Certification Course

On

Internet of Things - Its Applications

Coordinator: Smt.Saleha Tabassum

Date(s) of Event : 24/05/2021- 15/06/2021

Organizing department:

Electrical and Electronics Engineering

K.S.R.M.COLLEGE OF ENGINEERING

(UGC-AUTONOMOUS)
Kadapa, Andhra Pradesh, India–516 005
Approved by AICTE, New Delhi &Affiliated to JNTUA, Ananthapuram

Cr./KSRMCE/(Department of EEE)/2020-2021 Date: 10/05/2021

To

The Principal,

KSRM College of Engineering,

Kadapa.

Respected Sir

Sub: KSRMCE-(Department of EEE) permission to conduct certification course on "Internet of Things - Its Applications"-Request-Reg.

It is brought to your kind notice that, with reference to the cited, the EEE department is planning to conduct Certification Course on" Internet of Things - Its Applications" for B.Tech VI Sem from 24/05/2021- 15/06/2021. In this regard I kindly request you to grant permission to conduct the certification course. This is submitted for your kind perusal.

Thanking you sir,

Yours Faithfully

Smt.SalehaTabassum
Asst.Prof,Dept.EEE
KSRMCE,Kadapa.

Forwarded to principal sir

HEAD
Department of Electrical & Electronics Engineering
K.S.R.M. College of Engineering
Cuddapah - 516 003

To the Director for Information
To All Deans/HoD's/IQAC

Permitted

V. PRINCIPAL
K.S.R.M. COLLEGE OF ENGINEERING
KADAPA - 516 003. (A.P.)

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lives on..

Cr./KSRMCE/(Department of EEE)/2020-2021

Date: 11/05/2021

Circular

All the B.Tech VI Sem EEE students are here by informed that department of EEE is going to conduct certificate course on" Internet of Things - Its Applications" interested students may register their names on or before 22 May ,2021 before 5 Pm.

For any queries contact faculty coordinator :

Smt.Saleha Tabassum ,Asst.Prof,Dept.EEE, KSRMCE, Kadapa.

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Department of Electrical and Electronics Engineering

Certification Course on "Internet of Things - Its Applications"

List of Participants

S.No	Roll Number	Name of the Student	E-Mail Id
1	189Y1A0205	**CHALLA MANASA (W)**	189Y1A0205@ksrmce.ac.in
2	189Y1A0206	CHALLA SHIVA TEJA REDDY (W)	189Y1A0206@ksrmce.ac.in
3	189Y1A0207	**CHEVULA SAMPATH KUMAR**	189Y1A0207@ksrmce.ac.in
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7	189Y1A0211	GURAIAHGARI PAVAN KALYAN	189Y1A0211@ksrmce.ac.in
8	189Y1A0212	HASANAPURAMCHARANPRAKASH	189Y1A0212@ksrmce.ac.in
9	189Y1A0213	ILLURI MARINA (w)	189Y1A0213@ksrmce.ac.in
10	189Y1A0214	JANDYALA NAGA BHASKAR	189Y1A0214@ksrmce.ac.in
11	189Y1A0215	**KADIRI PARAMESWAR REDDY**	189Y1A0215@ksrmce.ac.in
12	189Y1A0216	**KALISETTY SURENDRA MARUTHI**	189Y1A0216@ksrmce.ac.in
13	189Y1A0217	KAMISETTY VAMSI	189Y1A0217@ksrmce.ac.in
14	189Y1A0218	KANIKE SRINIVASULU	189Y1A0218@ksrmce.ac.in
15	189Y1A0219	KARNATI SAI SIVANANDA REDDY	189Y1A0219@ksrmce.ac.in
16	189Y1A0220	**KOKKANTI ROHITH**	189Y1A0220@ksrmce.ac.in
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Coordinator

HOD

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Syllabus

Internet of Things - Its Applications

Sl. No.	Topic	Hours
		Theory
Module 1	*Introduction to Internet of Things, Characteristics of IoT Physical design of IoT,*	08
Module 2	*Functional blocks of IoT, Sensing, Actuation, Basics of Networking*	08
Module 3	Applications of rasberri pi	08
Module 4	Applications of Aurdino ,SDN for IoT, Data Handling and Analytics, **Iot for audino -programming**	08

Text Books:

1. "The Internet 'of Things: Enabling Technologies, Platforms, and Use Cases", by Pethuru Raj and Anupama C. Raman (CRC Press)
2. Make sensors. Terokarvinen, kemo, karvinen and villey valtokari, 1st edition, maker media, 2014
3. "Internet of Things: A Hands-on Approach", by Arshdeep Bahga and Vijay Madisetti

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Department of Electrical and Electronics Engineering

Certification Course on "Internet of Things - Its Applications"

Schedule

Timing: 4:00pm – 6:00pm

S.No	Date	Resource Person	Topic Covered
1	24/05/2021	Sri N.Siddhik	*Introduction to Internet of Things,*
2	25/05/2021	Sri N.Siddhik	*Characteristics of IoT*
3	26/05/2021	Sri N.Siddhik	Physical design of IoT,
4	27/05/2021	Sri N.Siddhik	Functional blocks of IoT,
5	29/05/2021	Sri N.Siddhik	Sensing, Actuation, ,
6	31/05/2021	Sri N.Siddhik	Basics of Networking
7	01/06/2021	Sri N.Siddhik	Communication Protocols
8	02/06/2021	Sri N.Siddhik	Sensor Networks
9	03/06/2021	Sri N.Siddhik	Implementation of IoT with Raspberry Pi,
10	04/06/2021	Sri N.Siddhik	Applications of rasberri pi
11	07/06/2021	Sri N.Siddhik	Applications of Aurdino
12	08/06/2021	Sri N.Siddhik	SDN for IoT
13	09/06/2021	Sri N.Siddhik	Data Handling and Analytics
14	10/06/2021	Sri N.Siddhik	Iot for audino -programming
15	11/06/2021	Sri N.Siddhik	Hands on practice
16	14/06/2021	Sri N.Siddhik	Mini project on Distance tracking of an object
17	15/06/2021	Sri N.Siddhik	Mini project on Automatic door lock system

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Department of Electrical and Electronics Engineering

Activity Report

Name of the Event	: Certification Course on Internet of Things - Its Applications
Date of the Event	: 24/05/2021- 15/06/2021
Scheduled Time	: 4.00 to 6.00PM
Target Audience	: B.Tech VI Sem Students
Student Co-ordinator	: P.Priyanka, S.Nazeer Basha, VI sem EEE
Venue of the Event	: online (https://meet.google.com/lookup/d3lplbck4s)

Activity Description:

Department of EEE organised a certification course on Internet of Things - Its Applications for VI sem EEE Students. Sir has given excellent presentation on Iot and their applications .Students has done various mini project models. With support of head of the department and students the courses have been completed successfully.

Coordinator

HOD

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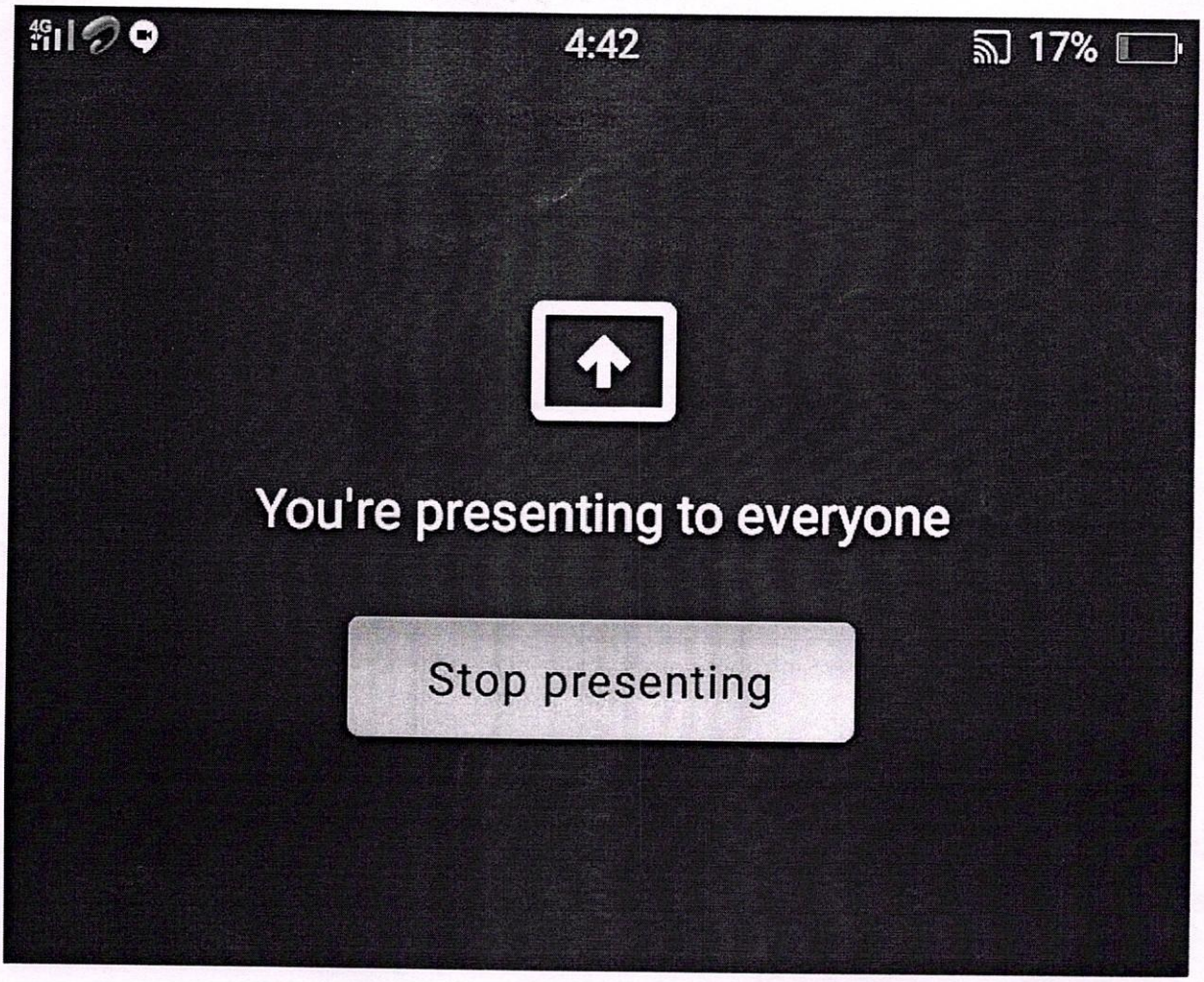
Cuddapah - 516 003

Principal

PRINCIPAL
K.S.R.M. COLLEGE OF ENGINEERING
KADAPA - 516 003. (A.P.)



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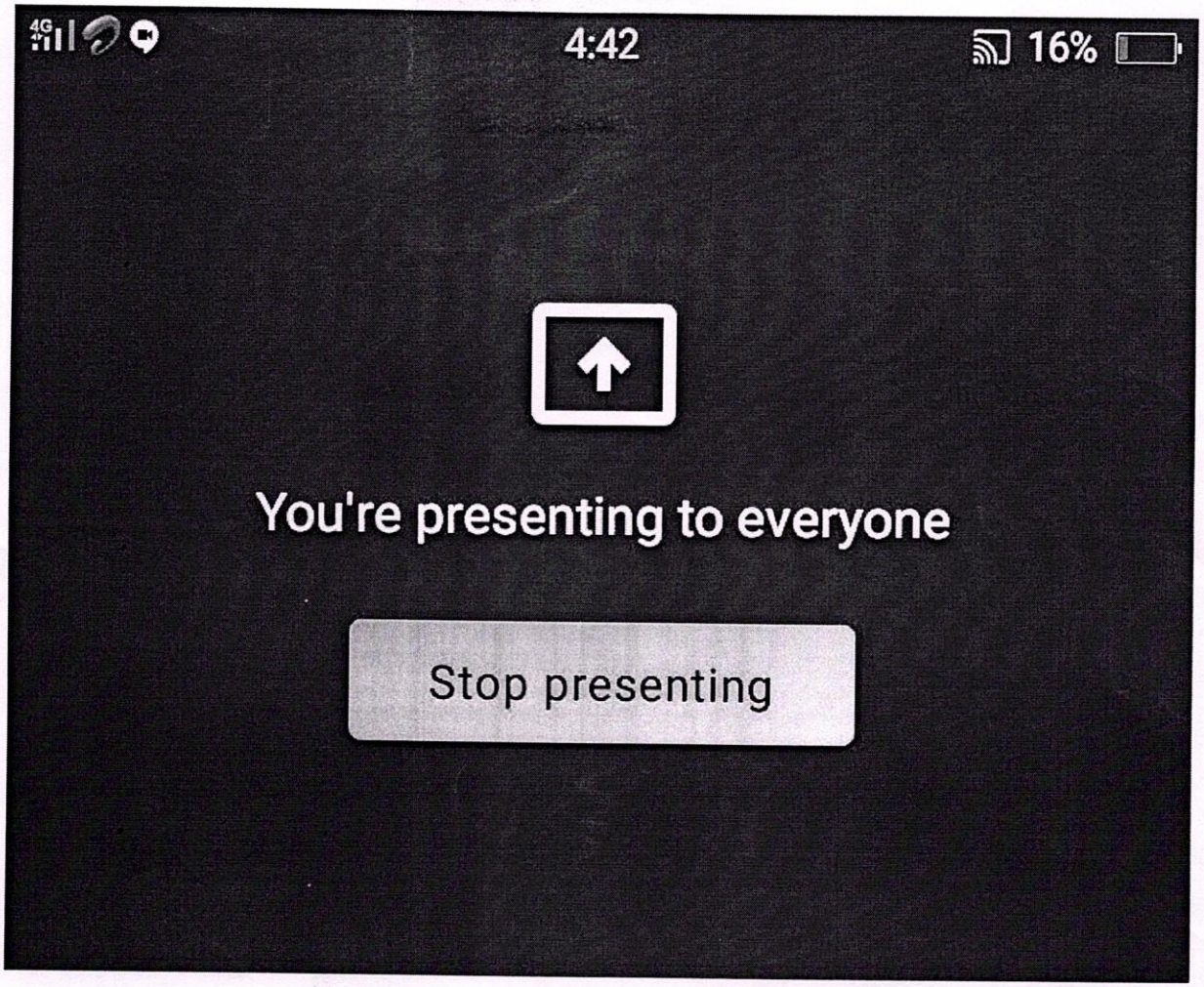
I89YIAO226 Hemanth

I89YIAO227 SUMANTH...

I89YIAO229- M. Akanksha

I89YIAO234 - N. ARUNA



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I89YIAO239 Upendra >

I89YIAO241- S.Keerthi >

I89YIAO243 S AISHA >

I89YIAO244 s.khaleefa >

I89YIAO246 SHAIK Nazee... >

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Kadapa, Andhra Pradesh, India - 516003

Certificate Course on

INTERNET OF THINGS AND ITS APPLICATIONS

24/05/2021- 15/06/2021

Organized by

DEPARTMENT OF

ELECTRICAL AND ELECTRONICS ENGINEERING

K.S.R.M COLLEGE OF ENGINEERING

(UGC-AUTONOMOUS)

Kadapa.Andhra Pradesh.India-516 005

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Department of Electrical and Electronics Engineering

Certification Course on Internet of Things - Its Applications

Attendance Sheet

S.No	Roll List	Name of the Student	24/5	28/5	26/5	27/5	29/5	31/5	4/6	2/6	3/6	4/6	7/6	8/6	9/6	10/6	11/6	14/6	15/6
1	189Y1A0205	**CHALLA MANASA (W)**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	—	✓	✓	✓	A	✓
2	189Y1A0206	CHALLA SHIVA TEJA REDDY (W)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	A	✓	✓	✓
3	189Y1A0207	**CHEVULA SAMPATH KUMAR**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
4	189Y1A0208	DANDU BALA SAI	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	A	✓	✓	✓	✓	✓
5	189Y1A0209	**GANGAVARAMGANESHKUMARREDDY**	✓	✓	✓	✓	✓	✓	✓	A	✓	✓	✓	✓	✓	✓	✓	✓	✓
6	189Y1A0210	GUBILI NAVEEN KUMAR	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
7	189Y1A0211	GURAIAHGARI PAVAN KALYAN	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
8	189Y1A0212	HASANAPURAMCHARANPRAKASH	A	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	A
9	189Y1A0213	ILLURI MARINA (w)	✓	✓	✓	✓	✓	✓	A	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
10	189Y1A0214	JANDYALA NAGA BHASKAR	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
11	189Y1A0215	**KADIRI PARAMESWAR REDDY**	✓	✓	✓	✓	✓	✓	✓	✓	✓	A	✓	✓	✓	✓	✓	✓	✓
12	189Y1A0216	**KALISETTY SURENDRA MARUTHI**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	A	✓	✓
13	189Y1A0217	KAMISETTY VAMSI	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
14	189Y1A0218	KANIKE SRINIVASULU	✓	✓	✓	✓	✓	A	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
15	189Y1A0219	KARNATI SAI SIVANANDA REDDY	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

16	189Y1A0220	**KOKKANTI ROHITH**						A												A
17	189Y1A0221	KOMMA PEDDI REDDY																		
18	189Y1A0222	KONANAVANI (W)												A						
19	189Y1A0223	**KONDA SREENIVASA RAO**						A												
20	189Y1A0224	KONDREDDY MANJU BHARGAVI (W)																		
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26	189Y1A0230	MANNU KUMAR		A							A									
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52	199Y5A0205	KALAMALLA KALANDAR																	

Coordinator

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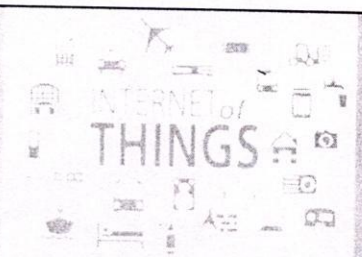


Internet of Things (IoT)

Plan of Presentation

- What is Internet of Things?
- How IoT Works?
- Current Status & Future Prospect of IoT
- Knowledge Management – From Data to Wisdom
- The Future of IoT
- The Potential of IoT
- Few Applications of IoT
- Technological Challenges of IoT
- Criticisms & Controversies of IoT
- References

What is IoT?

The Internet of Things (IoT) is the network of physical objects or "things" embedded with electronics, software, sensors, and network connectivity, which enables these objects to collect and exchange data.

IoT allows objects to be sensed and controlled remotely across existing network infrastructure, creating opportunities for more direct integration between the physical world and computer-based systems, and resulting in improved efficiency, accuracy and economic benefit.

"**Things**," in the IoT sense, can refer to a wide variety of devices such as heart monitoring implants, biochip transponders on farm animals, electric clams in coastal waters, automobiles with built-in sensors, DNA analysis devices for environmental/food/pathogen monitoring or field operation devices that assist fire-fighters in search and rescue operations.

These devices collect useful data with the help of various existing technologies and then autonomously flow the data between other devices.

History of IoT

The concept of the Internet of Things first became popular in 1999, through the Auto-ID Center at MIT and related market-analysis publications. R

Radio-frequency identification (RFID) was seen as a prerequisite for the IoT at that point. If all objects and people in daily life were equipped with identifiers, computers could manage and inventory them. Besides using RFID, the tagging of things may be achieved through such technologies as near field communication, barcodes, QR codes, bluetooth, and digital watermarking.

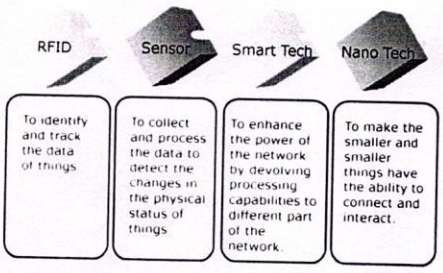
How IoT Works?

Internet of Things is not the result of a single novel technology; instead, several complementary technical developments provide capabilities that taken together help to bridge the gap between the virtual and physical world.

These capabilities include:

- ***Communication and cooperation***
- ***Addressability***
- ***Identification***
- ***Sensing***
- ***Actuation***
- ***Embedded information processing***
- ***Localization***
- ***User interfaces***

How IoT Works?



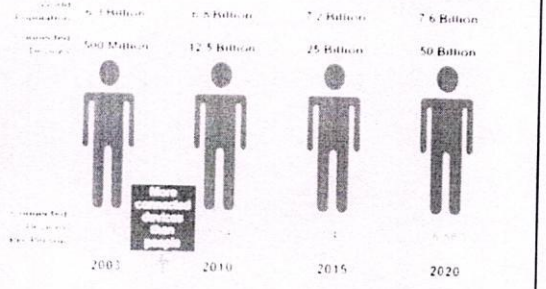
The Structure of IoT

The IoT can be viewed as a gigantic network consisting of networks of devices and computers connected through a series of intermediate technologies where numerous technologies like RFIDs, wireless connections may act as enablers of this connectivity.

- ***Tagging Things :*** Real-time item traceability and addressability by ***RFIDs***.
- ***Feeling Things : Sensors*** act as primary devices to collect data from the environment.
- ***Shrinking Things :*** Miniaturization and ***Nanotechnology*** has provoked the ability of smaller things to interact and connect within the "things" or "smart devices."
- ***Thinking Things : Embedded intelligence*** in devices through sensors has formed the network connection to the Internet. It can make the "things" realizing the intelligent control.

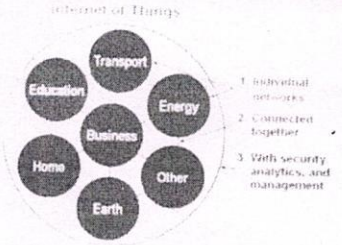
8

Current Status & Future Prospect of IoT



"Change is the only thing permanent in this world"

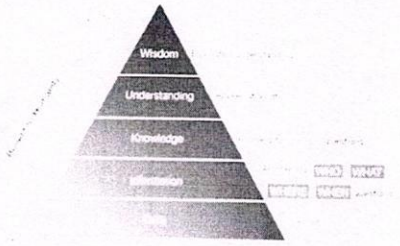
IoT as a Network of Networks:



These networks connected with added security, analytics, and management capabilities. This will allow IoT to become even more powerful in what it can help people achieve.

10

Knowledge Management – Turning Data into Wisdom

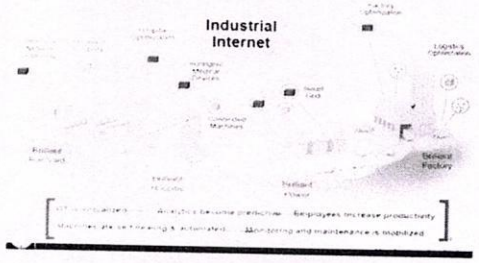


The more data that is created, the better understanding and wisdom people can obtain.

11

The Future of IoT

What happens when 50B Machines become connected?



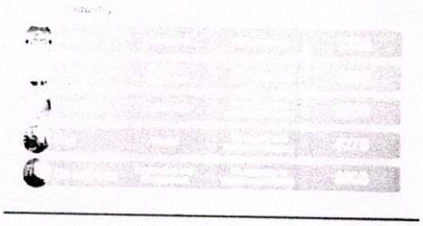
"The Sky's not the limit. It's only the beginning with IoT."

12

The Potential of IoT

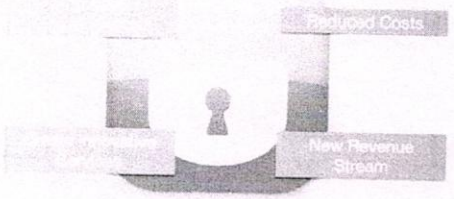
Value of Industrial Internet is huge

Connected machines and data could eliminate up to [illegible] waste across industries



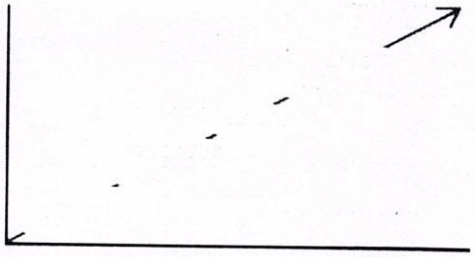
GE's estimates on potential of just ONE percent savings applied using IoT across global industry sectors.

Unlock the Massive potential of IoT

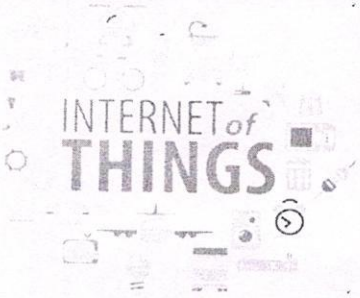


Technology roadmap of IoT

Technology roadmap: The Internet of Things



Applications of IoT



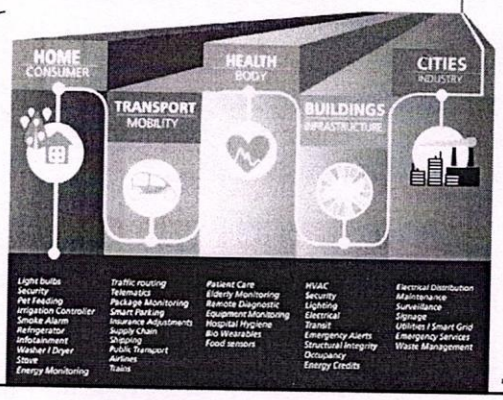
"The Ultimate Goal of IOT is to Automate Human Life."

Few Applications of IoT

- ✓ Building and Home automation
- ✓ Manufacturing
- ✓ Medical and Healthcare systems
- ✓ Media
- ✓ Environmental monitoring
- ✓ Infrastructure management
- ✓ Energy management
- ✓ Transportation
- ✓ Better quality of life for elderly
- ✓ ... ...

You name it, and you will have it in IoT!

TO ➡ DIVERSE APPLICATIONS



Of course, we know nothing remains static, especially when it comes to the Internet. Initiatives and advances, such as Cisco's Planetary Skin, GE's Industrial Internet, HP's central nervous system for the earth (CeNSE), and smart dust, have the potential to add millions—even billions—of sensors to the Internet.

As cows, water pipes, people, and even shoes, trees, and animals become connected to IoT, the world has the potential to become a better place.

"With a trillion sensors embedded in the environment—all connected by computing systems, software, and services—it will be possible to hear the heartbeat of the Earth, impacting human interaction with the globe as profoundly as the Internet has revolutionized communication" – Peter Hartwell, Senior Researcher, HP Labs.

"How much more IoT can do is only left to your imagination"

Internet of Things is the next stage of the information revolution and referenced the inter-connectivity of everything from urban transport to medical devices to household appliances.

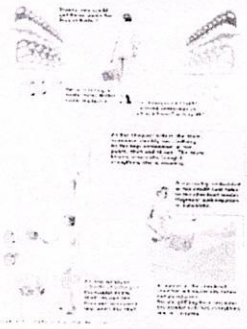
Integration with the Internet implies that devices will use an IP address as a unique identifier. However, due to the limited address space of IPv4 (which allows for 4.3 billion unique addresses), objects in the IoT will have to use IPv6 to accommodate the extremely large address space required.

Objects in the IoT will not only be devices with sensory capabilities, but also provide actuation capabilities (e.g., bulbs or locks controlled over the Internet).

On the other hand, IoT systems could also be responsible for performing actions, not just sensing things. Intelligent shopping systems, for example, could monitor specific users' purchasing habits in a store by tracking their specific mobile phones. These users could then be provided with special offers on their favourite products, or even location of items that they need, which their fridge has automatically conveyed to the phone.

Additional examples of sensing and actuating are reflected in applications that deal with heat, electricity and energy management, as well as cruise-assisting transportation systems. Other applications that the Internet of Things can provide is enabling extended home security features and home automation.

IOT Application Scenario - Shopping

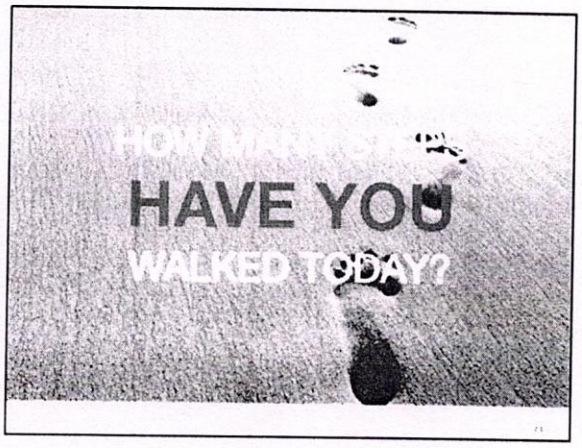


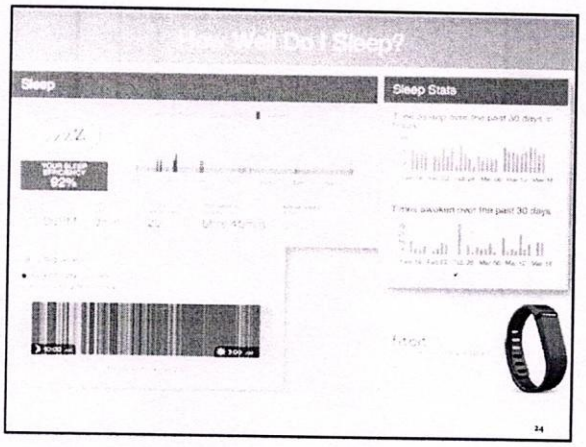
(2) When shopping in the market, the goods will introduce themselves.

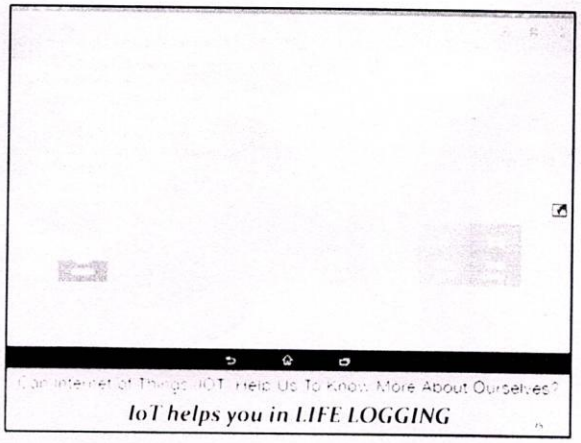
(1) When entering the doors, scanners will identify the tags on her clothing.

(4) When paying for the goods, the microchip of the credit card will communicate with checkout reader.

(3) When moving the goods, the reader will tell the staff to put a new one.







IoT helps you in LIFE LOGGING

TECHNOLOGICAL CHALLENGES OF IoT

At present IoT is faced with many challenges, such as:

- Scalability
- Technological Standardization
- Inter operability
- Discovery
- Software complexity
- Data volumes and interpretation
- Power Supply
- Interaction and short range communication
- Wireless communication
- Fault tolerance

Criticisms and Controversies of IoT

Scholars and social observers and pessimists have doubts about the promises of the ubiquitous computing revolution, in the areas as:

- Privacy
- Security
- Autonomy and Control
- Social control
- Political manipulation
- Design
- Environmental impact
- Influences human moral decision making

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2. https://en.wikipedia.org/wiki/Internet_of_Things
3. Cisco whitepaper, "The Internet of Things" - How the Next Evolution of the Internet Is Changing Everything, by Dave Evans, April 2011.
4. GE cloud expo 2014, "Industrial Internet as a Service", by Shyam Varan Nath, Principal Architect.
5. Dr. Mazlan Abbas, MIMOS Berhad, Wisma IEM, Petaling Jaya

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Electrical & Electronics Engineering

Coordinator	Head Of Department	Principal

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12	189Y1A0216	KALISETTY SURENDRA MARUTHI	Agree	Yes	Agree	4	5	Nil
13	189Y1A0217	KAMISETTY VAMSI	Agree	Yes	Agree	5	4	Nil
14	189Y1A0218	KANIKE SRINIVASULU	Agree	Yes	Agree	4	5	Nil

15	189Y1A0219	KARNATI SAI SIVANANDA REDDY	Agree	Yes	Agree	4	5	Nil
16	189Y1A0220	KOKKANTI ROHITH	Agree	Yes	Agree	5	4	Nil
17	189Y1A0221	KOMMA PEDDI REDDY	Agree	Yes	Agree	4	5	Nil
18	189Y1A0222	KONANAVANI (W)	Agree	Yes	Agree	5	4	Nil
19	189Y1A0223	KONDA SREENIVASA RAO	Agree	Yes	Agree	4	5	Nil
20	189Y1A0224	KONDREDDY MANJU BHARGAVI (W)	Agree	Yes	Agree	5	4	Nil
21	189Y1A0225	KORAPALA VEERA CHANDRA LIKHITA (W)	Agree	Yes	Agree	4	5	Nil
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27	189Y1A0231	MIMME SREENATH	Agree	Yes	Agree	4	5	Nil
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35	189Y1A0239	RAVULA UPENDRA	Agree	Yes	Agree	4	5	Nil
36	189Y1A0241	SAMBU KEERTHI (W)	Agree	Yes	Agree	5	4	Nil
37	189Y1A0242	SANIVARAPURA MAKRISHNAREDDY	Agree	Yes	Agree	4	5	Nil

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39	189Y1A0244	SHAIK KHALEEFA	Agree	Yes	Agree	4	5	Nil
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41	189Y1A0246	SHAIK NAZEER BASHA	Agree	Yes	Agree	4	5	Nil
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51	199Y5A0204	GUNDI NAGANNA	Agree	Yes	Agree	5	4	Nil
52	199Y5A0205	KALAMALLA KALANDAR	Agree	Yes	Agree	4	5	Nil

Coordinator

HOD

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