XAVIER INSTITUTE OF ENGINEERING
A SISTER INSTITUTION OF ST. XAVIER'S COLLEGE

ISTE Approved Six-Day Online Faculty Development Programme on "Sensor Technology"

DATE: 18/7/2021

Event Coordinator(s)

1. **Prof. Smita Pawar**
2. **Prof. Shailaja Udtewar**

Time & Place:

July 5 to 10, 2021

2:00pm to 4:00 pm

5:00pm to 7:00 pm

Google Meet

Department:

Electronics and Telecommunication

No. of participant:

22 Faculties

40 Students

OBJECTIVE:

As the Internet of things (IoT) industry grows, so do the opportunities to utilize sensors. Sensors enable the Internet of things (IoT) by collecting the data for smarter decisions. This FDP was designed to provide a concise introduction to fundamentals of Sensor Technology, Selection criteria of different Sensors based on applications.

Participants were expected to learn Industrial and Medical applications of Sensors through the theory and hands-on lab sessions.

It would also be useful for implementation of projects.

Course Highlights:

- Types of Sensors
- Embedded System and Sensors
- MEMS Sensors and Actuators
- Wireless Sensing Technologies
- Wireless Sensor Networks (WSN)
- Sensors in Home Automation
- Sensors in Visible Light Communications (VLC)
- Applications of Wireless Sensor Networks (WSN)
- Applications of Sensors in Industrial Automation
- Recent Trends and Research Directions in Sensor Technology

RESOURCE PERSON (S):

Renowned Academicians and Industry Experts

- **Dr. Ravindra Duche**
  Professor & HoD (EXTC) , LTCE, Mumbai
- **Dr. Prasad Joshi**
  Assoc. Professor & HoD (Electronics) , DJ. Sanghvi College of Engineering,, Mumbai
- **Dr. Sarika Bukkawar**
  Asst. Professor,(Electronics) ,Shah And Anchor Kutchhi Engineering College, Mumbai
- **Dr. Sunayana Jadhav**
  IEEE Member, Asst. Professor, VCET, Mumbai
- **Prof. S.D. Patil**
  Assoc. Professor, Ex-HoD (EXTC), RGIT, Mumbai
- **Prof. Rajat Paliwal**
  Asst. Professor, Watumull College of Engineering, Mumbai
- **Mr. Neil Savant**
  Founder & CEO - NUOS Home Automation, Mumbai
- **Mr. Alister D'silva**
  Director, Absolute motion Pvt Ltd., Mumbai
- **Ms. Rutuja Nalawade**
  Kaneka Corporation, Japan
- **Prof. Smita Pawar**
  Asst. Professor, XIE, Mumbai
- **Prof. Shailaja Udtewar**
  Asst. Professor, XIE, Mumbai

EVENT BROUCHURE:

Resource Persons

Renowned Academicians and Industry Experts

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Professor & HoD (EXTC) , LTCE, Mumbai

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DJ. Sanghvi College of Engineering,, Mumbai

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- Dr. Sunayana Jadhav

IEEE Member, Asst. Professor, VCET, Mumbai

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- Mr. Neil Savant

Founder & CEO - NUOS Home Automation, Mumbai

- Mr. Alister D'silva

Director, Absolute motion Pvt Ltd., Mumbai

- Ms. Rutuja Nalawade

Kaneka Corporation, Japan

- Prof. Smita Pawar

Asst. Professor, XIE, Mumbai

- Prof. Shailaja Udtewar

Asst. Professor, XIE, Mumbai

FDP Application Process

Faculty from any Department can apply for the workshop. The FDP is limited to 25 seats on a first-come first-serve basis. Before you apply, please make sure that you have access to a laptop or PC to participate in the hands-on session.

Registration Fee

Faculty Registration Fees: Rs 500

Registration and Payment Details

Registration Form

https://forms.gle/W6uD4Cb4UMbX6fJZA

Payment Link

http://xavieradmission.com/stech

Contact:

Prof. Smita Pawar,
Asst. Prof., EXTC
Ph: 9820997297
Email: smita.p@xavier.ac.in

Certification

XIE will issue participation certificates after completion of course requirements, which will be conducted using Google Classroom and Google Forms.

Important Dates

Last date to apply	July 4, 2021
Intimation of selection	July 4, 2021
FDP	July 5 to 10, 2021

ISTE Approved

Six-Day Online

Faculty Development Programme

on

"Sensor Technology"

05th to 10th July 2021

organised by

Xavier Institute of Engineering

Electronics and Telecommunication Department

Course Convener
Dr. Vidya Sarode
(Head of the Department, EXTC)

Course Coordinators
Prof. Smita Pawar,
(Asst. Prof., EXTC)
Prof. Shailaja Udtewar,
(Asst. Prof., EXTC)

About the Institute

Xavier Institute of Engineering (XIE) is an Engineering college in central Mumbai, established in 2005. XIE is accredited by National Assessment and Accreditation Council (NAAC), approved by the All India Council of Technical Education (AICTE), NewDelhi, recognized by the Directorate of Technical Education, Govt. of Maharashtra and affiliated to University of Mumbai. It is a sister Institution of St.Xavier's College, Fort, Mumbai and a part of an International Network of Jesuit Educational Institutions which includes 138 Universities and 3413 Educational Intuitions in 120 countries. The Jesuit Educational Network in India includes 84 Colleges, 3 Universities and 3 Engineering colleges. Jesuit educational efforts are directed to training the minds and forming the heart. The management of XIE is well known for designing and upholding the highest standards for Engineering Education.

For more details, visit http://www.xavier.ac.in

Vision of the Institute

To nurture the joy of excellence in a world of high technology

Mission of the Institute

To strive to match global standards in technical education by interaction with industry, continuous staff training and development of quality of life

Chief Patrons

Fr. Dr. Arun deSouza, S.J., Chairman, XIE
Fr. Dr. John Rose, S.J., Director, XIE

Patrons

Dr. Y. D. Venkatesh, Principal, XIE
Fr. Fabian Barreto, S.J., Administrator, XIE

About the Department

Electronics and Telecommunication Engineering (EXTC) Department of XIE began in 2005 with Under Graduate (UG) BE program for 60 students. It has a good record of organizing seminars, workshops, and symposia in emerging technological areas. It emphasizes holistic learning by providing quality education, training and empowering students to make signicant contributions in their domain under the guidance of trained and experienced faculty members and well-equipped laboratories.

Vision of the Department

To nurture the joy of excellence in the world of Electronics and Telecommunication

Mission of the Department

M1. To equip the students with strong foundations to enable them for higher studies and lifelong learning.
M2. To educate the students with state-of-the-art technologies to meet challenges in the Electronics and Telecommunication domain.
M3. To collaborate and associate with highly reputed Institutes from India and abroad to enhance professional excellence.
M4. To impart total quality education for developing innovative, entrepreneurial and ethical professionals, to fit a globally competitive environment
M5. To strengthen the soft skills and logical thinking of the students through co-curricular and extracurricular activities.

About the Workshop

As the Internet of things (IoT) industry grows, so do the opportunities to utilize sensors. Sensors enable the Internet of things (IoT) by collecting the data for smarter decisions. This FDP will provide a concise introduction to fundamentals of Sensor Technology, Selection criteria of different Sensors based on applications. Participants will learn Industrial and Medical applications of Sensors through the theory and hands-on lab sessions. It will also be useful for implementation of projects.

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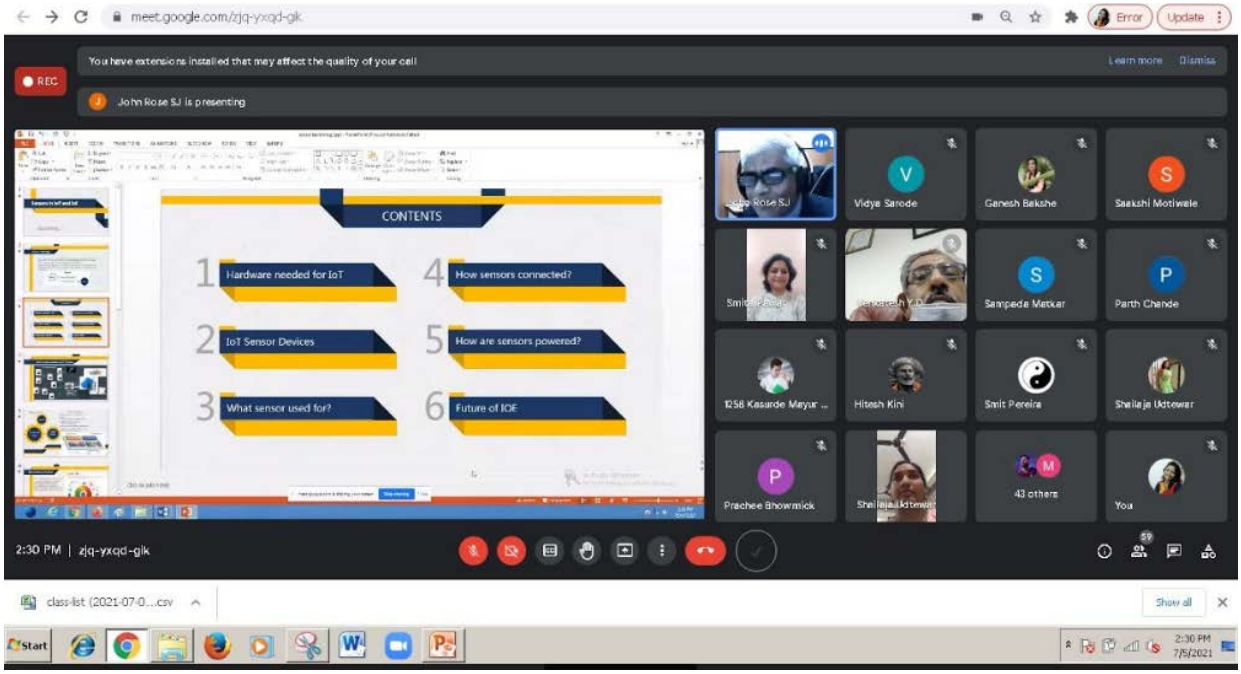
- Sensors in Home Automation
- Sensors in Visible Light Communications (VLC)
- Applications of Wireless Sensor Networks (WSN)
- Sensor Applications Industry 4.2
- Recent Trends and Research Directions in Sensor Technology

Schedule:

Time	Session 1 - Theory 2:00 to 4:00 pm			Session 2 - LAB 5:00 to 7:00 pm		Quiz / Assignment (1 Hour)
DAY	Resource person and Topic			Resource person and Topic		
5th July 2021 Monday	**Dr.Fr. John Rose S J** **KEY NOTE** on Sensors in IoT and Future of IoE	**Mr. Alister D'Silva** Types of Sensors		**Mr. Alister D'Silva** Embedded System and Sensors		Quizzes will be conducted on topic covered
6th July 2021 Tuesday	**Dr.Sarika Bukkawar** MEMS Sensors			**Prof. Shailaja Udtewar** Sensors in VLC		
7th July 2021 Wednesday	**Prof.S.D. Patil** Data Acquisition and Signal Conditioning			**Prof. Smita Pawar** Wireless Sensing Technologies **Ms. Stella J** Demonstration of proteus software		
8th July 2021 Thursday	**Dr. Prasad Joshi** Bio-Medical Sensors			**Mr. Neil Sawant** Sensors in Home Automation		
9th July 2021 Friday	**Dr. Sunayana Jadhav** WSN: Design, Challenging issues and Applications			**Dr. Ravindra Duche** Wireless Sensor Network		
10th July 2021 Saturday	**Ms. Rutuja Nalawade** Recent Trends and Research Directions of Sensors in real life			**Prof. Rajat Palliwal** sensors applications in Industry 4.0		

EVENT SCREENSHOT:

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Allster DSilva is presenting
RYAS
Load Cell
Load cell is used to measure weight. The input is force or pressure and output is electrical voltage value. Load cell measures weight of the object by indirect method. There are few types of load cells namely Beam load cell, Single point load cell and compression load cell.
Beam load cell: Used in industrial applications like machinery, tank weighing, medical equipment
Single Point load cell: These are used for low weight measurement applications like waste collections and machinery
Compression Load cell: Used for high weight measuring applications like Medical device, to control pump.
Shelleja Uktewer
Allster DSilva
Smita Pewar
Siddhi Motiwale
Vidya Serode
Abdullah Gulam R...
Shelleja Uktewer
Smit Pereira
Puja Pedlya
UMASHANKAR N A...
Omker Mhatre
Rajshekher Kumbh...
om keshanwani
35 others
You
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7/5/2021


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Allster DSilva is presenting
In-call messages
Abdullah Gulam Rasool Mastan 5:38 PM
yes sir
Ajay Gojare 5:38 PM
Yes sir
Abdullah Gulam Rasool Mastan 5:39 PM
wow!
Abdullah Gulam Rasool Mastan 5:40 PM
whats the purpose of the pole ke dots on the ghetiya pocket?
Abdullah Gulam Rasool Mastan 5:42 PM
and whst does the numbers indicate on the sensor
Rajshekhar Kumbhar 5:43 PM
Is it possible to separate mixed color glass balls
1258 Kasurde Mayur Madhukar Manisha 5:49 PM
are those hue values?
Rajshekhar Kumbhar 5:53 PM
How optical fiber sensors are used in nuclear power reactors?
Send a message to everyone
You
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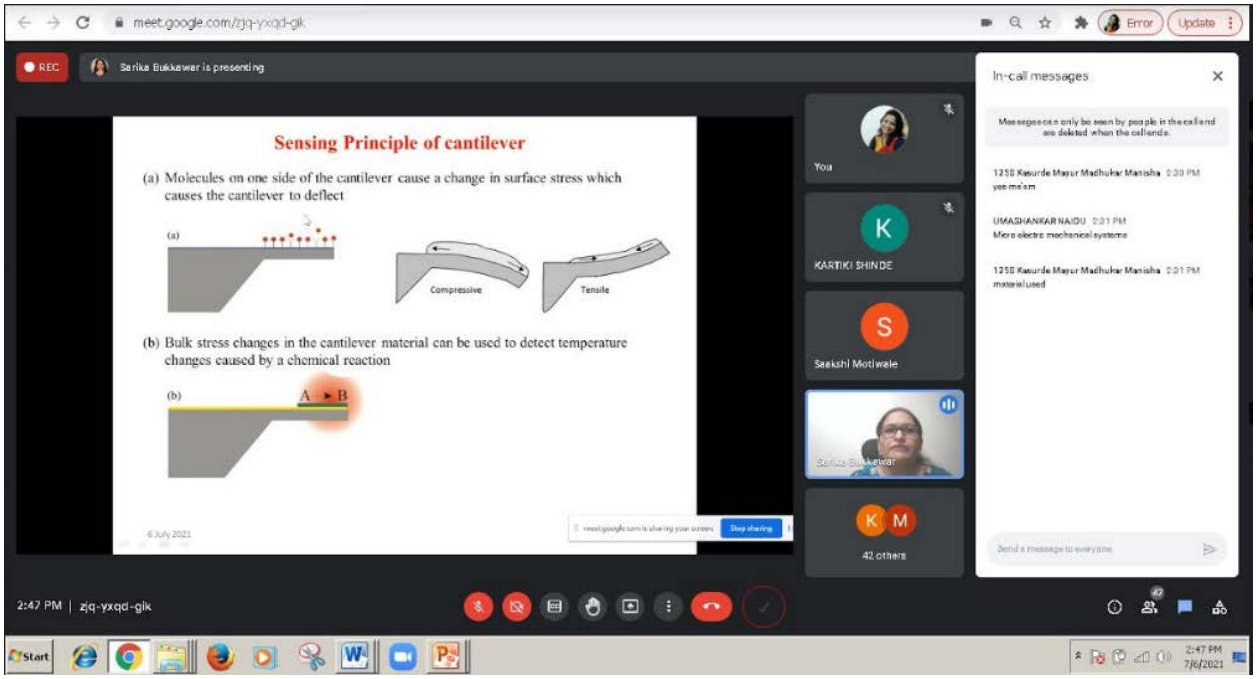
7/5/2021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Sarika Bukkawar is presenting
Sensing Principle of cantilever
(a) Molecules on one side of the cantilever cause a change in surface stress which causes the cantilever to deflect
(a)
Compressive
Tensile
(b) Bulk stress changes in the cantilever material can be used to detect temperature changes caused by a chemical reaction
(b)
A
B
6 July 2021
Stop sharing
In-call messages
Messages can only be seen by people in the call and are deleted when the call ends.
1258 Kasurde Mayur Madhukar Manisha 2:30 PM
yes ma'am
UMASHANKAR NAIDU 2:31 PM
Micro electro mechanical systems
1258 Kasurde Mayur Madhukar Manisha 2:31 PM
material used
Send a message to everyone
You
KARTIKI SHINDE
Sakshi Motiwale
42 others
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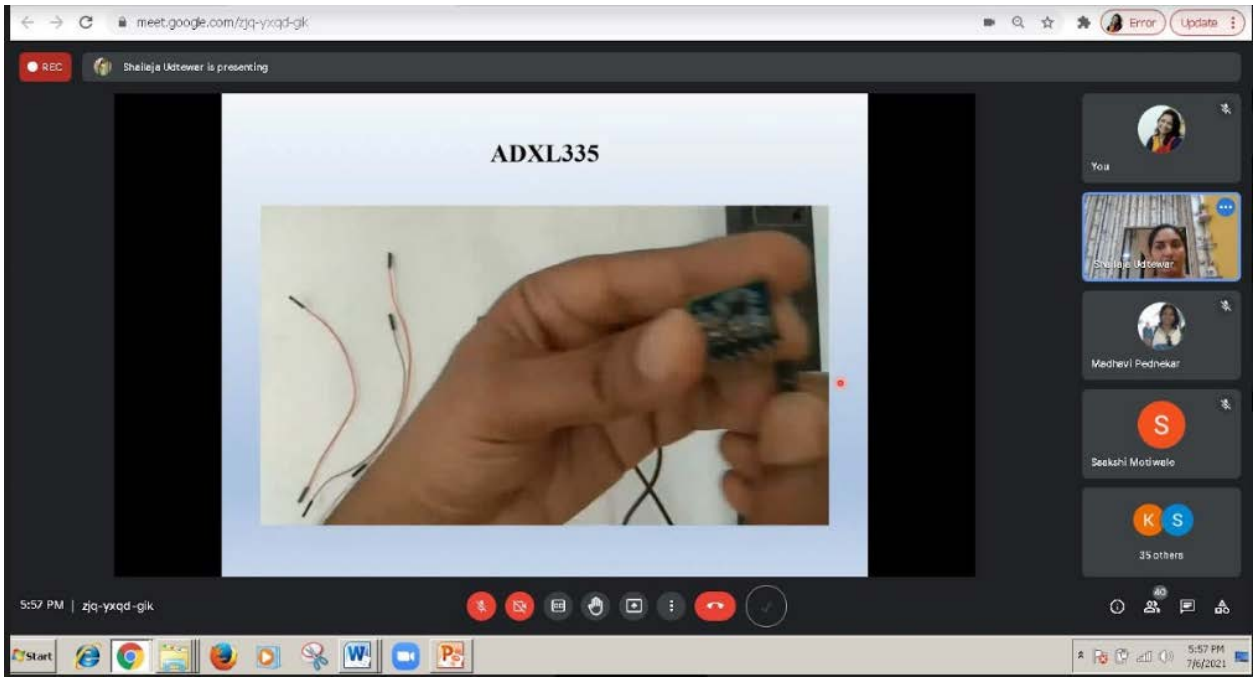
7/6/2021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Shalieja Udtewar is presenting
ADXL335
You
Shalieja Udtewar
Medhevi Pednekar
Sakshi Motiwale
35 others
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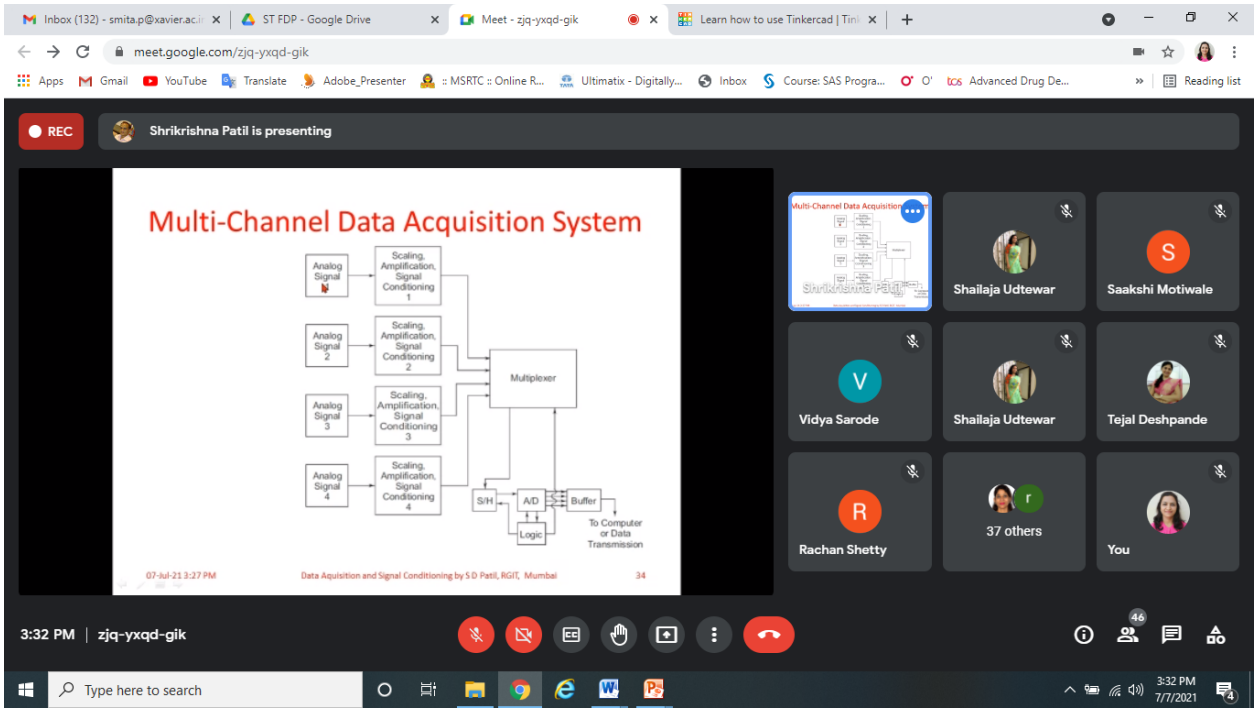
Inbox (132) - smita.p@xavier.ac.i
ST FDP - Google Drive
Meet - zjq-yxqd-gik
Learn how to use Tinkercad | Tin
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REC
Shrikrishna Patil is presenting
Multi-Channel Data Acquisition System
Analog Signal 1
Analog Signal 2
Analog Signal 3
Analog Signal 4
Scaling, Amplification, Signal Conditioning 1
Scaling, Amplification, Signal Conditioning 2
Scaling, Amplification, Signal Conditioning 3
Scaling, Amplification, Signal Conditioning 4
Multiplexer
S/H
A/D
Buffer
Logic
To Computer or Data Transmission
07-Jul-21 3:27 PM
Data Aquisition and Signal Conditioning by S D Patil, RGIT, Mumbai
34
Shailaja Udtewar
Saakshi Motiwale
Vidya Sarode
Shailaja Udtewar
Tejal Deshpande
Rachan Shetty
37 others
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7/7/2021


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Prasad Joshi is presenting
ExpEYES – Prof. Ajith Kumar & team IUAC.
Features
12 bit Analog Input/Output
Digital I/O
Time interval measurements
Waveform Generation
USB Powered
GUI for 50 experiments
Python Programmable
Works as a Test Equipment
8.6 x 5.8 x 1.5 cm3, 60 gm.
Open Hardware
14
expEYES Junior
www.expeyes.in
Your Lab@Home
PHOENIX Project
IUAC, New Delhi
www.iuac.res.in
Prasad Joshi
Atharva Deherkar
Saakshi Motiwale
Vidya Sarode
Madhavi Pednekar
Ajay Gojare
Smit Peelia
Ganesh Bakshe
1258 Kesurde May...
Shrikrishna Patil
Puja Pediya
madhuri jewale
25 others
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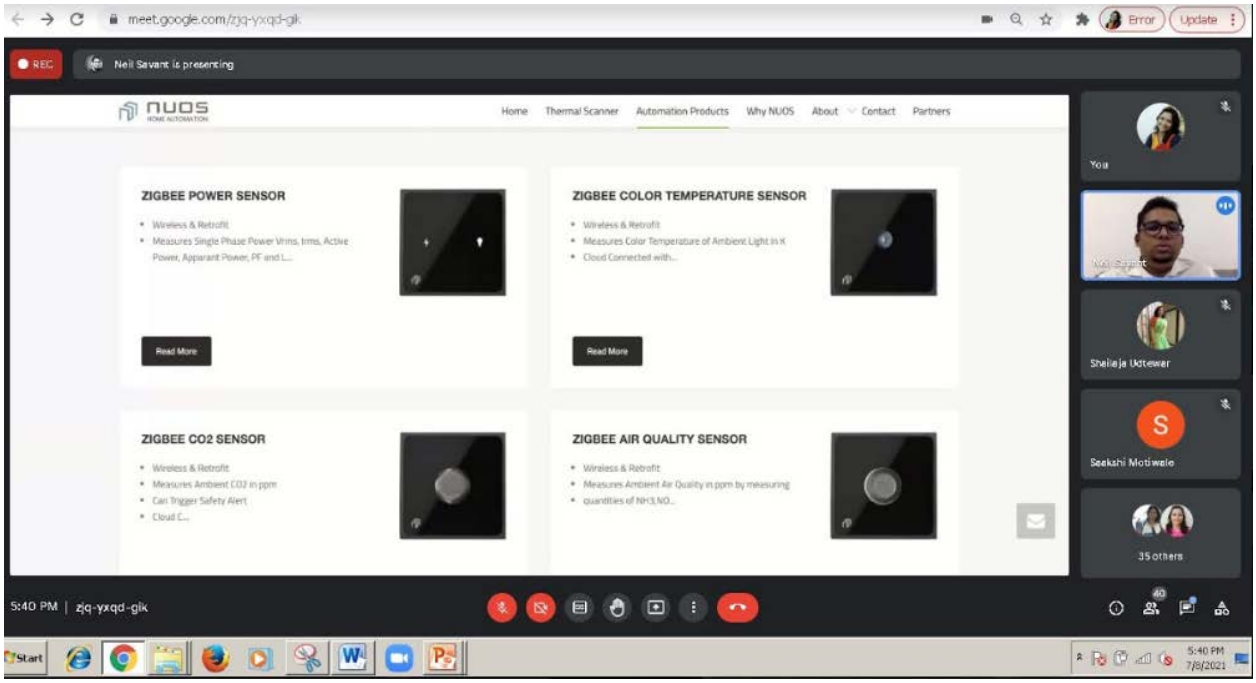
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Neil Savant is presenting
nuos
Home
Thermal Scanner
Automation Products
Why NUOS
About
Contact
Partners
ZIGBEE POWER SENSOR
Wireless & Retrofit
Measures Single Phase Power Vrms, Irms, Active Power, Apparent Power, PF and t...
Read More
ZIGBEE COLOR TEMPERATURE SENSOR
Wireless & Retrofit
Measures Color Temperature of Ambient Light in K
Cloud Connected with...
Read More
ZIGBEE CO2 SENSOR
Wireless & Retrofit
Measures Ambient CO2 in ppm
Can Trigger Safety Alert
Cloud C...
ZIGBEE AIR QUALITY SENSOR
Wireless & Retrofit
Measures Ambient Air Quality in ppm by measuring
quantities of NH3,NO...
You
Neil Savant
Shelleja Udtewar
S
Seekshi Motiwale
35 others
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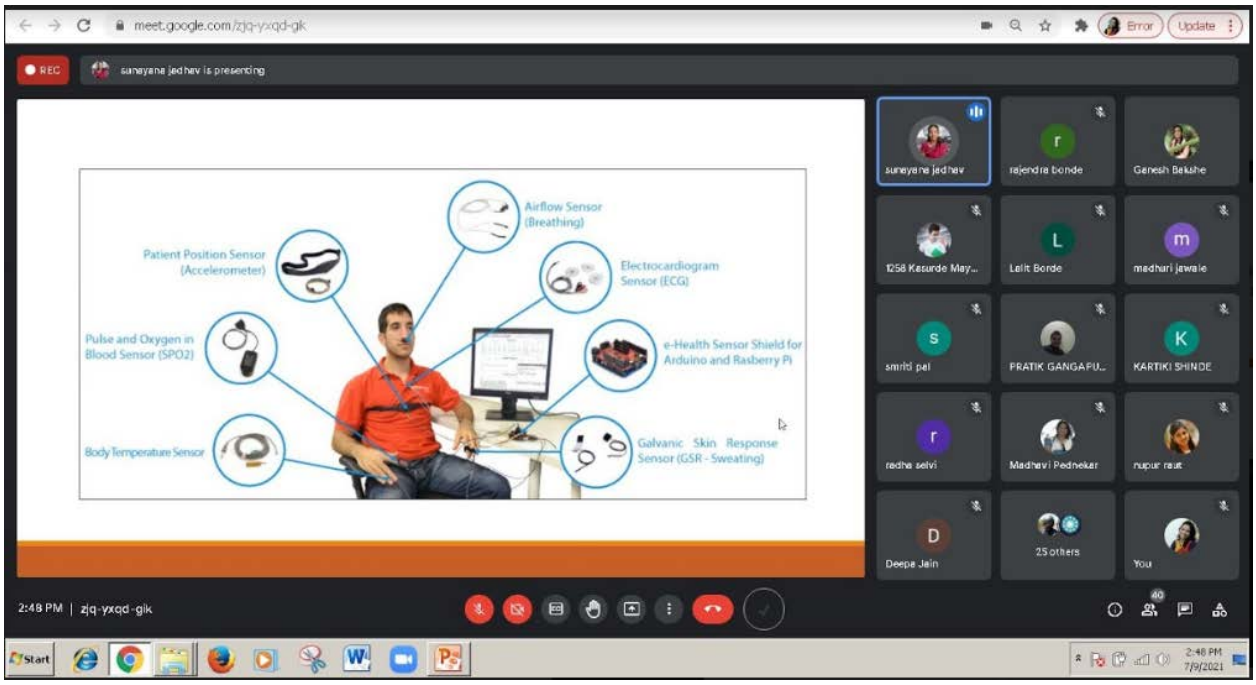
7/9/2021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suneyana jadhav is presenting
Airflow Sensor (Breathing)
Patient Position Sensor (Accelerometer)
Electrocardiogram Sensor (ECG)
Pulse and Oxygen in Blood Sensor (SPO2)
e-Health Sensor Shield for Arduino and Rasberry Pi
Body Temperature Sensor
Galvanic Skin Response Sensor (GSR - Sweating)
suneyana jadhav
rajendra bonde
Ganesh Bakshe
1258 Kesurde May...
Lalit Borde
madhari jawale
smriti pal
PRATIK GANGAFU...
KARTIKI SHINDE
radha selvi
Madhavi Pedneker
nupur raut
Deepa Jain
25 others
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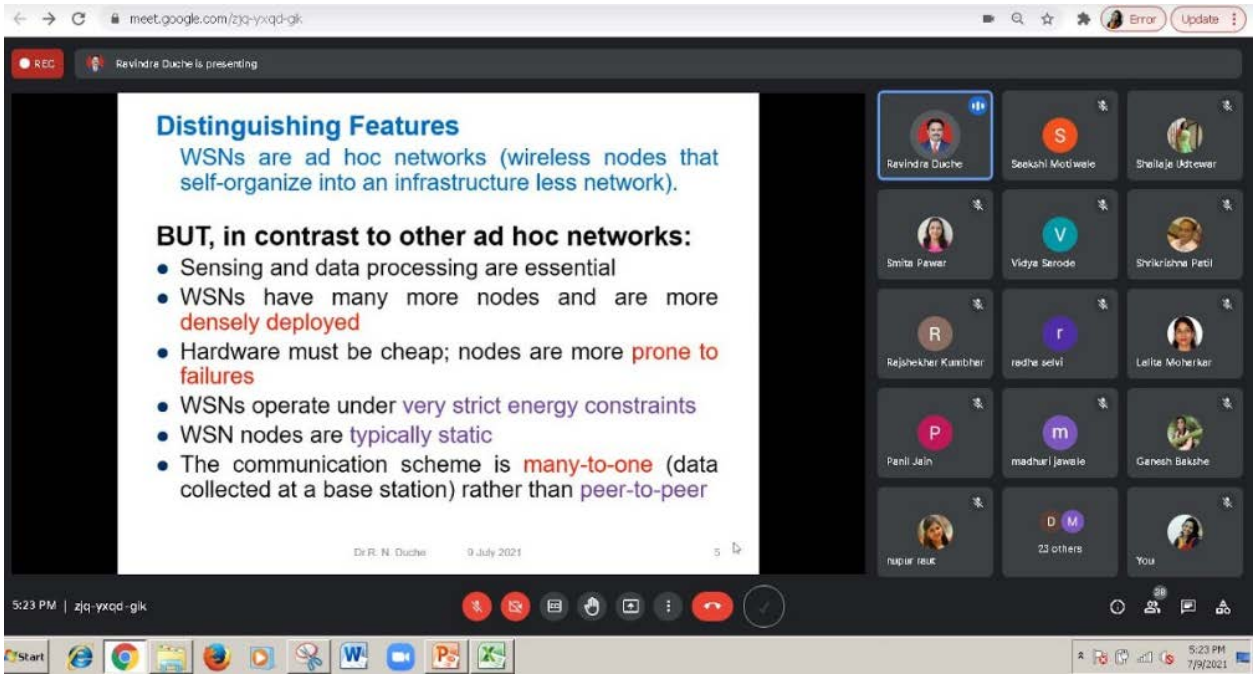
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Revindra Duche is presenting
Distinguishing Features
WSNs are ad hoc networks (wireless nodes that self-organize into an infrastructure less network).
BUT, in contrast to other ad hoc networks:
Sensing and data processing are essential
WSNs have many more nodes and are more densely deployed
Hardware must be cheap; nodes are more prone to failures
WSNs operate under very strict energy constraints
WSN nodes are typically static
The communication scheme is many-to-one (data collected at a base station) rather than peer-to-peer
Dr R. N. Duche
9 July 2021
5
Revindra Duche
Seakshi Motiwale
Shailaja Udtewar
Smita Pawar
Vidya Serode
Shrikrishna Patil
Rajshekher Kumbher
radhe selvi
Lalita Moherker
Parii Jain
madhuri jawale
Ganesh Bakshe
nupur raut
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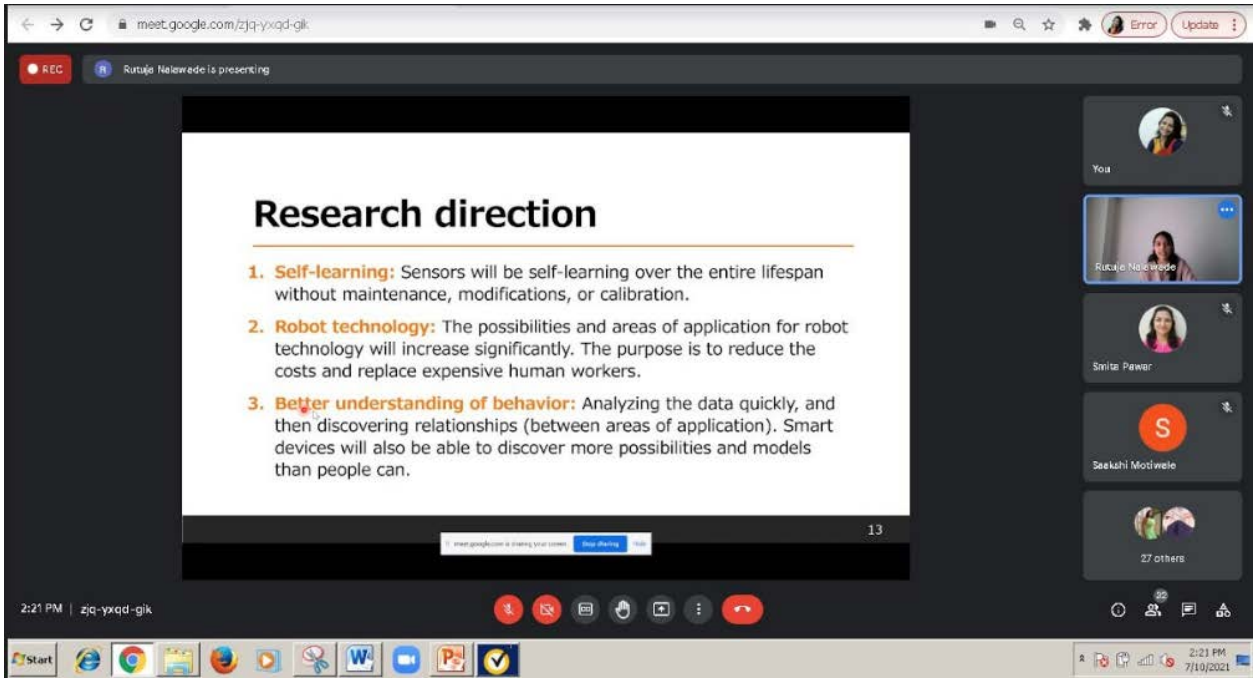
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Rutuja Nalawade is presenting
Research direction
1. Self-learning: Sensors will be self-learning over the entire lifespan without maintenance, modifications, or calibration.
2. Robot technology: The possibilities and areas of application for robot technology will increase significantly. The purpose is to reduce the costs and replace expensive human workers.
3. Better understanding of behavior: Analyzing the data quickly, and then discovering relationships (between areas of application). Smart devices will also be able to discover more possibilities and models than people can.
13
You
Rutuja Nalawade
Smita Pawar
Seakshi Motiwale
27 others
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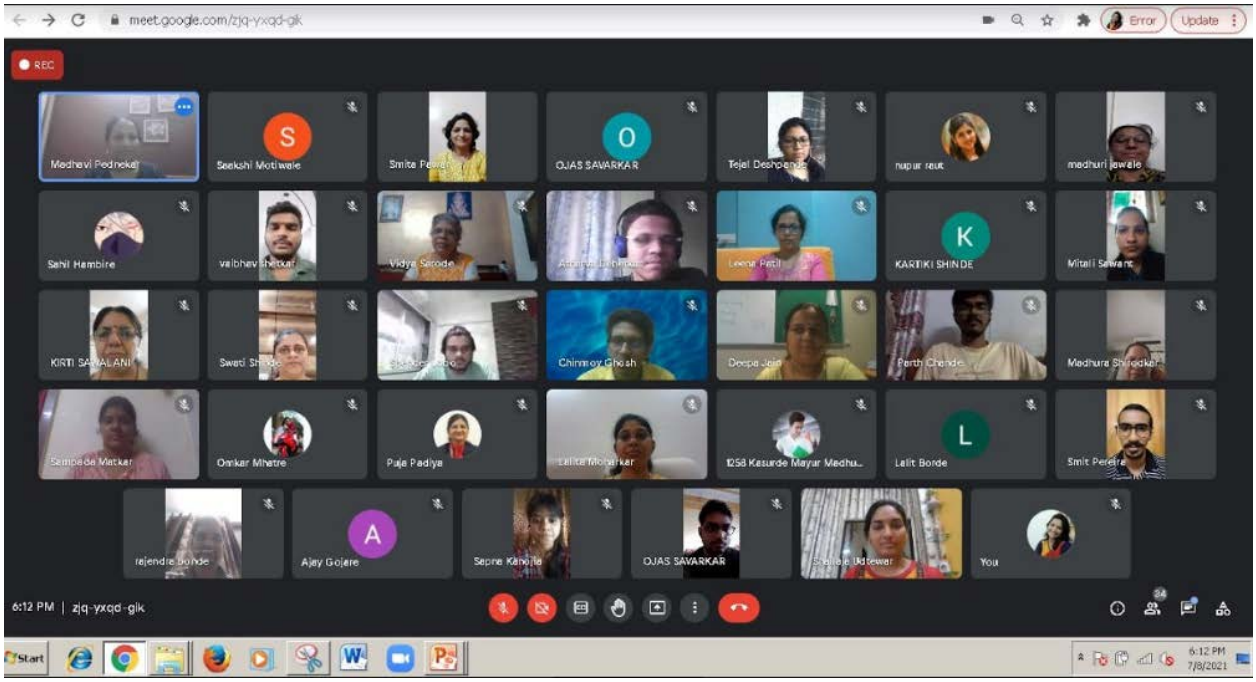
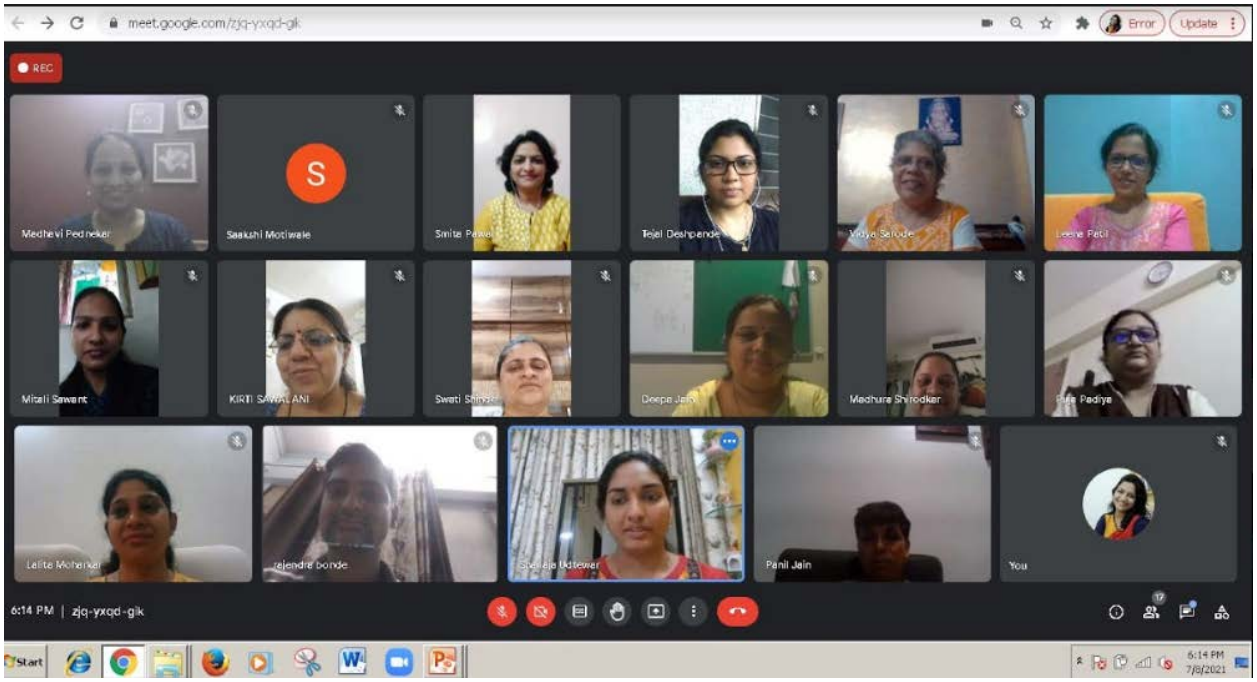
7/10/2021

PARTICIPATION SCREENSHOT:

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Medhavi Pednekar
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Smita Pawar
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Vidya Salode
Leena Patil
Mitali Sawant
KIRTI SAWALANI
Swati Shinde
Deepa Jain
Madhura Shirodkar
Lalita Mohankar
rajendra bonde
Shaileja Uktewar
Parul Jain
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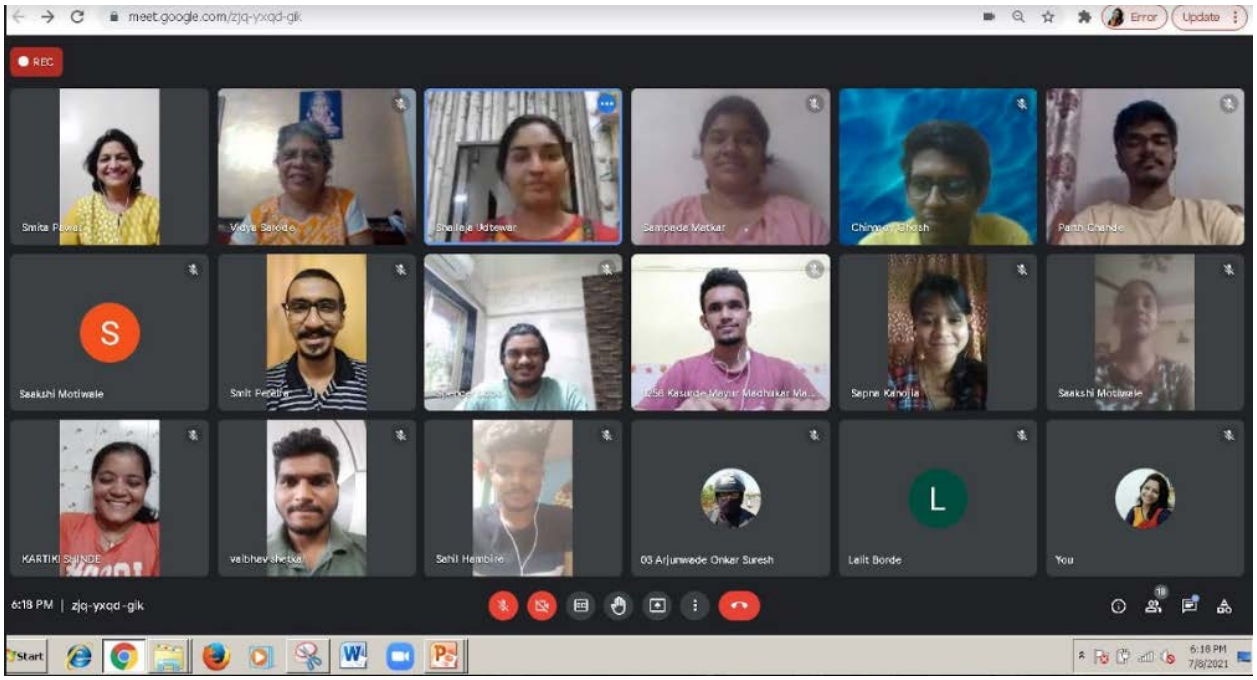
7/8/2021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Smita Pawar
Vidya Salode
Shaileja Uktewar
Sampada Matkar
Chinmoy Ghosh
Parth Chande
Saakshi Motiwale
Smit Pendre
Sapna Kanojia
Saakshi Motiwale
KARTIKI SHINDE
vaibhav shelke
Sahil Hembire
03 Arjunwede Onker Suresh
Lalit Borde
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7/8/2021

FEEDBACK:

Practical session
Sensor Detials and PLC demo
the practical about the different sensors
Practical explanation
On line sensor working
Practical working
Very good session.. Was good to know about the industrial sensors.
Practical demonstration
Practical session of various sensors

Health care project was very inspiring
"In-depth details and working and phenomenon used for sensing and applications" presented very nicely.
I was really eager to know about MEMS sensor it was really nicely explained and VLC session was also nicely explained by mam.
The explanation of the topic was done good
Explanation
Loved the delivery of speakers and learnt about sensors
Was good session
All about the Sensor in VLC
Information of sensors

Very Informative and elaborative.

DAS and wireless sensing

Content was excellent

Friendly attitude and informative session.

Wireless Sensor Technology

Theory and practical session

All sessions for today were excellent and fundamental requirement for us..

Nice explaination

Communication skills

home automation is emerging technology really learnt so much

Bio medical applications, Basic techniques, Interfacing demos

Practical approach

Great explanation !!!

All good

Interesting session.

EVERY PART OF THE SESSION WAS INTERESTING

Good

Informative

Concepts were nicely explained, speakers were very knowledgeable, vast variety of related topics were covered.
–
Car sensors……..
EACH PART WAS INTRESTING
Wireless sensor network
Explanation was amazing
Applications of WSN
All good
wireless sensing has wide applications, all concepts were cleared

Recent trend and research of sensor in real life
Great……Everything….
Nice explanation
Punctuality and Contents
VIDEO PARTS WERE INTRESTING
All sessions were Informative
Very good, Nice Coordination, Congratulations to WholenTeam
lifi is a energing technology with many insdustrail applications; learnt a great deal
Industrial approach discussion and research areas in Sensor technology domain

Prof. Smita Pawar	Prof. Shailaja Udtewar	Dr.Vidya Sarode
FDP Coordinator	FDP Coordinator	HoD, EXTC