benefits of the Blue Eyes Technology

1. *Blue Eyes system provides technical means for monitoring and recording human operators physiological condition*
2. *Visual attention monitoring (eye motility analysis)*
3. *Physiological condition monitoring (pulse rate, blood oxygenation), operator's position detection (standing, lying)*

Article By,

Samiksha Swarkar