

**KANDULA SRINIVASA REDDY MEMORIAL COLLEGE OF ENGINEERING
(AUTONOMOUS)**

KADAPA-516003. AP

(Approved by AICTE, Affiliated to JNTUA, Ananthapuramu, Accredited by NAAC)

(An ISO 9001-2008 Certified Institution)

DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING



**CERTIFICATION COURSE
ON
“INTERNET OF THINGS”**

Resource Person : 1. Mrs. R.L. Pravallika, Assistant Professor, Dept. of CSE, KSRMCE

2. Miss. T. Anitha, Assistant Professor, Dept. of CSE, KSRMCE

Course Coordinator: Mr. N.J.Pramod Dhinakar , Assistant Professor, Dept. of CSE, KSRMCE

Duration: 30/12/2019 to 23/01/2020



K.S.R.M. COLLEGE OF ENGINEERING

(UGC - AUTONOMOUS)

Kadapa, Andhra Pradesh, India - 516003

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An ISO 14001:2004 & 9001: 2015 Certified Institution

Lr./KSRMCE/ (Department of CSE)/2019-20

Date: 23/12/2019

To
The Principal
KSRM College of Engineering
Kadapa, AP.

Sub: KSRMCE - (Department of CSE) – Permission to conduct certification course on Internet of Things- Requested – reg.

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Respected Sir,

With reference to the cited, the Department of CSE is planning to conduct certificate course on “**Internet of Things**” for B.Tech students from 30/12/2019 to 23/01/2020. So I request you to grant permission to conduct the certificate course. This is submitted for your kind perusal.

Thanking you sir,

Yours Faithfully,

Coordinator,

N.J. Pramod Dhinakar,

Assistant Professor,

CSE Dept.,

Forwarded to the Principal Sir,
[Signature]

Cc:

To The Director for Information

To All Deans/HODs

Permitted
U.S.S. Mm/15



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Dated: 24/12/2019

Circular

All the B.Tech students are here by informed that department of Computer Science & Engineering is going to organize certification course on “**Internet of Things**” from 30/12/2019 to 23/01/2020. Interested students do register their names with the below mentioned coordinator on or before 27/12/2019, 5PM.


For any queries contact,

Coordinator

N. J. Pramod Dhinakar,

Assistant Professor,

CSE Dept.,



HoD

Dr. M. Sreenivasulu,

M. E., Ph. D.

Professor & HOD CSE

K. S. R. M. College of Engineering

K A D A P A - 516 003

Cc to:

The Management /Director / All Deans / All HODS/Staff / Students for information

The IQAC Cell for Documentation

K.S.R.M. COLLEGE OF ENGINEERING (UGC - AUTONOMOUS)



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Date:23/12/2019

Department of Computer Science & Engineering
Certificate Course on Internet of Things (30/12/2019 to 23/01/2020)
Registered Student List

S.No.	Roll Number	NAME OF THE STUDENT	Year & Branch	Signature

Coordinator

HoD

K.S.R.M. COLLEGE OF ENGINEERING

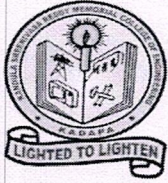
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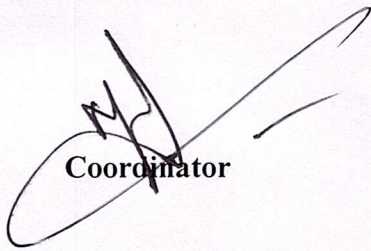
Date:23/12/2019


Department of Computer Science & Engineering
Certificate Course on Internet of Things (30/12/2019 to 23/01/2020)
Registered Student List

S.No.	Roll Number	NAME OF THE STUDENT	Year & Branch	Signature
1	169YIA0559	K. Nagesh	B.Tech VIII sem	K. Nagesh.
2	169YIA0556	K. Supraja	B.Tech VIII sem	K. Supraja.
3	169YIA0546	K. Narasimha	B.Tech VIII sem	Narasimha.
4	169YIA0515	C. Bappa Sree	B.Tech VIII sem	C. Bappa Sree.
5	179YIA0566	Kandaveera Harika	B.Tech 6th sem	Harika.
6	169YIA0532	G. Chandra	B.Tech VIII sem	Chandra.
7	169YIA0534	G. Krishna Kanth	B.Tech VIII sem	G. Krishna Kanth.
8	169YIA0509	B. Venkatesh	B.Tech VIII sem	Venkat.
9	169YIA0528	D. Jyashna	B.Tech VIII sem	Jyashna.
10	179YIA0540	D. Yasaswini	B.Tech VI sem	Yasaswini.
11	179YIA0564	K. Sasikala	B.Tech VI sem	Sasikala.
12	169YIA0563	M. Ajay Kumar	B.Tech VIII sem	M. Ajay Kumar.
13	179YIA0511	E. Abhishek Kumar Sainu	B.Tech VI sem	E. AK.
14	169YIA0502	A. Sreekanth	B.Tech VIII sem	Sreekanth.
15	169YIA0562	M. Srinivasulu	B.Tech VIII sem	Srinivasulu.

16	179Y1A0522	C. Lohith Kumar	B.Tech VI sem	179Y Lohith
17	179Y1A0524	C. Harsha Vardhan Reddy	6 th sem	C. Harsha
18	179Y1A0528	C.S. Mohammed alam	B.tech 6 th sem	alam
19	179Y1A0528	G. Harita	B.tech 6 th sem	Harita
20	179Y1A0549	G. Vinod Kumar	B.Tech 6 th sem	Vinod. Kumar,
21	179Y1A0560	K. Kavitha Reddy	VI sem	Ka
22	179Y1A0557	D. Yogesh	B.tech. 6 th sem	D. Yogesh
23	179Y1A0525	C. SRAVANI	VI sem	C. SRAVANI
24	179Y1A0551	C. Arkhila	B.tech. VI sem	Arkhila
25	179Y1A0553	G. Sai Sujitha Reddy	B.tech VI sem	SaiSujitha
26	179Y1A0561	K. Vaishitha Reddy	6 th sem	K. Vaishitha Reddy
27	179Y1A0522	G. Rajavardan Reddy	B.tech. VI sem	Rajava
28	179Y1A0523	chanda Harinadh Reddy	B.Tech VI Sem	Harinadh:
29	179Y1A0535	Dabbera. Sowmya	B.Tech VI sem	Sowmya
30	179Y1A0529	c. mohammed yafi	b.tech, 6 th sem	Rafi
31	179Y1A0538	D. Anusha	B.tech, 6 th sem	Anusha
32	179Y1A0543	D. Jyathena	B.tech, 6 th sem	D. Jyathena.
33	179Y1A0527	J. Haritha	B.tech 6 th sem	Jayitha.
34	179Y1A0526	C.V.S. Kowshiknath Reddy	6 th sem	C.V.S
35	179Y1A0527	chennu salmani	B.Tech, 6 th sem	chennu
36	179Y1A0547	G. Gudhesh chandras	B.Tech, 6 th sem	G. Gudhesh chandras
37	179Y1A0558	J. Sai Kumar	B.Tech 6 th sem	J. Sai Kumar.
38	179Y1A0562	K. Venkata saikumar	6 th sem	K
39	179Y1A0534	D. Yogya Vignesh	B.Tech. VI sem	D. Yogya Vignesh

40	17941A0520	B. Bhargathi	B.Tech V sem	B. Bhargathi
41				
42				


Coordinator


HoD
Dr. M. Sreenivasulu,
M. E., Ph. D.
Professor & HOD CSE
K.S.R.M. College of Engineering
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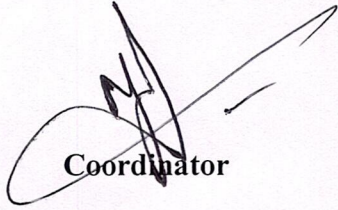


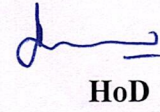
Date:24/12/2019

Department of Computer Science & Engineering
Certificate Course on Internet of Things (30/12/2019 to 23/01/2020)
Registered Student List

S.No.	Roll Number	NAME OF THE STUDENT	Year & Branch	Email id
1	179Y1A0520	Bosigari Bharathi	B.Tech VI Sem	179Y1A0520@ksrmce.ac.in
2	179Y1A0522	C.Lohith Kumar	B.Tech VI Sem	179Y1A0522@ksrmce.ac.in
3	179Y1A0523	Chanda Harinadh Reddy	B.Tech VI Sem	179Y1A0523@ksrmce.ac.in
4	179Y1A0524	Chappidi Harsha Vardhan Reddy	B.Tech VI Sem	179Y1A0524@ksrmce.ac.in
5	179Y1A0525	Chavva Sravani	B.Tech VI Sem	179Y1A0525@ksrmce.ac.in
6	179Y1A0526	C.V.S.Kowshiknath Reddy	B.Tech VI Sem	179Y1A0526@ksrmce.ac.in
7	179Y1A0527	Chenuru Brahmani	B.Tech VI Sem	179Y1A0527@ksrmce.ac.in
8	179Y1A0528	Cheppali Shaik Mahammed Aslam	B.Tech VI Sem	179Y1A0528@ksrmce.ac.in
9	179Y1A0529	Chilakala Mahammadrafi	B.Tech VI Sem	179Y1A0529@ksrmce.ac.in
10	179Y1A0531	Chinthala Akhila	B.Tech VI Sem	179Y1A0531@ksrmce.ac.in
11	179Y1A0533	Dabbera Sowmya	B.Tech VI Sem	179Y1A0533@ksrmce.ac.in
12	179Y1A0534	Daddanala Yogya Vignesh	B.Tech VI Sem	179Y1A0534@ksrmce.ac.in
13	179Y1A0537	D. Yogesh	B.Tech VI Sem	179Y1A0537@ksrmce.ac.in
14	179Y1A0538	D Anusha	B.Tech VI Sem	179Y1A0538@ksrmce.ac.in
15	179Y1A0540	D.Yasaswini	B.Tech VI Sem	179Y1A0540@ksrmce.ac.in
16	179Y1A0543	D. Jyothsna	B.Tech VI Sem	179Y1A0543@ksrmce.ac.in
17	179Y1A0544	E. Abhishek Kumar Sahu	B.Tech VI Sem	179Y1A0544@ksrmce.ac.in
18	179Y1A0547	G. Sudeesh Chandra Rao	B.Tech VI Sem	179Y1A0547@ksrmce.ac.in
19	179Y1A0548	G. Haritha	B.Tech VI Sem	179Y1A0548@ksrmce.ac.in
20	179Y1A0549	G. Vinod Kumar	B.Tech VI Sem	179Y1A0549@ksrmce.ac.in
21	179Y1A0552	G. Rajavardhan Reddy	B.Tech VI Sem	179Y1A0552@ksrmce.ac.in
22	179Y1A0553	G. Sai Sujitha Reddy	B.Tech VI Sem	179Y1A0553@ksrmce.ac.in
23	179Y1A0557	J. Haritha	B.Tech VI Sem	179Y1A0557@ksrmce.ac.in
24	179Y1A0558	J Sai Kumar	B.Tech VI Sem	179Y1A0558@ksrmce.ac.in
25	179Y1A0560	K Kavitha Reddy	B.Tech VI Sem	179Y1A0560@ksrmce.ac.in
26	179Y1A0561	K Varshitha Reddy	B.Tech VI Sem	179Y1A0561@ksrmce.ac.in
27	179Y1A0562	Kambham Venkata Sai Kumar Reddy	B.Tech VI Sem	179Y1A0562@ksrmce.ac.in
28	179Y1A0564	Kancharla Sasikala	B.Tech VI Sem	179Y1A0564@ksrmce.ac.in

29	179Y1A0566	Kanchaveerla Harika	B.Tech VI Sem	179Y1A0566@ksrmce.ac.in
30	169Y1A0502	A. Sreekanth	B.Tech VIII Sem	169Y1A0502@ksrmce.ac.in
31	169Y1A0509	B. Venkatesh	B.Tech VIII Sem	169Y1A0509@ksrmce.ac.in
32	169Y1A0515	C. Bagya Sree	B.Tech VIII Sem	169Y1A0515@ksrmce.ac.in
33	169Y1A0528	D. Jyoshna	B.Tech VIII Sem	169Y1A0528@ksrmce.ac.in
34	169Y1A0532	G. Upendra	B.Tech VIII Sem	169Y1A0532@ksrmce.ac.in
35	169Y1A0534	G. Krishna Kanth	B.Tech VIII Sem	169Y1A0534@ksrmce.ac.in
36	169Y1A0546	K. Narasimha	B.Tech VIII Sem	169Y1A0546@ksrmce.ac.in
37	169Y1A0556	K. Supraja	B.Tech VIII Sem	169Y1A0556@ksrmce.ac.in
38	169Y1A0559	K. Naresh	B.Tech VIII Sem	169Y1A0559@ksrmce.ac.in
39	169Y1A0562	M. Srinivasulu	B.Tech VIII Sem	169Y1A0562@ksrmce.ac.in
40	169Y1A0563	M. Ajay Kumar	B.Tech VIII Sem	169Y1A0563@ksrmce.ac.in


Coordinator


HoD

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Internet of Things

Course Objectives:

- Learn the basic python programming.
- Understand Raspberry Pi hardware and its relevant software.
- Gain knowledge to verify working of simple sensor circuits with Raspberry Pi.
- Understand the Internet of Things.

Course Outcomes:

The students will be able to:

- Learn the python programming language and IDE
- Prototype circuits and connect them to the Raspberry Pi
- Program the Raspberry Pi board to make the circuits work
- Analyze the internet of things

Module 1: Python Programming part 1

Introduction-History, Features, Setting up path, working with Python, Basic Syntax, Variable and Data Types, Operator; Conditional Statements-If, If- else, Nested if-else; Looping-For, While, Nested loops; Control Statements-Break, Continue, Pass; String Manipulation-Accessing Strings, Basic Operations, String slices, Function and Methods; Lists-Introduction, Accessing list, Operations, Working with lists, Function and Methods; Tuple-Introduction, Accessing tuples, Operations, Working, Functions and Methods.

Module 2: Python programming part 2

Dictionaries-Introduction, Accessing values in dictionaries, working with dictionaries, Properties, Functions; Functions- Defining a function, Calling a function, Types of functions, Function Arguments, Anonymous functions, Global and local variables; Modules- Importing module, Math module, Random module, different type of Packages, Composition; Input-Output- Printing on screen, Reading data from keyboard, Opening and closing file, Reading and writing files, Functions.

Module 3: The Raspberry Pi and its uses

Introduction (Video),Raspberry Pi Board (Updated), Raspberry Pi Processor, Raspberry Pi vs. Arduino (Updated), Operating System Benefits, Processes, Raspberry Pi IoT, Raspberry Pi Setup, Raspberry Pi Configuration, Overclocking (Updated)

Introduction (Video), General Purpose IO Pins, Protocol Pins, GPIO Access, General Purpose IO Pins , Pulse Width Modulation, Demo of a Blink, Graphic User Interface, Tkinter Library, Interaction.

Module 4: Introduction to Internet of Things

What is IoT, how does it work, Difference between Embedded device and IoT device, Properties of IoT device, IoT Ecosystem, IoT Decision Framework, IoT Solution Architecture Models, How IoT is Transforming Businesses, Major IoT Boards in Market and Explore Raspberry Pi.

Module 5: Setting up Raspberry Pi and Sensors (Sense HAT Board)

Setting up Raspberry Pi Showing working of Raspberry Pi using SSH Client and Team Viewer, Understand Sensing actions, Understand Actuators and MEMS, Programming Sense HAT Board

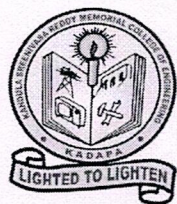
Build a weather station using Sense HAT and Python, Prepare google spreadsheet for weather data collection, Understand OpenCV.

Text book:

1. Python Crash Course: A Hands-On, Project-Based Introduction to Programming by Eric Matthes, No starch press 1st edition.

Reference:

1. Think Python How to Think Like a Computer Scientist by Allen B. Downey, O'Reilly media 1st edition.
2. <https://www.youtube.com/watch?v=LlhmzVL5bm8&t=1s>: Internet of things
3. <https://www.guru99.com/iot-tutorial.html>: IoT for beginners
4. https://www.tutorialspoint.com/internet_of_things/index.htm: IoT absolute beginners



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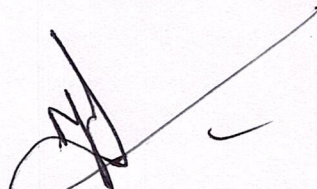
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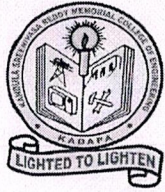
Department of Computer Science & Engineering
Certificate Course on Internet of Things (30/12/2019 to 23/01/2020)
Schedule

S.No	Date	Time	Faculty	Topic
1	30/12/2019	3PM to 5PM	N.J. Pramod Dhinakar R.L. Pravallika T. Anitha	Inauguration,
		5PM to 6PM	N.J. Pramod Dhinakar	Introduction to IoT
2	31/12/2019	4PM to 5PM	N.J. Pramod Dhinakar	Basic Syntax, Variable and Data Types, Operator
		5PM to 6PM	N.J. Pramod Dhinakar	Conditional Statements-If, If- else, Nested if-else; Looping-For, While, Nested loops; Control Statements-Break, Continue, Pass
3	02/01/2020	4PM to 5PM	T. Anitha	String Manipulation-Accessing Strings, Basic Operations, String slices
		5PM to 6PM	T. Anitha	Function and Methods; Lists-Introduction, Accessing list, Operations, Working with lists
4	03/01/2020	4PM to 5PM	T. Anitha	Function and Methods; Tuple-Introduction, Accessing tuples, Operations, Working, Functions and Methods
		5PM to 6PM	T. Anitha	Practical's
5	04/01/2020	4PM to 5PM	T. Anitha	Dictionaries-Introduction, Accessing values in dictionaries, working with dictionaries, Properties
		5PM to 6PM	T. Anitha	Practical's
6	06//01/2020	4PM to 5PM	R.L. Pravallika	Functions- Defining a function, Calling a function, Types of functions, Function Arguments, Anonymous functions, Global and local variables
		5PM to 6PM	R.L. Pravallika	Practical's
7	07/01/2020	4PM to 5PM	N.J. Pramod Dhinakar	Modules- Importing module, Math module, Random module, different type of Packages, Composition
		5PM to 6PM	N.J. Pramod Dhinakar	Practical's

8	08//01/2020	4PM to 5PM	N.J. Pramod Dhinakar	Input-Output- Printing on screen, Reading data from keyboard, Opening and closing file, Reading and writing files, Functions.
		5PM to 6PM	R.L. Pravallika	Practical's
9	09/01/2020	3PM to 5PM	R.L. Pravallika	Introduction (Video),Raspberry Pi Board (Updated), Raspberry Pi Processor, Raspberry Pi vs. Arduino (Updated)
		5PM to 6PM	R.L. Pravallika	Operating System Benefits, Processes, Raspberry Pi IoT
10	10/01/2020	3PM to 5PM	R.L. Pravallika	Raspberry Pi Setup, Raspberry Pi Configuration, Overclocking (Updated)
		5PM to 6PM	T. Anitha	Introduction (Video), General Purpose IO Pins, Protocol Pins, GPIO Access, General Purpose IO Pins , Pulse Width Modulation
11	17//01/2020	4PM to 5PM	T. Anitha	Practical's
		5PM to 6PM	T. Anitha	Demo of a Blink, Graphic User Interface, Tkinter Library, Interaction.
12	18/01/2020	4PM to 5PM	T. Anitha	Practical's
		5PM to 6PM	T. Anitha	What is IoT, how does it work, Difference between Embedded device and IoT device, Properties of IoT device, IoT Ecosystem
13	20/01/2020	4PM to 5PM	R.L. Pravallika	IoT Decision Framework, IoT Solution Architecture Models, How IoT is Transforming Businesses, Major IoT Boards in Market and Explore Raspberry Pi
		5PM to 6PM	R.L. Pravallika	Practical's
14	21/01/2020	4PM to 5PM	R.L. Pravallika	Setting up Raspberry Pin Showing working of Raspberry Pi using SSH Client and Team Viewer
		5PM to 6PM	N.J. Pramod Dhinakar	Practical's
15	22/01/2020	4PM to 5PM	N.J. Pramod Dhinakar	Build a weather station using Sense HAT and Python, Prepare google spreadsheet for weather data collection ,Understand OpenCV
		5PM to 6PM	N.J. Pramod Dhinakar	Practical's
16	23/01/2020	3PM to 6PM	N.J. Pramod Dhinakar R.L. Pravallika T. Anitha	Exam, Certificate distribution


Coordinator


HoD
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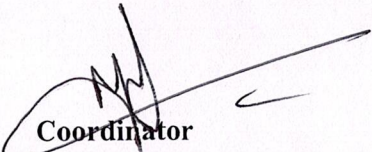
Department of Computer Science & Engineering


Certificate Course on Internet of Things

Attendance Sheet

S.No	Roll Num	Name of the Student	30/12/2019	31/12/2019	02/01/2020	03/01/2020	04/01/2020	06/01/2020	07/01/2020	08/01/2020	09/01/2020	10/01/2020	17/01/2020	18/01/2020	20/01/2020	21/01/2020	22/01/2020	23/01/2020
1	179Y1A0520	Bosigari Bharathi	P	P	P	A	P	P	P	P	P	P	P	P	P	A	P	P
2	179Y1A0522	C.Lohith Kumar	P	P	P	A	P	P	P	P	P	P	P	P	P	A	P	P
3	179Y1A0523	Chanda Harinadh Reddy	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
4	179Y1A0524	Chappidi Harsha Vardhan Reddy	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
5	179Y1A0525	Chavva Sravani	A	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
6	179Y1A0526	C.V.S.Kowshiknath Reddy	P	P	P	P	P	P	P	P	P	P	P	P	P	P	A	P
7	179Y1A0527	Chenuru Brahmani	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
8	179Y1A0528	Cheppali Shaik Mohammed Aslam	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
9	179Y1A0529	Chilakala Mahammadrafi	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
10	179Y1A0531	Chinthala Akhila	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
11	179Y1A0533	Dabbera Sowmya	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
12	179Y1A0534	Daddanala Yogya Vignesh	P	A	P	P	P	A	P	A	P	P	P	P	P	P	P	P
13	179Y1A0537	D. Yogesh	P	A	P	P	A	P	P	P	P	P	A	P	P	P	P	P
14	179Y1A0538	D Anusha	P	P	P	P	A	P	P	P	A	P	P	P	P	P	P	P

15	179Y1A0540	D.Yasaswini	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
16	179Y1A0543	D. Jyothsna	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
17	179Y1A0544	E. Abhishek Kumar Sahu	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
18	179Y1A0547	G. Sudeesh Chandra Rao	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
19	179Y1A0548	G. Haritha	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
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22	179Y1A0553	G. Sai Sujitha Reddy	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
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39	169Y1A0562	M. Srinivasulu	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
40	169Y1A0563	M. Ajay Kumar	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P


Coordinator


HOD
Dr. M. Sreenivasulu,
M. E., Ph. D.
Professor & HOD CSE
K. S. R. M. College of Engineering
KADAPA - 516 003



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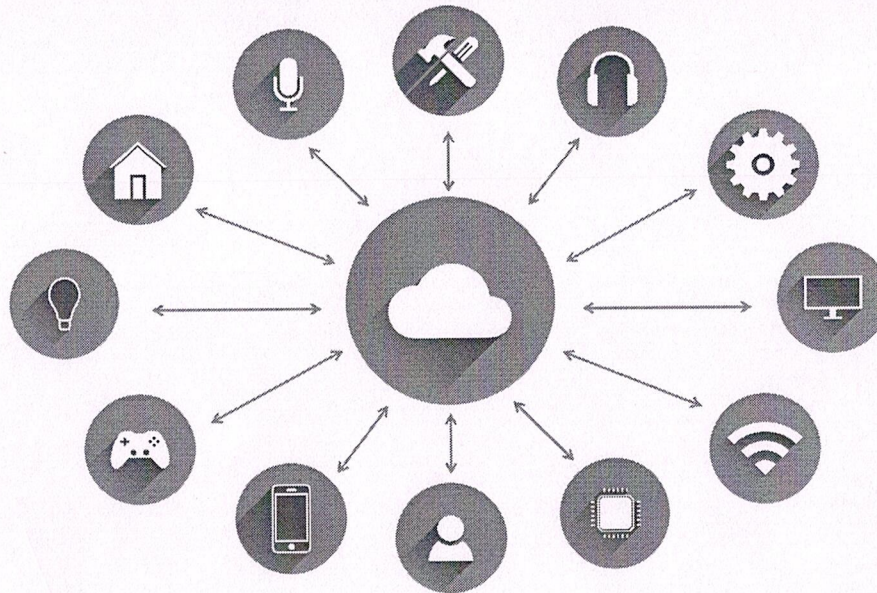
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DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING

Course on IOT



from 30-12-2019
to 23-01-2020

Venue : Programming in C
Lab(MB-110)

Coordinator : **Sri. N. J. PramodDhinakar**
Resource Person: **Smt. R. L. Pravallika,**
Miss. T. Anitha



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ACTIVITY REPORT

Certification Course

On

“Internet of Things”

30/12/2019 to 23/01/2020

Target Group	:	B.Tech CSE Students
Details of Participants	:	40 Students
Coordinator	:	Sri. N.J. Pramod Dhinakar Asst. Prof, Dept. of CSE
Organizing Department	:	Department of Computer Science & Engineering
Venue	:	MB110 (Programming in C Lab)

Description:

Certification course on “Android Application Development” was organized by Dept. of CSE from **30/12/2019 to 23/01/2020** in MB 110(Programming in C lab). Mr. N.J. Pramod Dhinakar acted as Course Coordinator & resource persons are Mrs. R.L. Pravallika and Miss T. Anitha. This course will clear up the fundamental concepts of Internet of Things. The Internet of Things (IoT) describes the network of physical objects—“things”—that are embedded with sensors, software, and other technologies for the purpose of connecting and exchanging data with other devices and systems over the internet. Thirty Six hours course was successfully completed and participation certificates were provided to the participants.

Photo

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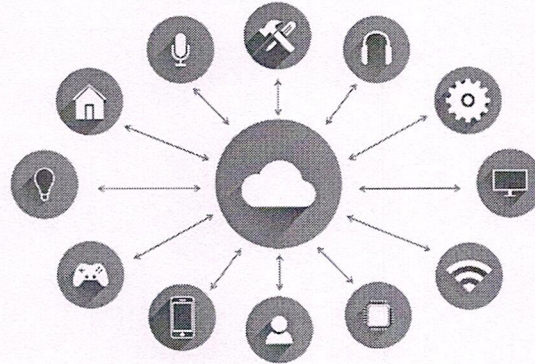
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DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING

Course on IOT



from 30-12-2019

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Coordinator : **Mr. N. J. PramodDhinakar**

Resource Person: **Mrs. R. L. Pravallika,**
Miss. T. Anitha

Event Banner

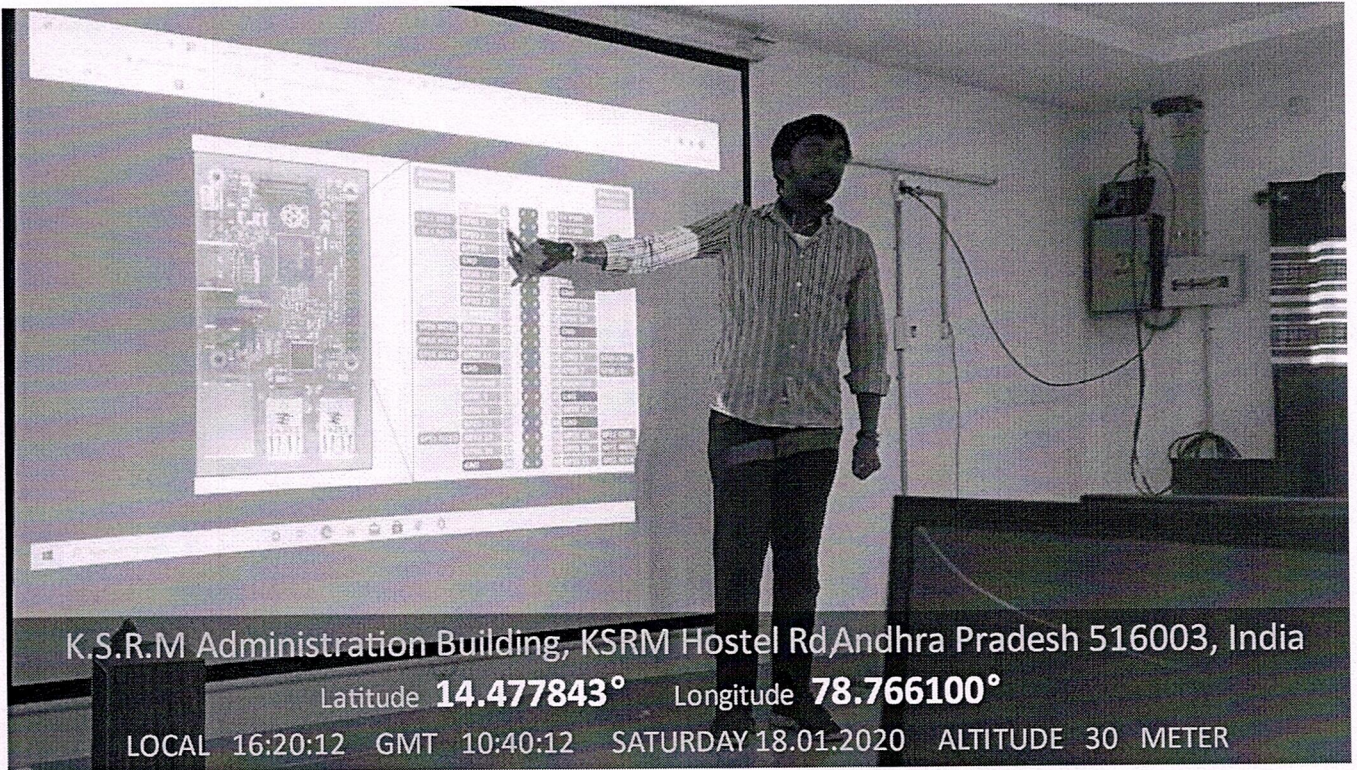


K.S.R.M Administration Building, KSRM Hostel Rd Andhra Pradesh 516003, India

Latitude **14.477843°** Longitude **78.766100°**

LOCAL 16:45:06 GMT 11:05:06 FR IDAY 03.01.2020 ALTITUDE 30 METER

Students participated in practical session



Coordinator gives brief overview about certificate course



Coordinator



HoD

Dr. M. Sreenivasulu,
M. E., Ph. D.
Professor & HOD CSE
K. S. K. M. College of Engineering
K A D A P A - 516 003



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DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING

CERTIFICATE OF PARTICIPATION

This is to certify that Mr/Miss. B. Bharathi
bearing Roll Number. 179V1A0520 participated in a
certification course on "**Internet of Things**" organized by
department of Computer Science and Engineering from
30-12-2019 to 23-01-2020.

COORDINATOR

HOD

PRINCIPAL



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DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING

CERTIFICATE OF PARTICIPATION

This is to certify that Mr/Miss. D. Volgesh
bearing Roll Number. 179VIA0537 participated in a
certification course on "**Internet of Things**" organized by
department of Computer Science and Engineering from
30-12-2019 to 23-01-2020.


COORDINATOR


HOD

V. S. S. Amulya
PRINCIPAL



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DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING

CERTIFICATE OF PARTICIPATION

This is to certify that Mr/Miss. D. Jyothsna
bearing Roll Number. 179Y1A0543 participated in a
certification course on "**Internet of Things**" organized by
department of Computer Science and Engineering from
30-12-2019 to 23-01-2020.


COORDINATOR


HOD

V. S. S. mm/19
PRINCIPAL



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FEEDBACK FORM

Certificate Course on "Internet of Things", from 30/12/2019 to 23/01/2020

Organized

by

Department of Computer Science & Engineering

NAME:

Roll No:

S.No	Feedback Item	Excellent	Very Good	Good	Average	Below Average
1	Organization of certificate course and session planning by instructor.					
2	Clarity in content delivery.					
3	Content is relevant and useful.					
4	Adequate opportunity to interact with trainer.					
5	Judicious mix of concepts. Principles and practices.					
6	Assignments and tasks are interesting and challenging.					
7	Overall rating					

Any suggestions for improvement.

Signature



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FEEDBACK FORM

Certificate Course on "Internet of Things", from 30/12/2019 to 23/01/2020

Organized

by

Department of Computer Science & Engineering

NAME: 179Y1A0520, B. Bhasathi

Roll No: 179Y1A0520

S.No	Feedback Item	Excellent	Very Good	Good	Average	Below Average
1	Organization of certificate course and session planning by instructor.	/				
2	Clarity in content delivery.		/			
3	Content is relevant and useful.		/			
4	Adequate opportunity to interact with trainer.			/		
5	Judicious mix of concepts. Principles and practices.	/				
6	Assignments and tasks are interesting and challenging.		/			
7	Overall rating			/		

Any suggestions for improvement.

-

B. Bhasathi
Signature



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FEEDBACK FORM

Certificate Course on "Internet of Things", from 30/12/2019 to 23/01/2020

Organized

by

Department of Computer Science & Engineering

NAME: M. Ajay Kumar

Roll No: 16AY1A0563

S.No	Feedback Item	Excellent	Very Good	Good	Average	Below Average
1	Organization of certificate course and session planning by instructor.	✓				
2	Clarity in content delivery.		✓			
3	Content is relevant and useful.	✓				
4	Adequate opportunity to interact with trainer.	✓				
5	Judicious mix of concepts. Principles and practices.	✓				
6	Assignments and tasks are interesting and challenging.	✓				
7	Overall rating		✓			

Any suggestions for improvement.

M. Ajay Kumar
Signature



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Kadapa, Andhra Pradesh, India- 516 003

FEEDBACK FORM

Certificate Course on "Internet of Things", from 30/12/2019 to 23/01/2020

Organized

by

Department of Computer Science & Engineering

NAME: C. Lohith Kumar

Roll No: 179YIA0522

S.No	Feedback Item	Excellent	Very Good	Good	Average	Below Average
1	Organization of certificate course and session planning by instructor.	✓				
2	Clarity in content delivery.		✓			
3	Content is relevant and useful.			✓		
4	Adequate opportunity to interact with trainer.		✓			
5	Judicious mix of concepts. Principles and practices.			✓		
6	Assignments and tasks are interesting and challenging.		✓			
7	Overall rating			✓		

Any suggestions for improvement.

Signature



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FEEDBACK FORM

Certificate Course on "Internet of Things", from 30/12/2019 to 23/01/2020

Organized

by

Department of Computer Science & Engineering

NAME: M. Srinivasulu

Roll No: 169Y1A0562

S.No	Feedback Item	Excellent	Very Good	Good	Average	Below Average
1	Organization of certificate course and session planning by instructor.	✓				
2	Clarity in content delivery.		✓			
3	Content is relevant and useful.		✓			
4	Adequate opportunity to interact with trainer.	✓				
5	Judicious mix of concepts. Principles and practices.		✓			
6	Assignments and tasks are interesting and challenging.	✓				
7	Overall rating		✓			

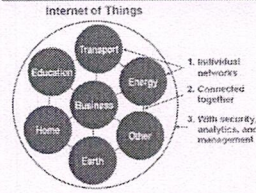
Any suggestions for improvement.

Srinivasulu
Signature

Internet of Things

Mr.N.J. Pramod Dhinakar, Dept of CSE,, KSRMCE, KADAPA

Contents



- Internet vs Web
- Evolution of the Web and The Internet
- What is Internet Of Things(IoT)?
- IoT applications
- Major verticals and use cases
- How IOT works?
- Fundamentals components of IoT
- Challenges of IoT
- Advantages of IoT
- Disadvantages IOT

Internet vs Web

1. Internet :
 - Internet is the physical layer or network made up of switches, routers, and other equipment.
 - Its primary function is to transport information from one point to another quickly, reliably, and securely.
1. Web :
 - Web is an application layer that operates on top of the Internet.
 - Its primary role is to provide an interface that makes the information flowing across the Internet usable.

Evolution of the Web Vs the Internet

Web:

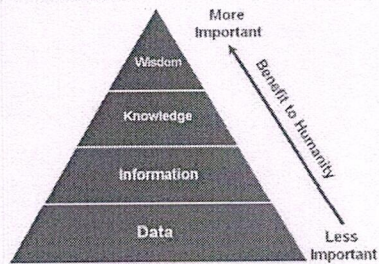
- Stage 1. The web was primarily used by academia for research purposes.
- Stage 2. Every company to share information on the Internet so that people could learn about products and services.
- Stage 3. During this phase, companies like eBay and Amazon.com exploded on the scene.
- Stage 4. The fourth stage, where we are now, is the "social" or "experience" web, where companies like Facebook, Twitter, and Groupon have become immensely popular and profitable

Internet:

IoT is the first real evolution of the Internet—a leap that will lead to revolutionary applications that have the potential to dramatically improve the way people live, learn, work, and entertain themselves.

We evolve because we communicate

Data is the raw material that is processed into information. Individual data by itself is not very useful, but volumes of it can identify trends and patterns. This and other sources of information come together to form knowledge. In the simplest sense, knowledge is information of which someone is aware. Wisdom is then born from knowledge plus experience.



What is IoT?

The Internet of Things(IoT) can be defined as a network of physical objects or people called "things" that are embedded with software, electronics, network, and sensors which allows these objects to collect and exchange data.

IoT stands for Internet of Things, which means accessing and controlling daily usable equipments and devices using Internet.

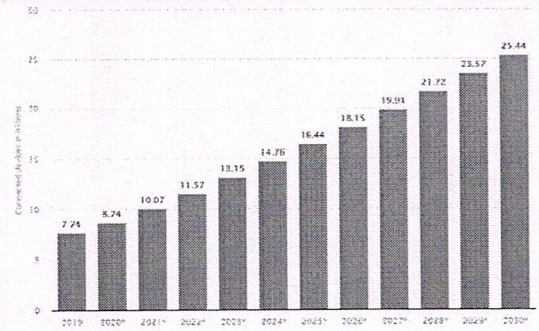
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IoT is simply the point in time when more "things or objects" were connected to the Internet than people

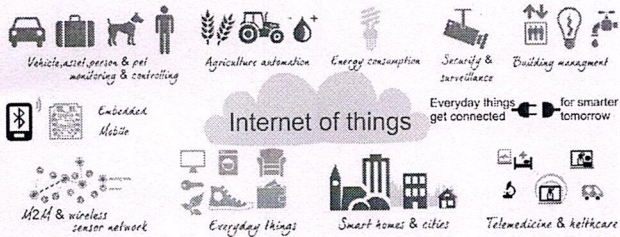
"By 2025, it is expected that there will be more than 30 billion IoT connections, almost 4 IoT devices per person on average," said Knud Lasse Lueth, Founder and CEO of IoT Analytics.

In 2020, for the first time, there are more IoT connections (connected cars, smart home devices, connected industrial equipment) than there are non-IoT connections (smartphones, laptops, and computers), from IoT Analytics.

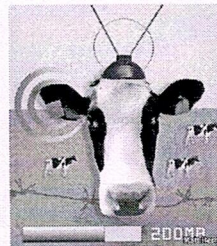
Number of Internet of Things (IoT) connected devices worldwide from 2019 to 2030 (in billions)



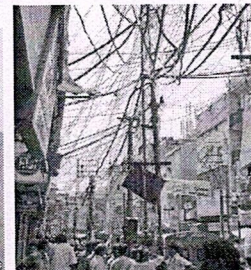
Internet of Things applications



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Cow have a sensor for monitoring



Electricity utility inefficiency in India



Better Quality of Life for the Elderly

Major verticals and use cases

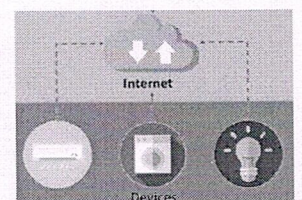
Major industry verticals are electricity, gas, steam & A/C, water supply & waste management, retail & wholesale, transportation & storage, and government.

The most important use case for IoT devices in the consumer segment are consumer internet & media devices such as smartphones, connected (autonomous) vehicles, IT infrastructure, asset tracking & monitoring, and smart grid.

Patients are ingesting Internet devices into their own bodies to help doctors diagnose and determine the causes of certain diseases. Extremely small sensors can be placed on plants, animals, and geologic features, and connected to the Internet.

How it works?

The entire IOT process starts with the devices themselves like smartphones, smartwatches, electronic appliances like TV, Washing Machine which helps you to communicate with the IOT platform.



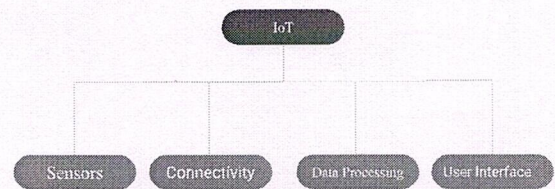
Hardware required

Arduino, raspberry pi, NodeMCU, ESP32 MCU Devices

Various sensors- Temperature, pressure, humidity, motion sensor, proximity sensors, etc

IoT platform: Microsoft Azure IoT suite, ThingSpeak, OpenHab, OpenIoT, etc.

Fundamental components of IoT



Sensors/Devices

- Sensors or devices are a key component that helps you to collect live data from the surrounding environment.
- All this data may have various levels of complexities. It could be a simple temperature monitoring sensor, or it may be in the form of the video feed.
- A device may have various types of sensors which performs multiple tasks **apart** from sensing.
- Example, A mobile phone is a device which has multiple sensors like GPS, camera but your smartphone is not able to sense these things.

Connectivity

- All the collected data is sent to a cloud infrastructure.
- The sensors should be connected to the cloud using various mediums of communications.
- These communication mediums include mobile or satellite networks, Bluetooth, WI-FI, WAN, etc.

Data Processing

- Once that data is collected, and it gets to the cloud, the software performs processing on the gathered data.
- This process can be just checking the temperature, reading on devices like AC or heaters.
- However, it can sometimes also be very complex like identifying objects, using computer vision on video.

User Interface

The information needs to be available to the end-user in some way which can be achieved by triggering alarms on their phones or sending them notification through email or text message.

For example, the user has a camera installed in his home. He wants to access video recording and all the feeds with the help of a web server.

However, it's not always one-way communication. Depending on the IoT application and complexity of the system, the user may also be able to perform an action which may create cascading effects.

For example, if a user detects any changes in the temperature of the refrigerator, with the help of IoT technology the user should be able to adjust the temperature with the help of their mobile phone.

Challenges of IoT

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

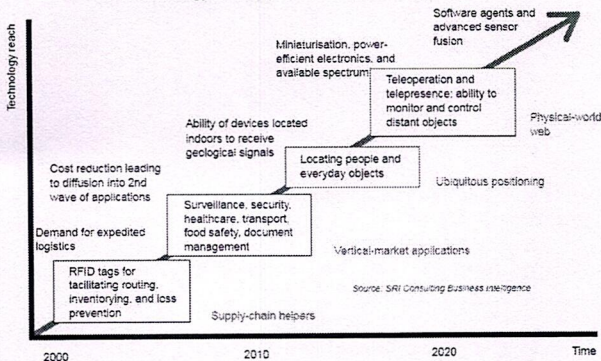
- Insufficient testing and updating
- Concern regarding data security and privacy
- Software complexity
- Data volumes and interpretation
- Integration with AI and automation
- Devices require a constant power supply which is difficult
- Interaction and short-range communication

Advantages of IoT

Key benefits of IoT technology are as follows:

- **Technical Optimization:** IoT technology helps a lot in improving technologies and making them better. Example, with IoT, a manufacturer is able to collect data from various car sensors. The manufacturer analyzes them to improve its design and make them more efficient.
- **Improved Data Collection:** Traditional data collection has its limitations and its design for passive use. IoT facilitates immediate action on data.
- **Reduced Waste:** IoT offers real-time information leading to effective decision making & management of resources. For example, if a manufacturer finds an issue in multiple car engines, he can track the manufacturing plan of those engines and solves this issue with the manufacturing belt.
- **Improved Customer Engagement:** IoT allows you to improve customer experience by detecting problems and improving the process.

Technology roadmap: The internet of things



Summary

- The Internet of Things (IoT) is a network of physical objects or people called "things" that are embedded with software, electronics, network, and sensors which allows these objects to collect and exchange data.
- The actual idea of connected devices was proposed in 1970
- Four Key components of IoT framework are 1) Sensors/Devices, 2) Connectivity, 3) Data Processing, 4) User Interface
- Various applications of IoT are Smart Thermostats, Connected Cars, Activity Trackers, Smart Outlets, Connect Health, etc
- Technical Optimization, Improve Data Collection, Reduced Waste, Improved Customer Engagement are key benefits of IoT
- Security, Privacy, Complexity, Compliance, are key challenges of IoT

References

1. https://www.cisco.com/c/dam/en_us/about/ac/79/does/innov/IoT_IBSG_0411FIN_AL.pdf
2. <https://www.argenex.com/library/iot/ultimate-guide-iiot-connectivity/>
3. <http://rd.sut.ac.th/e-journal/journal/suwimony/1403739/1403739.pdf>
4. <https://www.linux.com/news/21-open-source-projects-iiot/>
5. <https://internetofthingsagenda.techtarget.com/definition/Internet-of-Things-IoT>

Thank you