



St. Martin's Engineering College

(An Autonomous Institute)
NBA & NAAC A+ Accredited
Dhulapally, Secunderabad-500 100



www.smec.ac.in

POST EVENT REPORT

(Should be submitted within two days)

Date: 23-04-2021

1. Department: Mechanical Engineering
2. Name of the event: 6 Days AICTE-ISTE sponsored First Induction Program on “**IOT in Manufacturing.**”
3. Event Date: From 15/04/2021 to 22/04/2021
4. Report submitted date: 24/04/2021.
5. Brief description about the event: We have Organized 6 days online AICTE-ISTE Sponsored 2nd Induction Program on “**IOT in Manufacturing**” The event was started on 15th April 2021 and Concluded on 21st April 2021. The event was well received by the ISTE members and faculty from all the engineering colleges in Telangana, Andhra Pradesh, Karnataka, and other states. There are 80 participants are registered for this event.

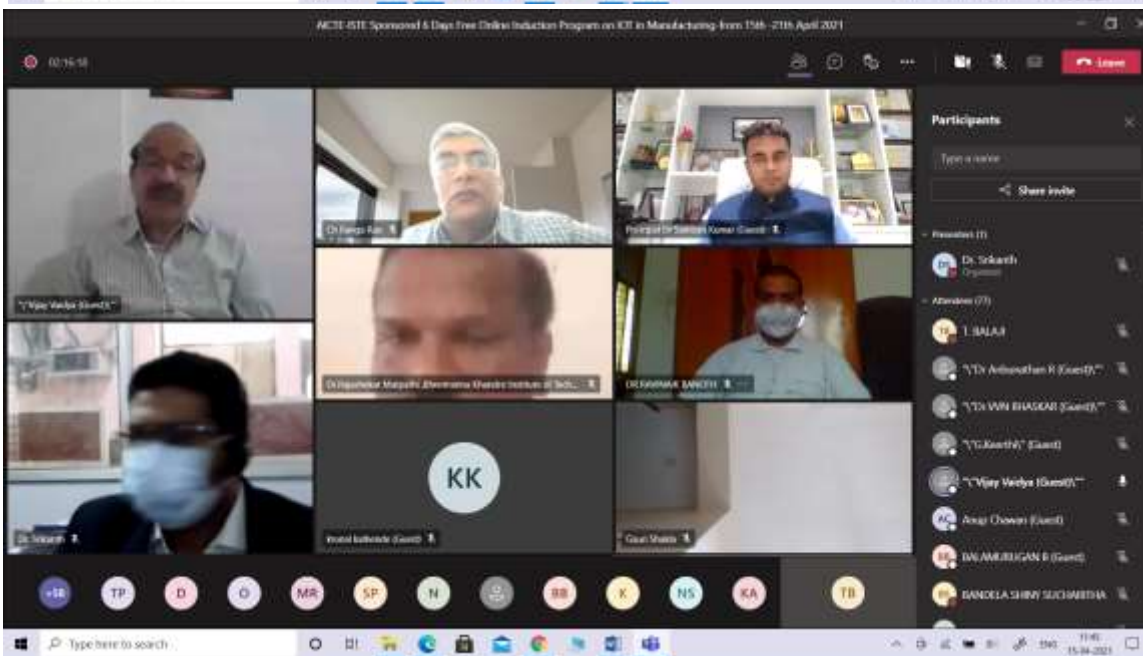
Day 1. 15/04/2021

The event was Started at 11 am Inaugurated by Principal followed by his speech to participants regarding the importance of this induction program for faculty to enhance their skill sets in advanced manufacturing technology by the Principal. The chief guest for this program is Prof Vijay D Vaidya, Executive Council Member, ISTE, New Delhi, addressed the gathering about ISTE activities and AICTE. Prof Vaidya is addressed the gathering the importance of AICTE-ISTE collaboration for conducting refresher and induction programs. Prof Vidya appreciated Principal sir for conducting such events. He also praised Principal for taking intense care in selecting the speakers for this induction program. After the Inaugural speech the first session was started at 12.00pm by Dr A Ramaiah, Founder and CEO, DigiTran Solutions, Bangalore explained about the importance of Digital Twins. The salient features of Digital Twins with Industry 4.0 insights has covered and the session was concluded at 1.45 PM

The second session was started at 2.15 pm by Dr N Thillairasu, Associate Professor, School of Computing and IT, Reva University, Bangalore has explained about 5G in manufacturing area and 5G will transform the Data Science, Artificial Intelligence in Manufacturing demonstrated and the session was concluded at 4.00 pm after interacting with the participants.

Day-1 Innauguration





Day-1 Session-1

ACIR: BTL Sponsored & Day Free Online Induction Program on I4.0 in Manufacturing from 15th - 29th April 2021

Request control

02:27:15

DIGITRAN SOLUTIONS

Digital Twins

Participants

- Type a name
- Show invite
- Presenters (0)
- Dr Arunathan R (Guest)
- Dr Arunathan R (Guest)
- Dr. Sivaiah (Presenter)
- Audience (0)
- T. BALAJI
- "W. G. KANTH" (Guest)
- "T. V. VIN BHASKAR" (Guest)
- Anup Chavan (Guest)
- B BHASKAR
- BALAMBEGAN R (Guest)

0:00:00

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Type here to search

11:28 (19-04-2021)

ACIR: BTL Sponsored & Day Free Online Induction Program on I4.0 in Manufacturing from 15th - 29th April 2021

Request control

02:32:53

DIGITRAN SOLUTIONS

Smart Home Solution using Smart Contract



This prototype is used in Smart Home Solution

This prototype involves technologies:

1. Blockchain
2. IOT
3. Web3.0
4. Cloud Computing

Medium Article

<https://anbunathanrameiah.medium.com/smart-home-solution-using-smart-contract-7eb7cd3407d3>

Participants

- Type a name
- Show invite
- Presenters (0)
- Dr Arunathan R (Guest)
- Dr Arunathan R (Guest)
- Dr. Sivaiah (Presenter)
- Audience (0)
- T. BALAJI
- "W. G. KANTH" (Guest)
- "T. V. VIN BHASKAR" (Guest)
- ALLEN SAGAN
- Anup Chavan (Guest)
- ANWESH J

0:00:00

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11:36 (19-04-2021)

ACIR: BTL Sponsored & Day Free Online Induction Program on I4.0 in Manufacturing from 15th - 29th April 2021

Request control

02:44:03

DIGITRAN SOLUTIONS

What is a Digital Twin?

- "...a cross-domain digital model that accurately represents a product, production process or performance of a product or production system in operation."
- "...a near-real-time digital image of a physical object or process that helps optimize business performance."
- "...a representation of a physical asset that has a level of completeness and accuracy and includes context information that allows the user to understand its behavior and performance."
- "In short, the digital twin concept combines the ideas of modeling and the Internet of Things (IoT)."
- "Digital twins are virtual replicas of physical devices that data scientists and IT pros can use to run simulations before actual devices are built and deployed."

Participants

- Type a name
- Show invite
- Presenters (0)
- Dr Arunathan R (Guest)
- Dr Arunathan R (Guest)
- Dr. Sivaiah (Presenter)
- Audience (0)
- T. BALAJI
- "W. G. KANTH" (Guest)
- "T. V. VIN BHASKAR" (Guest)
- Anup Chavan (Guest)
- ANWESH J
- B BHASKAR

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12:12 (19-04-2021)

ACTE-ISTE Sponsored 6 Days Free Online Industrial Program on ICT in Manufacturing from 15th - 21st April 2021

02:52:15

Request control

Digital Twin Variations

ASSET/PROCESS

- Product
- Production Asset
- Process

MODEL

- 3D Model
- Process Model
- Schedule

DATA

- Safety
- Process
- Equipment
- Environmental

ANALYTICS

- Artificial Intelligence
- Physics Simulations
- Dashboards

Unique Digital Twin

Machine Health
Environmental Data
Process Data

Participants

Type a name

Share invite

Members (1)

Dr. Anandhan R (Guest)

Dr. Anandhan R (Guest)

Dr. Subash
Organizer

Attendees (6)

T. SAIJAL

T. V. G. K. S. R. S. (Guest)

Dr. VINAYAKAR (Guest)

Dr. Lakshmi (Guest)

ANUP CHAWAN (Guest)

ANVISHI

Type here to search

ACTE-ISTE Sponsored 6 Days Free Online Industrial Program on ICT in Manufacturing from 15th - 21st April 2021

03:12:38

Request control

PHILIPS DIGITAL TWIN

Participants

Type a name

Share invite

Members (6)

Dr. Anandhan R (Guest)

Dr. Anandhan R (Guest)

Dr. Subash
Organizer

Attendees (6)

T. SAIJAL

T. V. G. K. S. R. S. (Guest)

Dr. VINAYAKAR (Guest)

ANUP CHAWAN (Guest)

BHAKSINI NAK

Dr. Ranga Raju

Dr. Lakshmi
Organizer

Dr. E. V. S. S. S. S. (Guest)

Dr. SAIJAL

Type here to search

ACTE-ISTE Sponsored 6 Days Free Online Industrial Program on ICT in Manufacturing from 15th - 21st April 2021

03:32:51

Request control

Digital Twins Throughout Asset Lifecycle

Modeling & Simulation
Construction Sequence
Virtual Commissioning

Design & Build

Continuous Feedback

Operate & Maintain

Predictive Maintenance
Process Optimization
Energy Management

Convergence

- As-Designed
- As-Built
- As-Maintained

- Increase throughput
- Improve product quality/yield
- Simulate what-if scenarios for new processes/parameters
- Model demand-supply requirements
- Minimize energy costs

- Real-time IoT data
- Analytics
- Alerts

Participants

Type a name

Share invite

Members (6)

Dr. Anandhan R (Guest)

Dr. Anandhan R (Guest)

Dr. Subash
Organizer

Attendees (6)

T. SAIJAL

T. V. G. K. S. R. S. (Guest)

ANUP CHAWAN (Guest)

S. BHAKSINI

S. BHAKSINI NAK

Dr. Ranga Raju

CHANDRAN

Dr. Lakshmi
Organizer

Dr. SAIJAL

Type here to search

Day-1 Session-2

AICTE-ISTE Sponsored 6 Days Free Online Induction Program on IIT in Manufacturing from 19th - 21st April 2021

15:02:52

St.Martin's Engineering College
Secunderabad

AICTE-ISTE Sponsored Online Induction Program

The Internet of Industrial Things (IIoT) & 5G in Manufacturing

**Dr. N. THILLAIARASU**
B.E., M.E., Ph.D.
Associate Professor, BEVA University, Bengaluru
E-Mail: thillai888@gmail.com
Mobile: +91 9677582756

15-04-2021

Participants

- Dr. N. Thillaiarasu
- Dr. Srinath
- T. BALAJI
- CHANDRA NAIR
- Ch. Ranga Rao
- Dr. S. Suresh Kumar
- G. VINATHA

15-04-2021

AICTE-ISTE Sponsored 6 Days Free Online Induction Program on IIT in Manufacturing from 19th - 21st April 2021

15:03:22

Agenda

- ✓ AI-ML in IoT World
- ✓ What is Artificial Intelligence?
- ✓ AI Applications
- ✓ What is IIoT
- ✓ 5G Technology in Manufacturing.

4/13/2021

Participants

- Dr. N. Thillaiarasu
- Dr. Srinath
- T. BALAJI
- CHANDRA NAIR
- Ch. Ranga Rao
- Dr. S. Suresh Kumar
- G. VINATHA

15-04-2021

05:07:42

ACITE - IITJ Sponsored 4 Day Free Online Induction Program on IOT in Manufacturing from 15th - 21th April 2021

History of AI

Artificial Intelligence Development History Timeline

4/13/2021

Dr. N. Thibaresu

Participants

Type a name

Share invite

Presenters (1)

- Dr. N. Thibaresu

Attendees (20)

- T. BALAJI
- "W/D. Arjun (Guest)"
- "W/D. Karthik (Guest)"
- "Dr. VVN Shankar (Guest)"
- SHREENIDHI NAR
- Ch. Sangeetha
- D. Mahesh
- Dr. L. Suresh Kumar

05:07:42

05:41:14

ACITE - IITJ Sponsored 4 Day Free Online Induction Program on IOT in Manufacturing from 15th - 21th April 2021

Need for Machine Learning

Need for Machine Learning

4/13/2021

Dr. N. Thibaresu

Participants

Type a name

Share invite

Presenters (1)

- Dr. N. Thibaresu

Attendees (20)

- T. BALAJI
- "W/D. VVN Shankar (Guest)"
- "W/D. Arjun (Guest)"
- "W/D. Karthik (Guest)"
- "M.P. CHAWAN (Guest)"
- "MGRU PUA (Guest)"
- "S. Vitha (Guest)"
- SHREENIDHI NAR

05:41:14

06:24:05

ACITE - IITJ Sponsored 4 Day Free Online Induction Program on IOT in Manufacturing from 15th - 21th April 2021

Challenges in IIOT

CHALLENGES FOR IIOT
IMPLEMENTATION NOW AND IN THE FUTURE

4/15/2021

Dr. N. Thibaresu

Meeting chat

The meeting chat is muted. Settings

- Dr. Rajeshwar Manohar (Shri Ramana Charitra Institute of Technology) has left the chat.
- Dr. Rajeshwar Manohar (Shri Ramana Charitra Institute of Technology) has joined the meeting.
- Dr. S. Suresh Kumar left the chat.
- Dr. L. Suresh Kumar left the chat.
- "W/D. VVN Shankar (Guest)" has joined to the meeting.

https://docs.google.com/forms/d/e/1FAIpQLSc1tyzTG-1eAQYMOvVFFsFJOOxdr1Tm8Jndw21375vLCKSQ/viewform?usp=sf_link

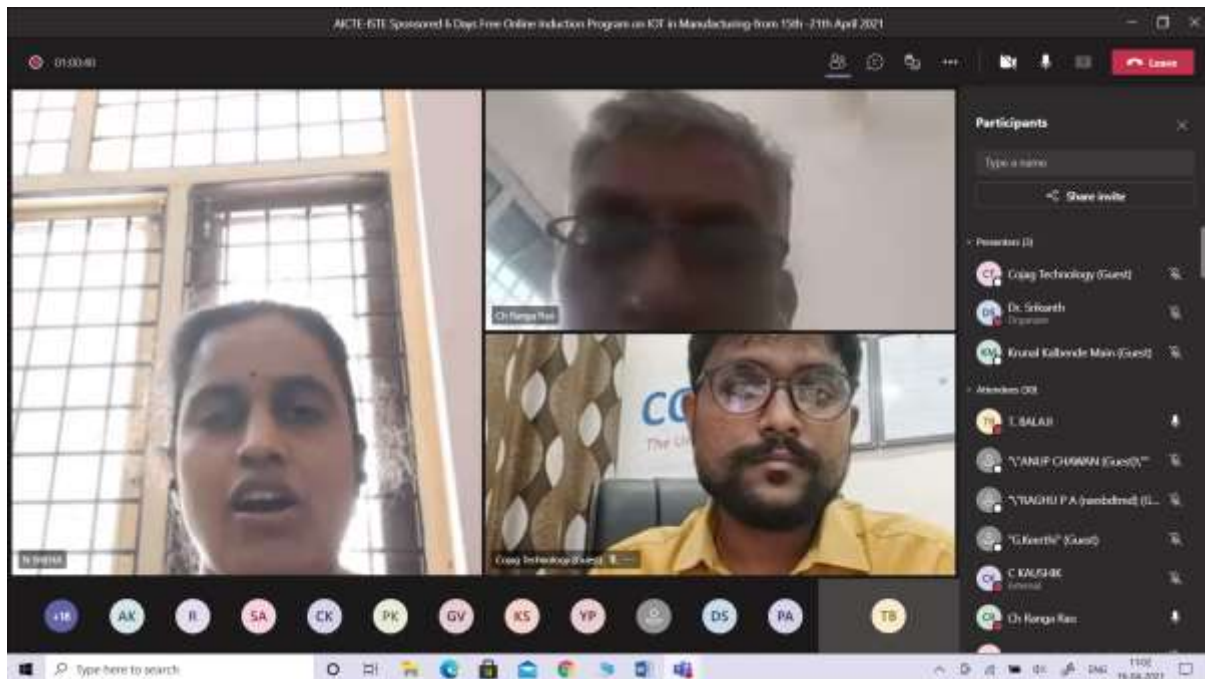
06:24:05

Day 2. 16/04/2021

The second day Program was started at 11 am on the subject “**Deep Analytics**” by Sri Krunal Ramesh Kalbende, CEO, COJAG, Nagpur demonstrated the importance of deep analytics in manufacturing and explained various case studies how the machine learning can be used in transportations. Drones used in Geological application to collect the data and the session was concluded at 1pm.

The after noon session was started at 2.00 Pm by Dr. M. Yogeshwara Rao, CEO, Cogno Labs, Hyderabad demonstrated the “IOT in a manufacturing- A Case Study” where his team is involved in CITD, Hyderabad in IOT in their institute. And the session was concluded at 4.00 pm

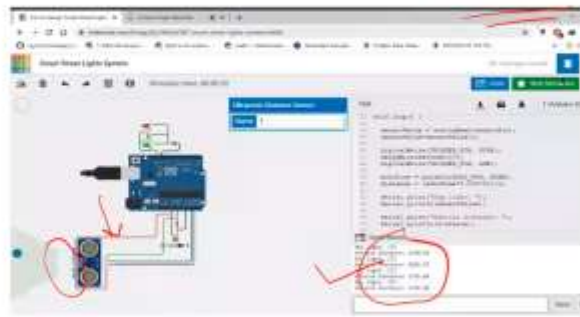
Day-2 Session 4



01:21:53

Designing of Prototype

Simulation



Participants

Type a name

Share invite

Presenters (0)

- Cojay Technology (Guest)
- Kamal Kulkarni Man (Guest)

Attendees (16)

- T. BILAL
- "YANUP CHAWAN (Guest)"
- "SAGHU P. A. Jambhale (G..."
- "T. Vishu (Guest)"
- "BALAMBURGAN S (Guest)"
- "G. Geetha" (Guest)
- C. KALPESH (Guest)

Participant avatars: +31, CR, CK, PA, NS, YP, CT, TB

01:42:04

Flying drone and collecting data



Participant avatars: +31, SP, YY, SK, DK, CR, PA, CT, TB

01:45:17

Deep Analytics


- Deep analytics is a process applied in data mining that analyzes, extracts and organizes large amounts of data in a form that is acceptable, useful and beneficial for an organization, individual or analytics software application.
- Deep analytics retrieves targeted information from data stores through data processing methodologies which is integrated with machine learning model, hence utilized in Deep Learning.

Participant avatars: +31, SP, YY, SK, DK, CR, PA, CT, TB

ACTE-ESTE Sponsored 5 Days Free Online Induction Program on IoT in Manufacturing from 15th - 21st April 2021

00:10:29

Using Machine Learning in Transportation



10:17:2018 Mon 2020 Project Technology - 74107947200

Yashal Kulkarni (Main Content)

Participants: +32, GV, SP, YY, DK, CR, CT, PD, TB

YOUNGRASHEENI Y., Dr. L. Suresh Kumar, YASHU P A (guest), Ch. Ranga Rao, Gnan Technology (Guest), prakop Kumar (Desk...)


Type here to search

10:18 19-04-2021

Day-2 Session 5

ACTE-ESTE Sponsored 5 Days Free Online Induction Program on IoT in Manufacturing from 15th - 21st April 2021

12:14



Participants

Type a name

Share invite

Presenters (0)

- Ch. Ranga Rao
- Dr. Suresh Kumar
- Dr. Yash Kulkarni

Attendees (8)

- T. RAJEEV
- YOUNGRASHEENI Y.
- YOUNGRASHEENI Y.
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- YOUNGRASHEENI Y.
- YOUNGRASHEENI Y.
- YOUNGRASHEENI Y.

Participants: BN, SK, MK, CR, DS

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12:15 19-04-2021

ACSI-611 Sponsored 6 Days Free Online Induction Program on IOT in Manufacturing from 15th -21th April 2021

IIoT Use Cases

- ❖ Smart Inventory Management
 - Sensors on containers can determine when a product is running low
 - Employees will be alerted to proactively re-order the parts when a certain level is reached or orders can be automatically placed with suppliers

Participants

Type a name

Share invite

Presenters (0)

Dr. Sivaiah (Organizer)

Dr. Yogi (Guest)

Attendees (10)

T. BALAJI

"\W\Danigadaku Mahesh (...)

"\W\TANU P A (audited...)

"\D\VN Bhaskar (Guest)"

"\U\Karthik" (Guest)"

"Dr. K. Lenin (Guest)"

"\vidya (Guest)"

44:06

Type here to search

ACSI-611 Sponsored 6 Days Free Online Induction Program on IOT in Manufacturing from 15th -21th April 2021

IoT and Manufacturing Operating Efficiency

- IoT provides manufacturers a comprehensive view of what's occurring at every point in the production process and helps make real-time adjustments.
- Explosion of low-cost sensor technologies has made every manufacturing process and component a potential data source
- Will increase manufacturing productivity by 10-25%.
- Producing up to \$1.8 trillion in global economic value by 2025.

Participants

Type a name

Share invite

Presenters (0)

Dr. Sivaiah (Organizer)

Dr. Yogi (Guest)

Attendees (10)

T. BALAJI

"\W\Danigadaku Mahesh (...)

"\W\TANU P A (audited...)

"\D\VN Bhaskar (Guest)"

"\U\Karthik" (Guest)"

"Dr. K. Lenin (Guest)"

"\vidya (Guest)"

55:16

Type here to search

ACSI-612 Sponsored 6 Days Free Online Induction Program on IOT in Manufacturing from 15th -21th April 2021

Case Study

Survival model

- Use when you have failure data from similar machines
- If you don't have the complete histories from the fleet, but you do have the failure data, then you can use survival models to estimate RUL

Participants

Type a name

Share invite

Presenters (0)

Dr. Sivaiah (Organizer)

Dr. Yogi (Guest)

Attendees (10)

T. BALAJI

"\W\WVVANUP GOWIN (...)

"\W\Danigadaku Mahesh (...)

"\W\TANU P A (audited...)

"\D\VN Bhaskar (Guest)"

"\U\Karthik" (Guest)"

"Dr. K. Lenin (Guest)"

01:15:21

Type here to search



Day 3. 17/04/21

The Program was started at 11 am on the subject “Edge, Fog and Cloud Computing” by Dr A Ramaiah, Fonder DigiTran Solutions, Bangalore explained about the application of edge computing, cloud computing in day to day activities in Smart home automation and explained various case studies and the session was concluded at 1 pm.

The afternoon session was started at 2.00 pm by Sri Krunal Ramesh Kalbende, CEO, COJAG, Nagpur on the subject “ Cyber Physical System” explained about the importance of Cyber Physical System in the manufacturing area and the session was concluded at 4.00 pm.

Day-3 Session 7

ACIE-63E Sponsored & Days Free Online Induction Program on IOT in Manufacturing from 15th - 21st April 2021

Request control

Participants

Type a name

Share invite

Processors (8)

Mute all

T. SALAJ

"W"Dr Anurathan R (G...

Ch. Ranga Rao

Dr. Sivaiah

Attendees (78)

"W"Dr VVN Shankar (Gues...

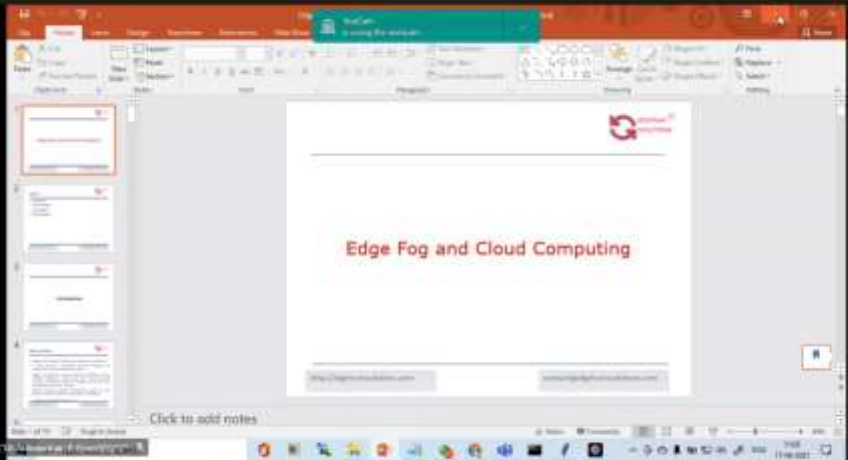
"W"SWAN KUMAR THIMMAL...

"W"SWAN KUMAR THIMMAL...

"Janardh (Guest)"

"SWAN KUMAR THIMMALAL...

01:08:54



Edge Fog and Cloud Computing

Click to add notes

01:08:54

Type here to search

ACIE-63E Sponsored & Days Free Online Induction Program on IOT in Manufacturing from 15th - 21st April 2021

Request control

Participants

Type a name

Share invite

Processors (8)

Mute all

T. SALAJ

"W"Dr Anurathan R (G...

Ch. Ranga Rao

Dr. Sivaiah

Attendees (78)

"W"Dr VVN Shankar (Gues...


"W"SWAN KUMAR THIMMAL...

"W"SWAN KUMAR THIMMALAL...

"Janardh (Guest)"

"SWAN KUMAR THIMMALAL...

01:09:24



Cloud Services Management

CSP Managed	Organization Managed
<ul style="list-style-type: none">ApplicationsDataMiddlewareOperating SystemVirtualizationHardwareStorageNetworking	<ul style="list-style-type: none">ApplicationsDataMiddlewareOperating SystemVirtualizationHardwareStorageNetworking
On Premise	IaaS PaaS SaaS

01:09:24

Type here to search

ACIE-63E Sponsored & Days Free Online Induction Program on IOT in Manufacturing from 15th - 21st April 2021

Request control

Participants

Type a name

Share invite

Processors (8)

Mute all

T. SALAJ

"W"Dr Anurathan R (G...

Ch. Ranga Rao

Dr. Sivaiah

Attendees (78)

"W"Dr VVN Shankar (Gues...

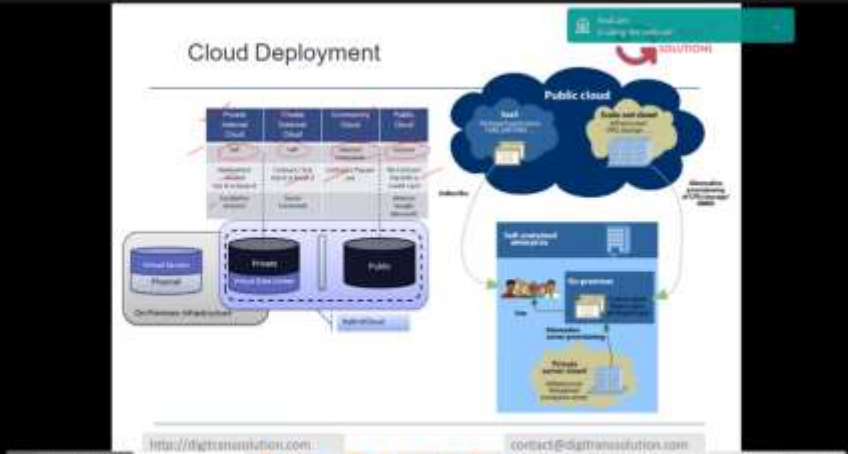
"W"SWAN KUMAR THIMMAL...

"W"SWAN KUMAR THIMMALAL...

"Janardh (Guest)"

"SWAN KUMAR THIMMALAL...

01:09:53



Cloud Deployment

Public cloud

01:09:53

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NCTE - 631 Sponsored 6 Days Free Online Induction Program on IOT in Manufacturing from 15th - 21st April 2021

01:27:21

What is Grid Computing?

- **Grid Computing** refers to distributed computing in which a group of computers from multiple locations are connected with each other to achieve common objective.
- These computer resources are heterogeneous and geographically dispersed.
- Grid Computing breaks complex task into smaller pieces. These smaller pieces are distributed to CPUs that reside within the grid.

Participants

Type a name

< Share invite

Participants (6)

More all

T. BALAJI

Dr. Anandharan R. (G...

Ch. Ranga Rao

Dr. Subash (D...

Attendees (3)

Dr. V.V.V. Bhaskar (Gand...

Dr. TRIVANI KUNALI THEMM...

Dr. TRIVANI KUNALI THEMM...

Dr. I. Suresh Kumar (DRF Exa...

S. Jagan (Dandi)

NCTE - 631 Sponsored 6 Days Free Online Induction Program on IOT in Manufacturing from 15th - 21st April 2021

01:47:25

Figure1: Architecture diagram

Meeting chat

Shamshad Haneef Institute of Technology (HIT) was invited to the meeting.

Dr. V.V.V. Bhaskar (Gand...) left the chat.

Dr. I. Suresh Kumar was invited to the meeting.

Deep Dhanraj left the chat.

ANIP Customer (Guest) was invited to the meeting.

Dr. V.V.V. Bhaskar (Gand...) 11:48 AM

<https://www.youtube.com/watch?v=...>

Smart ... An Artificial...

NCTE - 631 Sponsored 6 Days Free Online Induction Program on IOT in Manufacturing from 15th - 21st April 2021

02:44:12

Benefits of Edge Computing

- Faster Response**
 - Operating at the source of data
 - Faster response time for triggers
- Secure**
 - Locally stored
 - No theft during transport
 - Compliance maintained
- Cost Effective**
 - No need to transport everything to cloud
 - No recurring cost
- Reliable Operations**
 - Can work without connectivity

Participants

Type a name

< Share invite

Participants (6)

More all

T. BALAJI

Dr. Anandharan R. (Gand...

Ch. Ranga Rao

Dr. Subash (D...

Attendees (3)

Dr. V.V.V. Bhaskar (Gand...

Dr. TRIVANI KUNALI THEMM...

Dr. TRIVANI KUNALI THEMM...

Dr. I. Suresh Kumar (DRF Exa...

S. Jagan (Dandi)

TRIVANI KUNALI THEMM...

Day 3 Session 8

AOToM **COJAG**
The Unique World

Cyber Physical System in IoT and its Application in Manufacturing

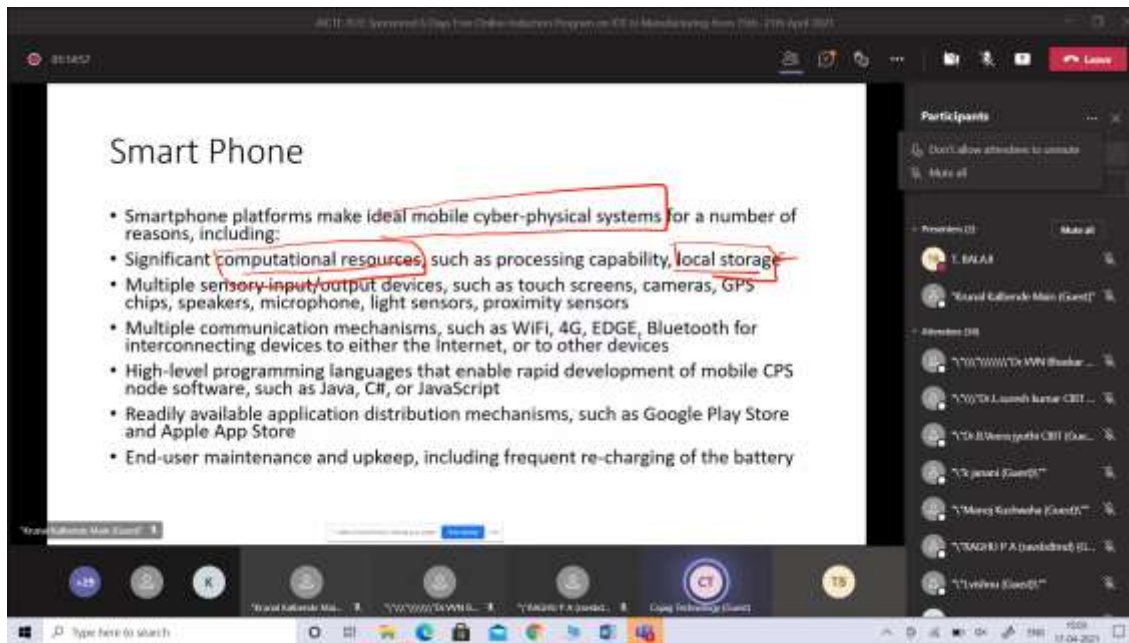
By
Shri.Krunal R Kalbende
CEO, COJAG
Founder, Autom Technologies
IIT Kharagpur, Alumni

Transistor

1.5A
10,000 Tb
X

Server

Smart
Multi Access Control
Data Warehouse



Day 4. 19/04/2021

The fourth day session was started at 11 am on the topic “ Deep Analytics- A case study” by Sri Aashdeep Howlardar , Fonder Think.Shiksha, Mumbai he as covered entire spectrum of Deep analytics in various applications in manufacturing area and the session was concluded at 1 pm.

The afternoon session was started by Sri Parthik Tirodkar, CEO and Founder, PNT Solutions, Mumbai on the subject “ Industrial Internet of Things”. He explained about the Industry 4.0 and Internet of things used in manufacturing area and some case studies he has shared and the session was concluded 4.00 pm after interactive with the participants.

Day-4 Session 10



ACTE-ISTE Sponsored 6 Days Free Online Induction Program on IOT in Manufacturing from 15th - 21th April 2021

21:02

Participants

- Dr. Rangaj Rao
- Dr. Srikarsh
- Office2022
- Prakash Patel (Guest)

AK DS

Type here to search

ACTE-ISTE Sponsored 6 Days Free Online Induction Program on IOT in Manufacturing from 15th - 21th April 2021

20:31

Smart Usages:

Based on	Data	Workflow	Products
Intelligence Tools	<ul style="list-style-type: none"> Rule based DB e.g. SQL, NoSQL etc. Sensor Nodes Dashboards 	<ul style="list-style-type: none"> Task Centric ERP Deep Learning Libraries NLP based interactions BluePrism and similar RPA 	<ul style="list-style-type: none"> Multi-Purpose Proprietary AI Assistants like IBM Watson, Amazon Alexa, Microsoft Cortana, Google Home

Participants

- Dr. Rangaj Rao
- Dr. Srikarsh
- Office2022
- T. BALAJI
- SALAMBULGAN E (G...
- Mangl Kishwaha (Gue...
- NAGH/P A (ambdend...
- Ushra (Guest)
- ANUP CHAWAN (Guest)

DS CR SK O TS

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ACTE-ISTE Sponsored 6 Days Free Online Induction Program on IOT in Manufacturing from 15th - 21th April 2021

3:32

Mechanical Parts Classification

S. Tulakhdar et al. 2020

Pérez-Crespo et al. 2019

Participants

- Dr. Rangaj Rao
- Dr. Srikarsh
- Office2022
- T. BALAJI
- SALAMBULGAN E (G...
- Mangl Kishwaha (Gue...
- NAGH/P A (ambdend...
- Ushra (Guest)
- ANUP CHAWAN (Guest)

DS CR SK O TB

Type here to search

01:07:42

Tool wear monitoring of a retrofitted CNC milling machine using artificial neural-networks
Hesser, D.F et al.

Supervised Learning
 Normalized Acceleration
 Compliance
 Size
 T-RMSE
 Standard Deviation
 Area

Artificial Neural Network
 Bias
 Support Vector Machine
 Gaussian Kernel
 K-Nearest Neighbor
 Average Similarity based label

Participants

01:07:42

01:21:08

Machine Learning Predictive Maintenance on Data in the Wild
Adrian Binding et al, 2019

TP - Operator Caught Fault
 FN - Missed Fault
 FP - Checked For But Not Occured
 TN - Not Checked Not Occured

		Actual	
		Fault Occurred	No Fault Occurred
Predicted	Checked for fault	TP	FP
	Not Checked Fault	FN	TN

Use Model with Higher AuC

Receiver Operating Characteristic

Participants

01:21:08

03:20:28

Machine Learning in Predictive Maintenance towards Sustainable Smart Manufacturing in Industry 4.0

Zeki Murat ÖZAR
 PhD Candidate at ODTÜ & Postdoctoral Fellow
 (Industrial and Manufacturing Engineering - Department)
 Manufacturing Design Co. - Research Group (Istanbul)
 Turkey

Predictive Maintenance Workflow

Connected Machines → Data Collection → Data Processing → Automated Maintenance


Zeki Murat Özar et al.

Participants

03:20:28

Day 4 Session 11

ACIE-ISTE Sponsored 6 Days Free Online Induction Program on IOT in Manufacturing from 15th - 21st April 2021



Industrial Internet of Things


Participants

- Ch. Ranjita Rao
- Dr. Subash Chandra
- PT
- T. BALAJI
- "V.V. Prabhakar (Guest)"
- "V.V. Lakshmi (Guest)"
- "D. K. Lenin (Guest)"
- "D. VINI BHASKAR (Guest)"
- "SAGHIL FA (Guest)"

08:54:33

Type here to search

ACIE-ISTE Sponsored 6 Days Free Online Induction Program on IOT in Manufacturing from 15th - 21st April 2021



Projects

Participants

- Ch. Ranjita Rao
- Dr. Subash Chandra
- PT
- T. BALAJI
- "V.V. Prabhakar (Guest)"
- "V.V. Lakshmi (Guest)"
- "D. K. Lenin (Guest)"
- "D. VINI BHASKAR (Guest)"
- "SAGHIL FA (Guest)"

09:17:26

Type here to search

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Internet of Things

The INTERNET of THINGS

- Anytime Anywhere
- Anytime Any Device
- Anytime Anybody
- Any Service Any Business
- Any Place Any Network

Participants

- Ch. Ranjita Rao
- Dr. Subash Chandra
- PT
- T. BALAJI
- "V.V. Prabhakar (Guest)"
- "V.V. Lakshmi (Guest)"
- "D. K. Lenin (Guest)"
- "D. VINI BHASKAR (Guest)"
- "SAGHIL FA (Guest)"

09:30:41

Type here to search

01:43:39

WCEI: ISE Sponsored 6 Days Free Online Induction Program on IOT in Manufacturing from 15th - 21th April 2021

Industrial Internet of Things (IIoT)

- Industrial Internet of Things or Industrial IoT that initially mainly referred to an industrial framework whereby a large number of devices or machines are connected and synchronized through the use of software tools and third platform technologies in a machine-to-machine and Internet of Things context, later an Industry 4.0 or Industrial Internet context.
- The Industrial Internet of Things or IIoT is defined as "machines, computers and people enabling intelligent industrial operations using advanced data analytics for transformational business outcomes".

Participants

Type a name

Share invite

Presenters (0)

Ch. Sangeeta

PT

Attendees (18)

T. BALAJI

"Vijayalakshmi (Guest)"

"Vijayalakshmi (Guest)"

"Vijayalakshmi (Guest)"

"Dr. K. Lenin (Guest)"

"Dr. VIN BHASKAR (Guest)"

"SANGEETA P A (unidentified)"

01:43:39

Type here to search

01:58:39

WCEI: ISE Sponsored 6 Days Free Online Induction Program on IOT in Manufacturing from 15th - 21th April 2021

IIoT Revolution

Industry 1.0	Industry 2.0	Industry 3.0	Industry 4.0
FIRST Industrial Revolution	SECOND Industrial Revolution	THIRD Industrial Revolution	FOURTH Industrial Revolution
Key Change: Introduction of Mechanical Production Equipment driven by Water and Steam Power	Key Change: Introduction of mass Manufacturing Production lines powered by Electric Energy	Key Change: Introduction of Electronics, PLC Devices, Robots and IT to automate Production	Key Change: Introduction of IoT and Cyber-Physical Systems driven by Augmented Reality & Real Time-Intelligence
18th Century Mechanical Loom	Wattage Electric Conveyor Belt	PLC Driven Robots	Augmented Reality Drives CRT
End of 18th Century	End of 19th Century	01st of 20th Century	Start of 21st Century

Level of Connectivity

Participants

Type a name

Share invite

Presenters (0)

Ch. Sangeeta

Dr. Sangeetha

PT

Attendees (18)

T. BALAJI

"Vijayalakshmi (Guest)"

"Vijayalakshmi (Guest)"

"Vijayalakshmi (Guest)"

"Dr. K. Lenin (Guest)"

"Dr. VIN BHASKAR (Guest)"

01:58:39

Type here to search

02:10:33

WCEI: ISE Sponsored 6 Days Free Online Induction Program on IOT in Manufacturing from 15th - 21th April 2021

Industrial Internet of Things

Consumer Internet of Things

Connectivity Data Analytics

Participants

Type a name

Share invite

Presenters (0)

Ch. Sangeeta

Dr. Sangeetha

PT

Attendees (18)

T. BALAJI

"Vijayalakshmi (Guest)"

"Vijayalakshmi (Guest)"

"Vijayalakshmi (Guest)"

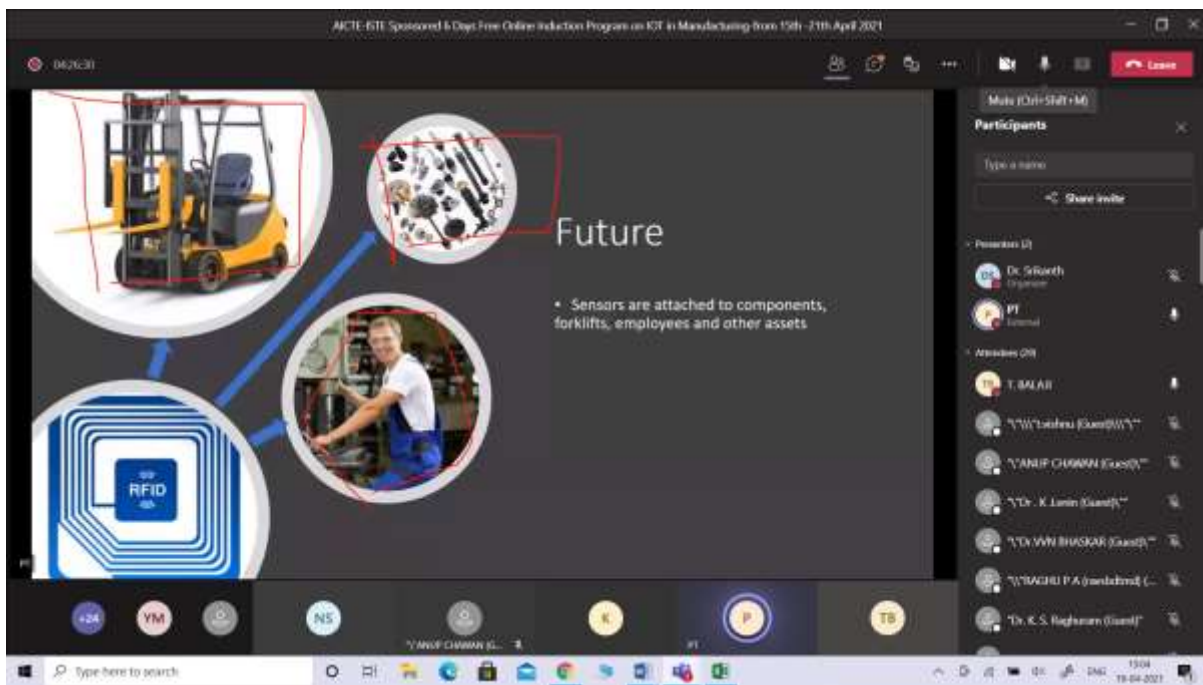
"Dr. K. Lenin (Guest)"

"Dr. VIN BHASKAR (Guest)"

"SANGEETA P A (unidentified)"

02:10:33

Type here to search

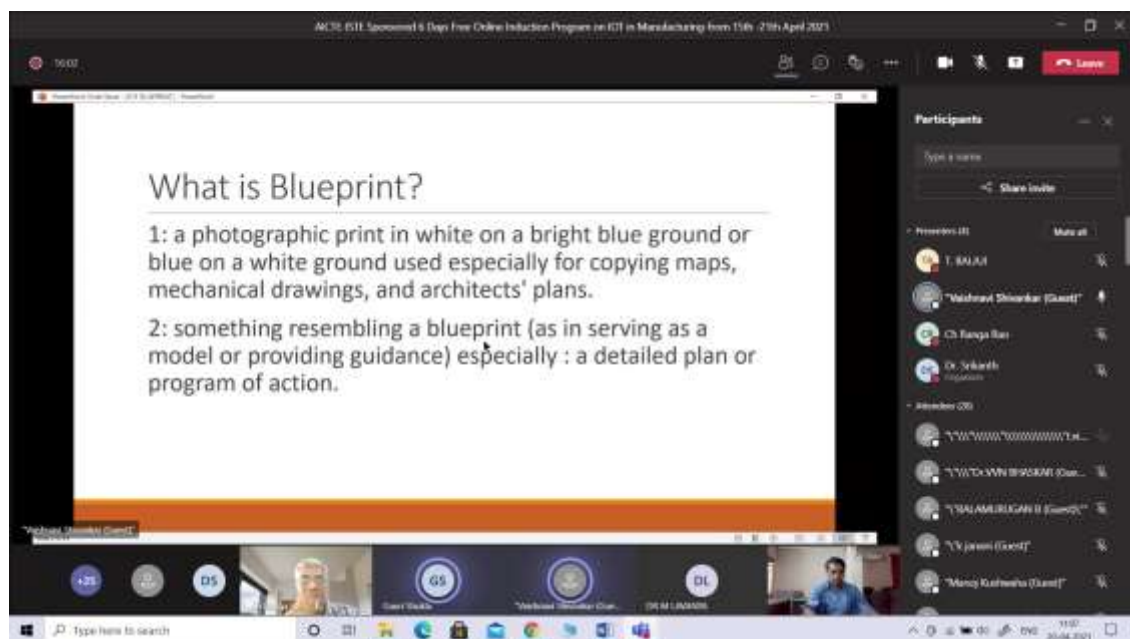
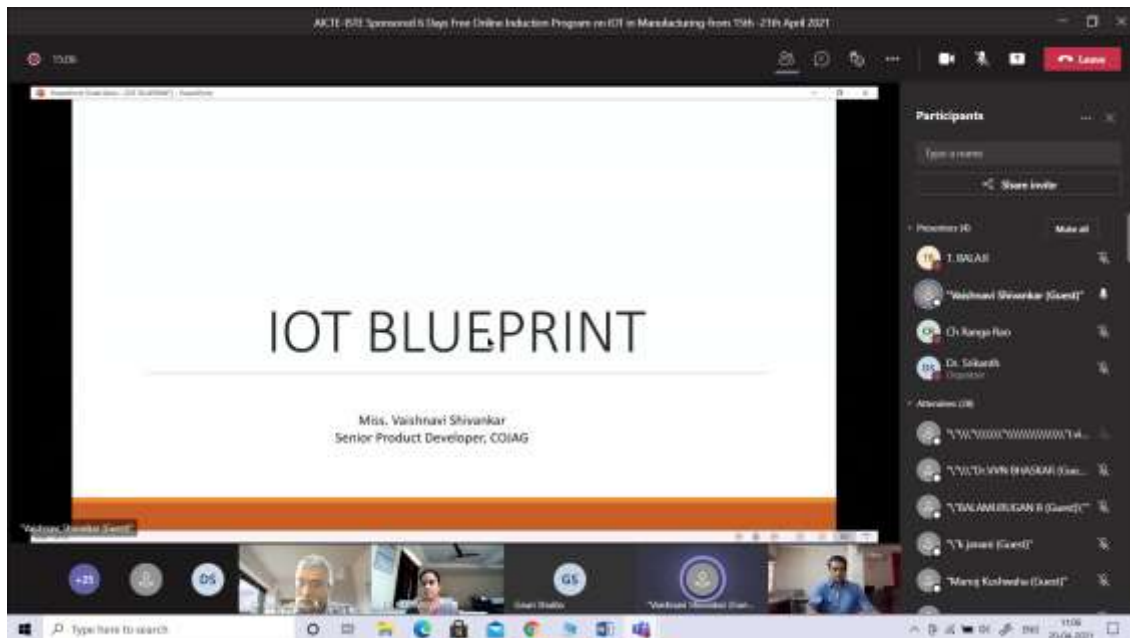


Day-5 20/04/2011

The session was started at 11 am. By Ms Vaishnavi Shivankar, Senior Product Development and Data Scientist, COJAG, Nagpur on the subject “IOT Blue Prints”. She has demonstrated IOT application in Smart home, hospitals and given live demonstration of how to do programming by using Arduino Board and Thinker CAD software and explained about the deployment of the program for the physical models and prototypes. The session was concluded at 1.30 pm.


The after noon session was started at 2.15 pm regarding Yoga Session by Physical Director Ms.Harathi, St.Martin’s Engineering College has given live demonstration on Yogo class and stress reliving techniques to the participants.

Day 5 Session 13



21:11

NETE-GTE Sponsored 6 Days Free Online Induction Program on IoT in Manufacturing from 15th - 21st April 2021



Smart house

Participants

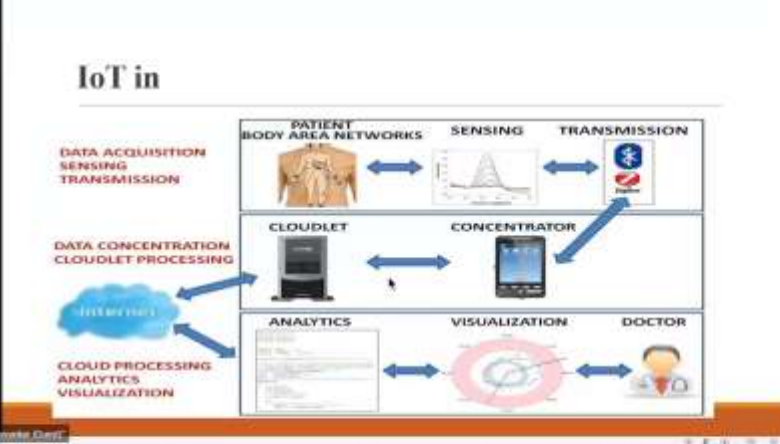
- Shahid Saad Prasad
- Shri C Gundraman
- SEBAL V
- YOHANMADHARAJ WDW
- GARA RAMESH
- R SWARNA BABU
- A RANITH
- K.SUNITHA
- K Archan
- T IWANMISI

21:12 20-04-2021

This screenshot shows a Zoom meeting window displaying a presentation slide titled "Smart house". The slide features a house icon with various IoT-related icons (lightbulb, smartphone, Wi-Fi, car, etc.) and a hand holding a smartphone. The Zoom interface includes a top bar with the meeting title and time, a bottom toolbar with icons for mute, video, chat, and other controls, and a right-hand sidebar with a list of participants.

21:11

NETE-GTE Sponsored 6 Days Free Online Induction Program on IoT in Manufacturing from 15th - 21st April 2021



IoT in

PATIENT BODY AREA NETWORKS

SENSING

TRANSMISSION

DATA ACQUISITION
SENSING
TRANSMISSION

CLOUDLET

CONCENTRATOR

DATA CONCENTRATION
CLOUDLET PROCESSING

CLOUD PROCESSING
ANALYTICS
VISUALIZATION

ANALYTICS

VISUALIZATION

DOCTOR

Participants

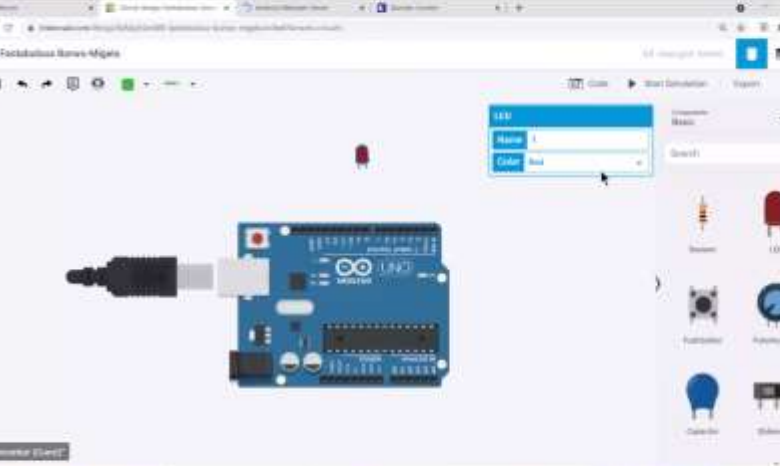
- SHRIKANTH PRAJESH
- S Pavan KAVAN
- Shahid Saad Prasad
- Shri C Gundraman
- SEBAL V
- T IWANMISI
- YOHANMADHARAJ WDW
- GARA RAMESH
- R SWARNA BABU
- A RANITH
- K.SUNITHA

21:14 20-04-2021

This screenshot shows a Zoom meeting window displaying a presentation slide titled "IoT in Patient Body Area Networks". The slide contains a flowchart illustrating the IoT architecture for patient care, from sensing and transmission to cloud processing and visualization for a doctor. The Zoom interface is similar to the first screenshot, showing the meeting title, time, and a list of participants.

21:11

NETE-GTE Sponsored 6 Days Free Online Induction Program on IoT in Manufacturing from 15th - 21st April 2021



Participants

- T. SALAJ
- "Madhavi Shivaraj (Guest)"
- Ch Ranga Rao
- D. Suresh
- "W*****W*****W*****"
- "W*****W*****W*****"
- "BALAMURUGAN R (Guest)"
- "S Janya (Guest)"
- Ty L Suresh Kumar CRT (Guest)

21:12 20-04-2021

This screenshot shows a Zoom meeting window displaying a presentation slide featuring an Arduino Uno board. The slide includes a small diagram of the board and a list of components. The Zoom interface shows the meeting title, time, and a list of participants.

01:44:51

ACTE-DTE Sponsored 6 Day Free Online Induction Program on IIT in Manufacturing from 19th - 27th April 2021

```

// Define pin numbers
const int trigger = 2;
const int sensorPin = 4;
// Define variables
long duration;
int state;

void setup() {
  pinMode(triggerPin, OUTPUT); // Trigger
  pinMode(sensorPin, INPUT); // Sensor
  digitalWrite(trigger, LOW); // Keep trigger LOW
  Serial.begin(9600); // Start serial communication
}

void loop() {
  digitalWrite(trigger, HIGH); // Trigger sensor
  delayMicroseconds(1000); // Delay 1000 microseconds
  digitalWrite(trigger, LOW); // Keep trigger LOW
  duration = pulseIn(sensorPin, HIGH, 2000); // Measure pulse width
  Serial.println(duration); // Print duration
}

```

Serial uses 256 bytes (94% of program storage space, Maximum is 32256 bytes).
Global variables use 276 bytes (94% of dynamic memory, leaving 184 bytes for local variables, Maximum is 2048 bytes).

Participants

Type a name

Share Invite

- Wishwan Shevkar (Guest)
- Ch Ranga Rao
- Dr. Subash (Organizer)
- Attendee 01
- Wishwan Shevkar (Guest)
- Vijay Vin Bhasam (Guest)
- MALAM RUGAN B (Guest)
- Arjun (Guest)
- Dr L Suresh Kumar OBE (Guest)
- SARATHA A (Guest)
- C KALSHR (Guest)

Type here to search

01:45:48

ACTE-DTE Sponsored 6 Day Free Online Induction Program on IIT in Manufacturing from 19th - 27th April 2021

Participants

Type a name

Share Invite

- Wishwan Shevkar (Guest)
- Ch Ranga Rao
- Dr. Subash (Organizer)
- Attendee 01
- Wishwan Shevkar (Guest)
- Vijay Vin Bhasam (Guest)
- MALAM RUGAN B (Guest)
- Arjun (Guest)
- Dr L Suresh Kumar OBE (Guest)
- SARATHA A (Guest)
- C KALSHR (Guest)

Type here to search

01:28:29

ACTE-DTE Sponsored 6 Day Free Online Induction Program on IIT in Manufacturing from 19th - 27th April 2021

NodeMCU

Participants

Type a name

Share Invite

- Wishwan Shevkar (Guest)
- Ch Ranga Rao
- Dr. Subash (Organizer)
- Attendee 01
- Wishwan Shevkar (Guest)
- Vijay Vin Bhasam (Guest)
- MALAM RUGAN B (Guest)
- Arjun (Guest)
- Dr L Suresh Kumar OBE (Guest)
- SARATHA A (Guest)
- C KALSHR (Guest)

Type here to search

ACFE - EIT Sponsored 6 Day Free Online Induction Program on EIT in Manufacturing from 25th - 30th April 2021

Zoom Meeting

IoT Architecture blueprint

Participants

- Type a name
- Share Invite
- Presenters (0)
- Attendees (20)

DEBAPATI SARKAR, Chiranjeev, Dr. Subash, Madhusudhan Ch...

Type here to search

Day 5 Session 14

ACFE - EIT Sponsored 6 Day Free Online Induction Program on EIT in Manufacturing from 25th - 30th April 2021

Zoom Meeting

Participants

- Type a name
- Share Invite
- Presenters (0)
- Attendees (20)

T. BALAJI, W. Yashu, Ch. Ranga Rao, Dr. Subash, Madhusudhan Ch...

Type here to search

ACFE - EIT Sponsored 6 Day Free Online Induction Program on EIT in Manufacturing from 25th - 30th April 2021

Zoom Meeting

Participants

- Type a name
- Share Invite
- Presenters (0)
- Attendees (20)

T. BALAJI, W. Yashu, PD, Ch. Ranga Rao, Dr. Subash, Madhusudhan Ch...

Type here to search



Day 6: 22/04/2021


The last day session was started at 11 am by Sri Sujit Sengupta, Founder, Geogo Technologies, Bangalore on the topic “ **IOT in manufacturing**” and explained about the various application of IOT in manufacturing and explain the importance of IOT and explain about IOT in cycle ride application case study and the session was concluded at 1.00 PM

Day 6 Session 16

AICTE-ISTE Sponsored 6 Days Free Online Induction Program on IOT in Manufacturing from 15th -21st April 2021

00:54:17

IoT in our Home – Smart Home



Participants

Type a name

< Share invite

Presenters (2) **Make all**

- Ch Ranga Rao
- Dr. Srikanth

Attendees (25)

- "RAGHU P A (webbitmd..."
- "Dr VVN Bhaskar (Guest)"
- "BALAMURUGAN B (Guest)"
- "Manoj KUSHWARA (Guest)"
- "P..."
- "S..."
- "C..."

00:54:17


22-04-2021

AICTE-ISTE Sponsored 6 Days Free Online Induction Program on IOT in Manufacturing from 15th -21st April 2021

01:07:28

5 Key Functions

- Data Ingestion
- Data Transmission
- Data Processing
- Data Visualization
- Data Analysis



How IoT Works

Participants

Type a name

< Share invite

Presenters (2) **Make all**

- Ch Ranga Rao
- Dr. Srikanth

Attendees (25)

- "RAGHU P A (webbitmd..."
- "Dr VVN Bhaskar (Guest)"
- "BALAMURUGAN B (Guest)"
- "Manoj KUSHWARA (Guest)"
- "BALANIVEL KADIDPC (Guest)"
- "C RAJESHK..."

01:07:28

22-04-2021

AICTE-ISTE Sponsored 6 Days Free Online Induction Program on IOT in Manufacturing from 15th -21st April 2021

01:20:56

5 Components of IoT Platform



Participants

Type a name

< Share invite

Presenters (2) **Make all**

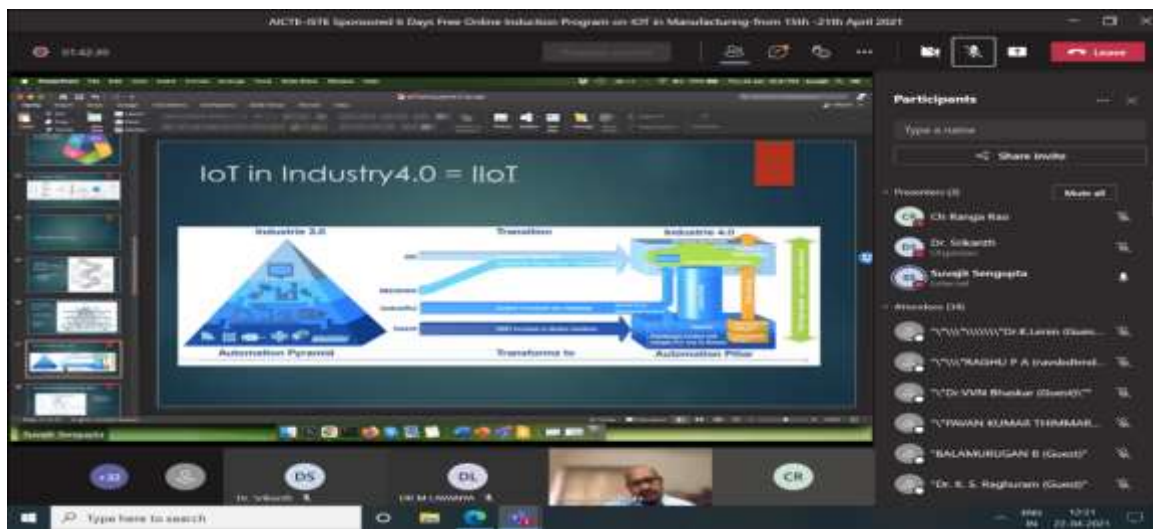
- Ch Ranga Rao
- Dr. Srikanth

Attendees (25)

- "RAGHU P A (webbitmd..."
- "Dr VVN Bhaskar (Guest)"
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- "Manoj KUSHWARA (Guest)"
- "BALANIVEL KADIDPC (Guest)"
- "C RAJESHK..."

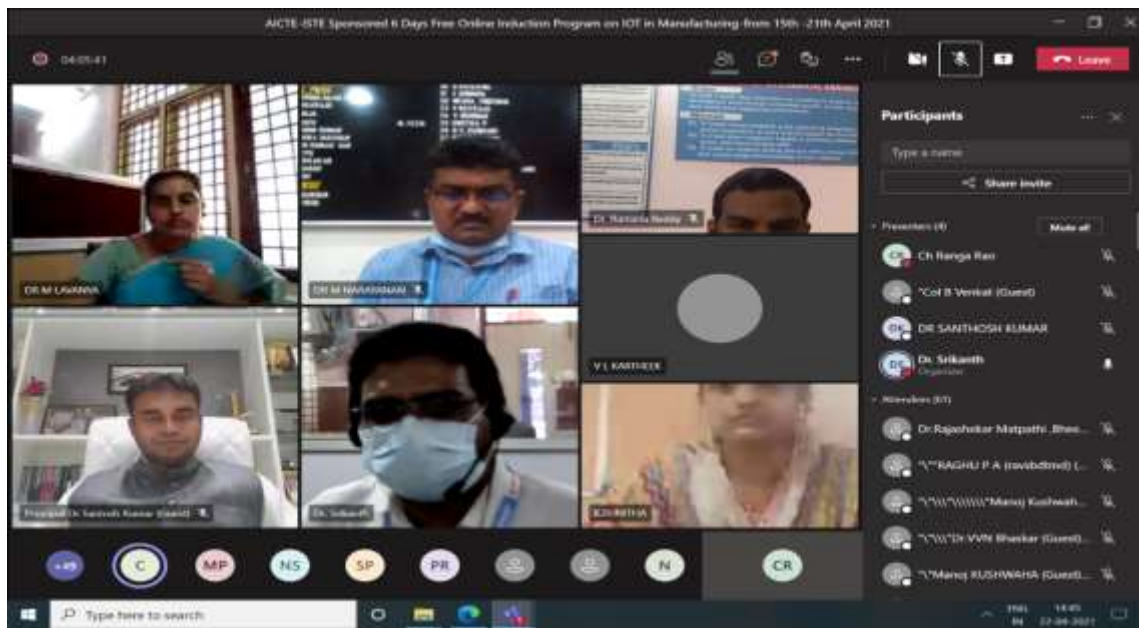
01:20:56

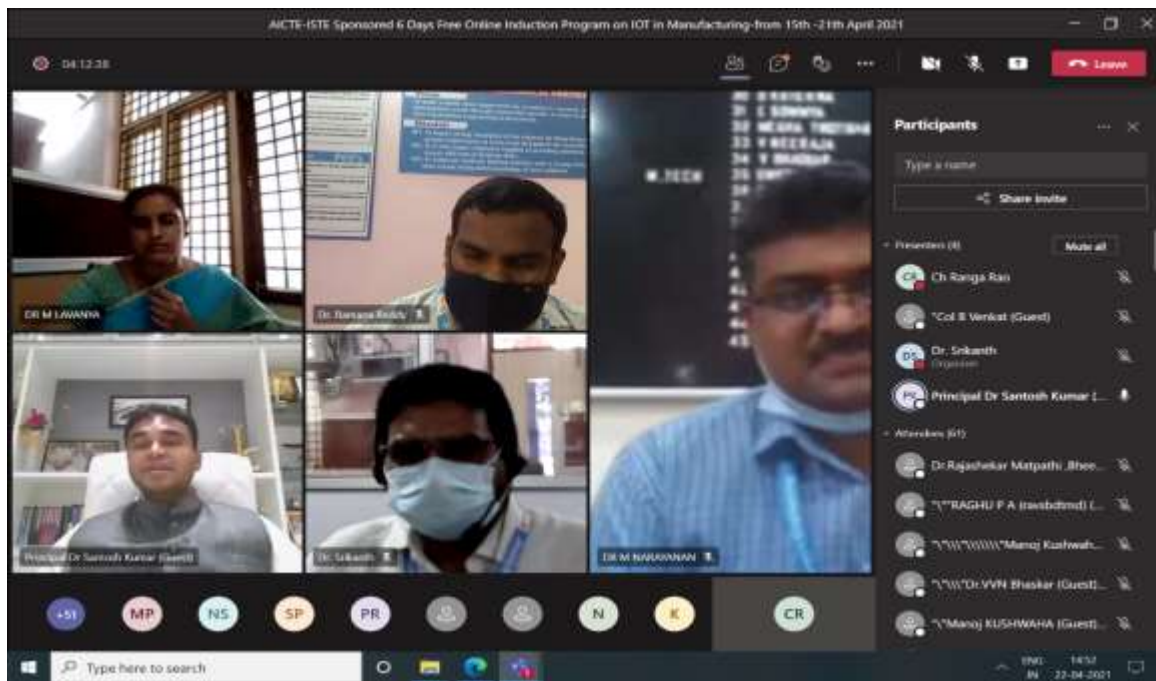
22-04-2021



Valedictory of the Induction Program

The valedictory function was started at 2.30pm. The Chief guest for the valedictory function was Col. C Venkat, AICTE. In the valedictory function the convener of the event Dr. D V Srikant has explained about the IIoT in manufacturing and this workshop is useful to the faculty and explained about the outcome of this course which can be translated into their projects in college and curriculum development of latest advances in manufacturing. The President of the event Dr. Santosh Kumar Patra, Principal, St. Martin's Engineering College has given concluding remarks of the session. Col. Venkat has addressed the gathering the importance of induction programs and how AICTE and ISTE collaborated the various activities and procedures has explained. Col. Venkat appreciated Principal Sir for his interest towards conducting such events. He also praised Principal for taking intense care in selecting the speakers for this induction program. Finally, the vote of thanks is given by Dr. Lavanya thanking the Management of St. Martin's Engineering College, AICTE and ISTE for their constant support and thank all the speakers which are given their valuable insights and experiences to the participants. After that final examination was conducted to assess the course work from the participants.





Report prepared by: Ch. Ranga Rao

Content verified by English Staff Name & Signature:

Softcopy along with photos forwarded for website: YES

Any remark / suggestion:

Sign of Organizing Faculty

Sign of HOD

Approved by Principal