Report

On

**"A Five Week Foundation Course onIoTCertification"**

As a part of

**Emerging Technology course**

**Under**

**Engineering for Sustainable Development Program**

**22/01/2022 to 26/02/2022**

**Organized by**

**INTERNET OF THINGS CLUB**

**IoT Club, Department of Electronics and Communication Engineering**

**In association with**

Department of Humanities and Science

**At**

**KG Reddy College of Engineering & Technology**
(Approved by AICTE, New Delhi, Affiliated to JNTUH, Hyderabad)
Chilkur (Village), Moinabad (Mandal), R. R Dist, TS-501504

**Submitted by**

**Mr. Angotu Saida** M.Tech (Ph. D)
Assistant Professor
**Department of Electronics and Communication Engineering**

**Head of the Department**

**Principal**

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# 1. <u>Course introduction</u>

**Course Name:** A Five Week Foundation Course on Internet of Things

**Course duration:** Five- Weeks

**Organized Department:** Department of Electronics and Communication Engineering

**Collaborations:** Department of Humanities and Science

**Course offered by** – IoT Club, Department of Electronics and Communication Engineering.

**Venue:** T-405 ECE classRoomKG Reddy College of Engineering and Technology, Hyderabad

**Coordinator:**Mr.Angotu Saida, Asst. Prof., Dept. of Electronica and Communication Engineering, KGRH

**Resources Persons:**

1. Mr. Angotu Saida
2. Mr. Amruth Kumar Sala

## 2.Objective of the Course

**The objectives of the course are as follows**

- Students will be explored to the interconnection and integration of the physical world and the cyber space.
- Students will be Acquires the design&develop the application of IOT

**Course Outcomes:**

- Explain the Market perspective of IoT.
- Discuss the use of Devices, modules used in IoT
- Illustrate the application of IoT

## 3. Introduction of IoT Club

The IoT Clubhas formed in the year of 2020 in our institution KG Reddy College of Engineering and Technology, Hyderabad, as a great leadership taken by the Department of Electronics and Communication Engineering.

1. Mr.Angotu Saida, Assistant Professor, Department of Electronics and Communication Engineering

### Logo of the IoT Club

KG REDDY
College of Engineering
& Technology
UGC AUTONOMOUS
NAAC A+ GRADE
NBR (CSE & ECE)

INSTITUTION'S INNOVATION COUNCIL
(Ministry of HRD initiative)

INTERNET OF THINGS CLUB

ARIIA
ATAL RANKING OF INSTITUTIONS
ON INNOVATION ACHIEVEMENTS

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# FOUNDATION COURSE ON
# IoT CERTIFICATION

## Internet of Things (IoT)
## Use Cases

## 22ND JANUARY, onwards
10.00 am - 11.00 pm

**RESOURCE PERSON:**
**Mr. Angotu Saida,**
Assistant Professor,
IoT Club Co-Ordinator,
Dept. of ECE
KG Reddy College of Engineering and Technology

Organized by :
**IOT CLUB, DEPT. OF ELECTRONICS AND
COMMUNICATIONS ENGINEERING (ECE)**

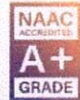In association with :
**DEPARTMENT OF HUMANITIES AND SCIENCE**

@kgrcet

Creative of the course

**KG REDDY**
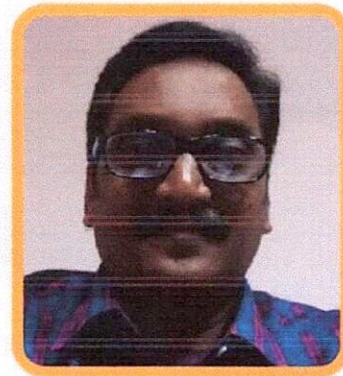College of Engineering
& Technology
**UGC AUTONOMOUS**

# FOUNDATION COURSE ON IoT CERTIFICATION

## Internet of Things (IoT) Prototype to product

### 22ND JANUARY, 2022
11.00 am – 12.55 pm

**RESOURCE PERSON:**
**Mr. Amruth Kumar Sala,**
Founder Director,
Smaragdine Technologies Pvt. Ltd.

Organized by :
**IOT CLUB, DEPT. OF ELECTRONICS AND COMMUNICATIONS ENGINEERING (ECE)**

In association with :
**DEPARTMENT OF HUMANITIES AND SCIENCE**

@kgrcet

Creative of the course

**FiveWeeks Content Delivery Description**

**Week – 1:** "Introduction to, OperatingSystems,IoT,basic modules use to design in IoT&IoT – Application, Advantages & Disadvantages

On the Frist week of the Session Mr Angotu Saida have gave an overview on the Definition and Characteristics of IoT, Applications of IoT, basic modules use to design in IoTso that students will get an idea on IoTand the club activities.Later on Mr Amruth Kumar Salahas continued the next session on phases of IoT. The following concet are explained.

- OperatingSystems
- Introduction to IOT
- Definition and Characteristics of IoT
- Applications of IoT
- Microprocessor/microcontroller
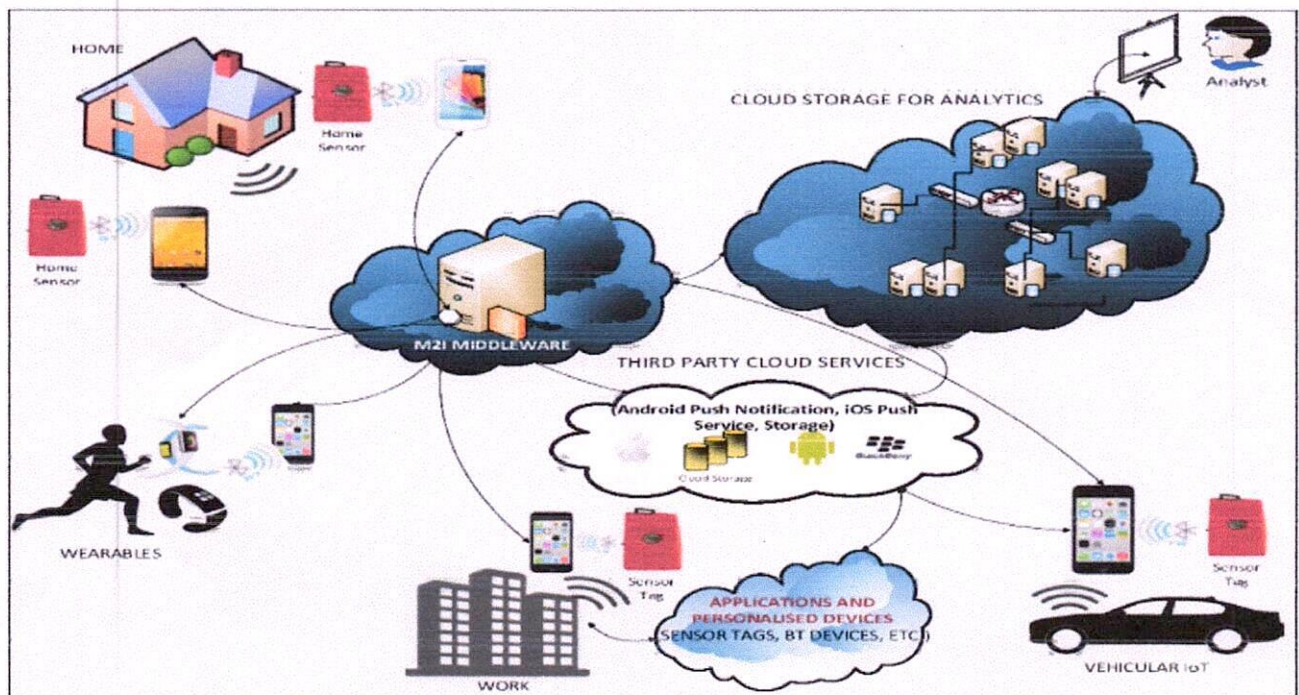- Sensors and Actuators
- IOT – Advantages & Disadvantages
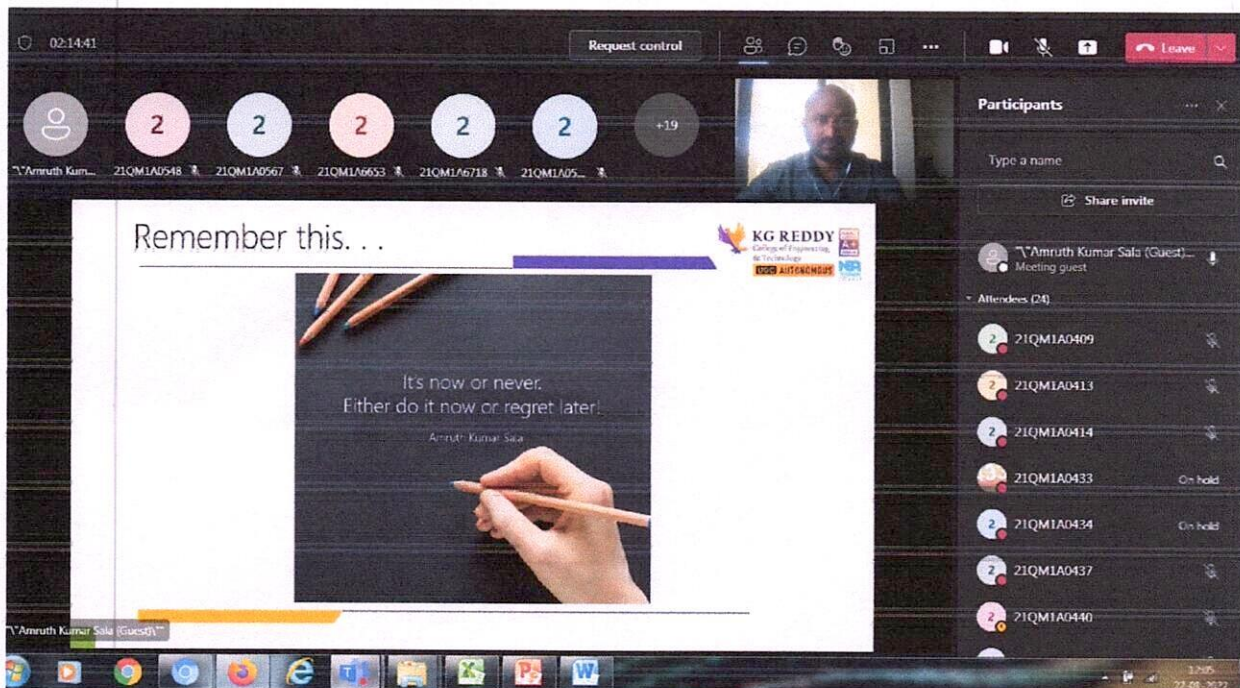


**Fig1:** Screen Shots of the Week 1 Session1 by MrAngotu Saida explaining the operatingSystems, definition and characteristics of IoT, Applications of IoTand basic modules use to design in IoT
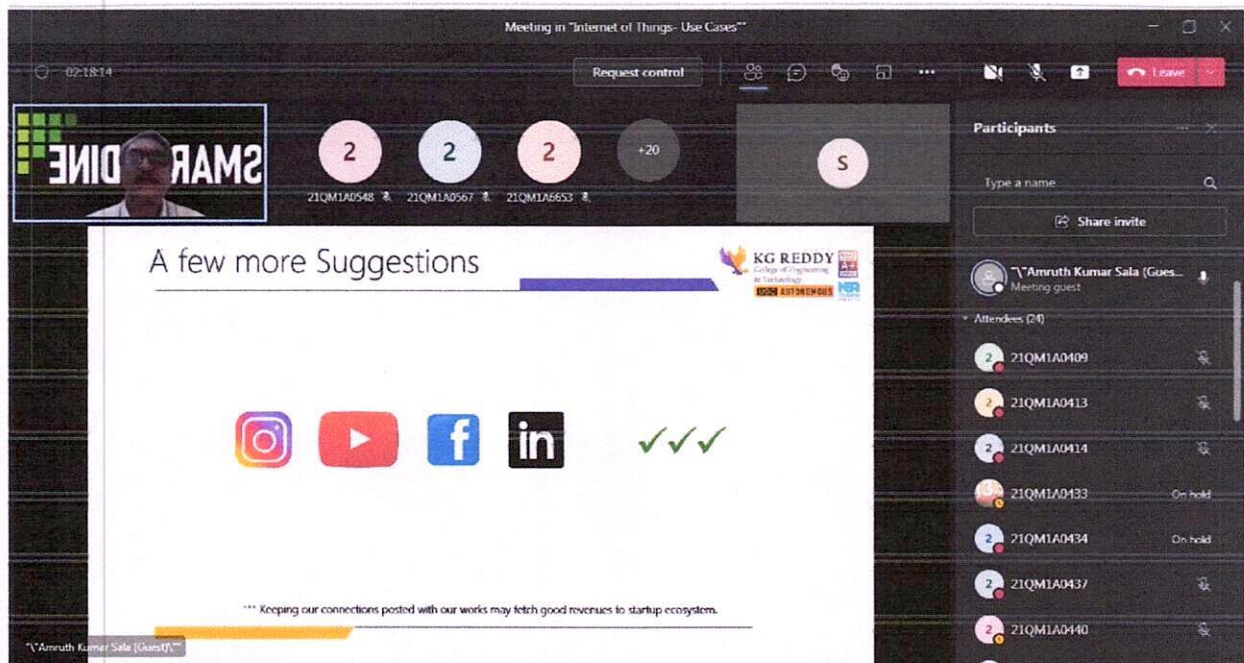
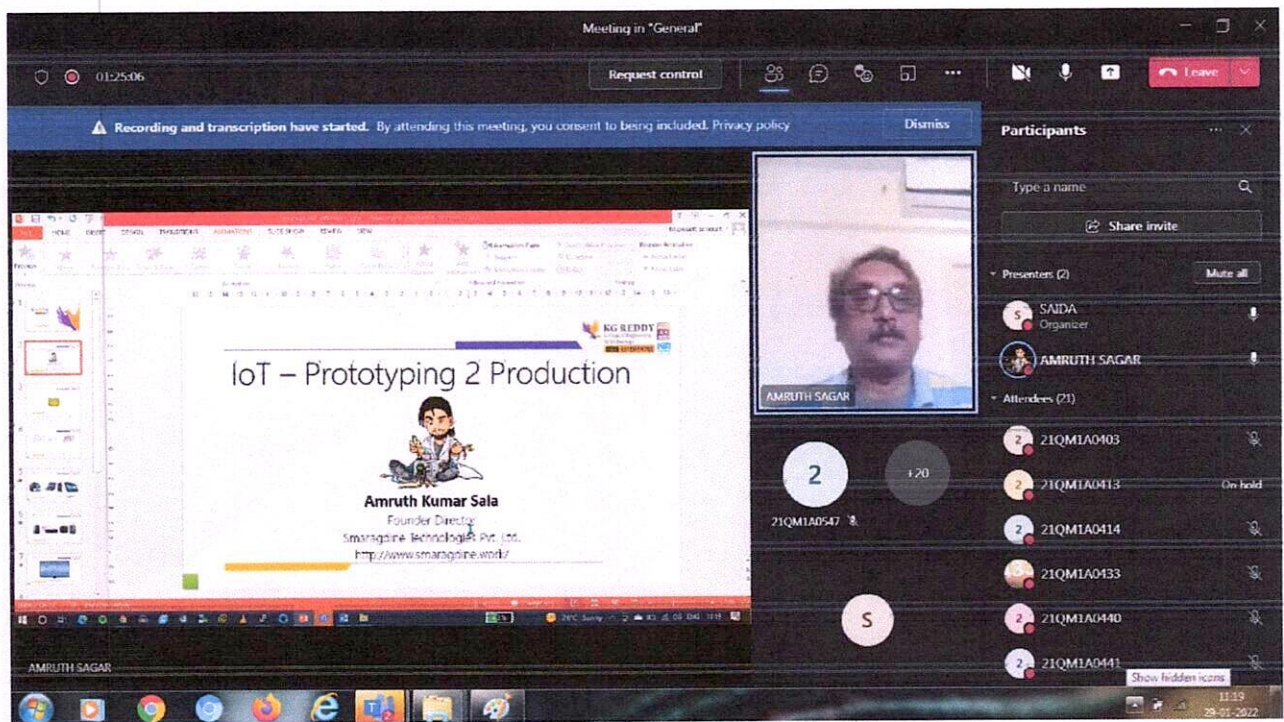**Fig2:** Screen Shots of the Week 1 Session2 by Mr Amruth Kumar Sala explaining Phases of IoT



**Fig3:** how IoT work and connect the people

**Week – 2:** "Applications of MS Office, Tools used for hardware & software of IoT Introduction to Aurdino: internal structure and pin diagram of Aurdino, hands on -blinking an LED"

On the Second Week we had two Resource personMr Amruth Kumar Salasir have Explain the Tools used for hardware & software of IoT and develop prototyping to production: Introduction to Aurdino: internal structure and pin diagram of Aurdino, hands on -blinking an LED. Sir have explained the about the following topics.

- Applications of MS Office
- Tools used for hardware & software of IoT
- Introduction to Aurdino
- develop prototyping to production



**Fig4: Screen Shots of the Week 2 Sessionby Mr Amruth Kumar Sala explaining** how to develop prototyping to production

Second Resource Person Mr.Angotu Saida has explained about the concepts of Tools used for hardware & software of IoT. So, that student will get an idea on how we will createand write the program.

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**Week – 3:**"Hardware andHands on session on switching ON/OFF lights, Running a motor, distance measurement, temperature measurement"

On the Third Week we had Resource personsMr Amruth Kumar Sala. Sir has explained the Hands on session on UNO Aurdino board. So, those Students will get the basic concepts of hands on experience. Sir has explained the about the following topics.

- Hands on session on switching ON/OFF lights
- Running a motor
- Distance measurement
- Temperature measurement
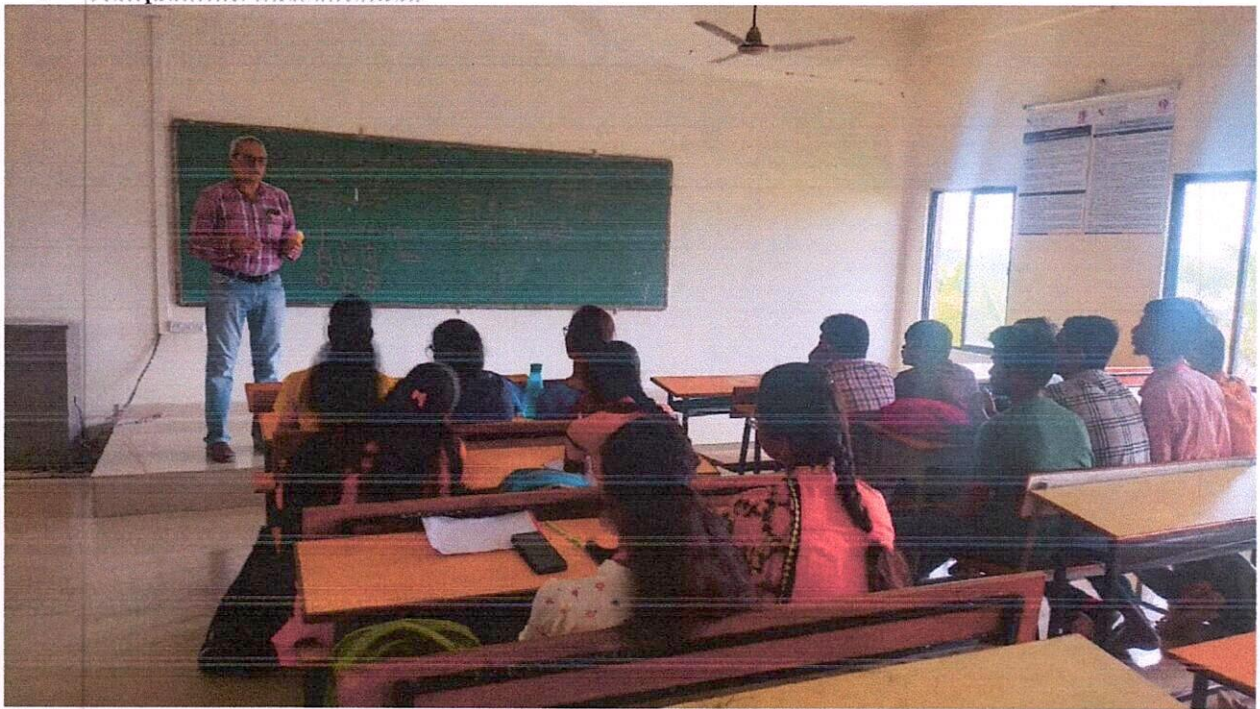


**Fig5:** Screen Shots of the Week 3 Session by Mr Amruth Kumar Salaintroduction on Aurdino board for various application

The personal computer is one of the most common types of computer due to its versatility and relatively low price. Desktop personal computers have a monitor, a keyboard, a mouse, and a computer case. The computer case holds the motherboard, fixed or removable disk drives for data storage, the power supply, and may contain other peripheral devices such as modems or network interfaces. Some models of desktop computers integrated the monitor and keyboard into the same case as the processor and power supply. Separating the elements allows the user to arrange the components in a pleasing, comfortable array, at the cost of managing power and data cables between them.

**Week – 4**: "Networking and Hardware(ImportanceofStructuredCabling)

## NETWORK ARCHITECTURE
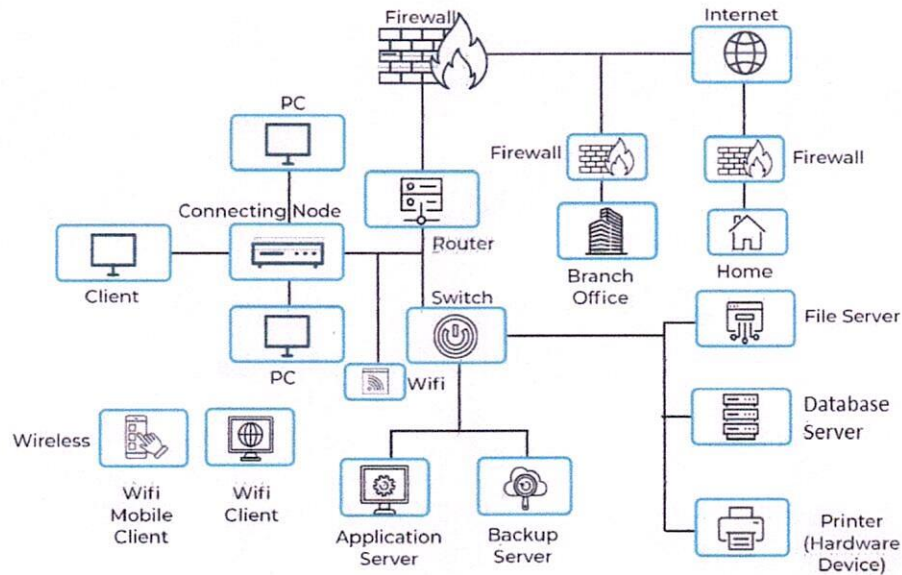


**Fig6:** Network Architecture

Networking hardware, also known as network equipment or computer networking devices, are electronic devices which are required for communication and interaction between devices on a computer network. Specifically, they mediate data transmission in a computer network.

**Week – 5**: "Networking and Hardware(ImportanceofStructuredCabling)

DHCP and DNS are two essential services in IT networks. While a DHCP server sends out information that clients need to communicate with other machines and services, DNS ensures that servers, clients, and services can be found by their names.

The **Dynamic Host Configuration Protocol** dynamically assigns IP addresses and other configuration options to devices in a network. This way, it's very easy to add new computers, tablets, or smartphones – administrators no longer have to configure every device manually, since the DHCP server does the job. This is why DHCP is great for larger networks with constantly changing clients, e.g. schools, companies, etc.

|  | DHCP | DNS |
|---|---|---|
| Definition | DHCP = Dynamic Host Configuration Protocol | DNS = Domain Name System |
| Port used | DHCP runs on port 67 and 68 | DNS runs on port 53 |
| Supported protocols | UDP | UDP, TCP |
| Purposes | Providing IP addresses to hits for a limited amount of time Assigning IP addresses to the host / configuring hosts mechanically | Resolving domains/ translating domain names to IP addresses and translating IP addresses to domain names Locating Active Directory domain servers |
| Type | Centralized system | Decentralized system |
| Advantages | Reliable method of configuration and assigning IP addresses | Prevents users from having to remember IP addresses themselves |

**Table1:** Comparison of DHCP and DNS
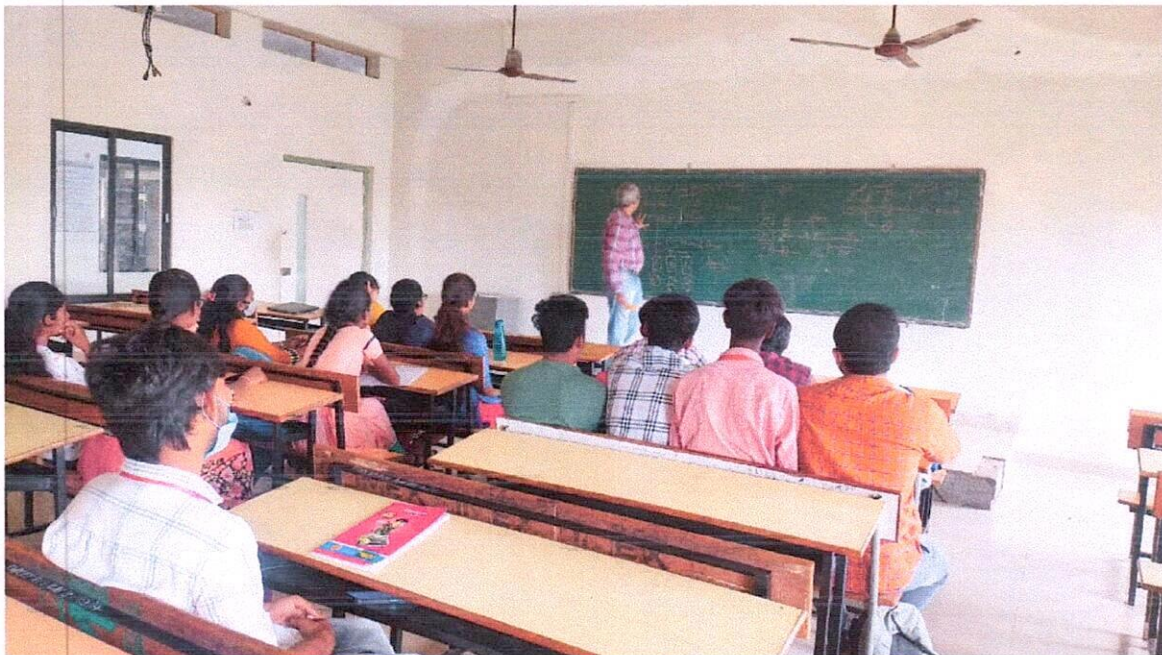


**Fig7:** Screen Shots of the Week 5 Session by Mr Amruth Kumar Sala explain about Services

Finally,to understand the student level of the Course,after completion of the five week ESD program we have conducted the online quiz. Based on their performance students are awarded the course completion certificate.

# 5. Scope of the course

The Internet of things (IoT) is an ecosystem of associated physical gadgets/objects that are available through the web. IoT is an arrangement of interrelated gadgets, advanced items, articles, individuals or creatures that are given novel identifiers (UIDs) and the capacity to move information over an organization without requiring any human collaboration. The possibility of this article is to give a review about IoT building squares and get down on how Electronics HW and Embedded Software assume an essential part in IoT. **IoT** has proved to be one of the best tools for the healthcare industry. It helps provide advanced healthcare facilities to patients, doctors, and researchers. These facilities include smart diagnosis, wearable devices for tracking health, patient management, and many more.

**Academic Year:** 2021-22      *Application form*

**Name of the Activity:**     **Iot Club**       **Year & SEM:  I-**

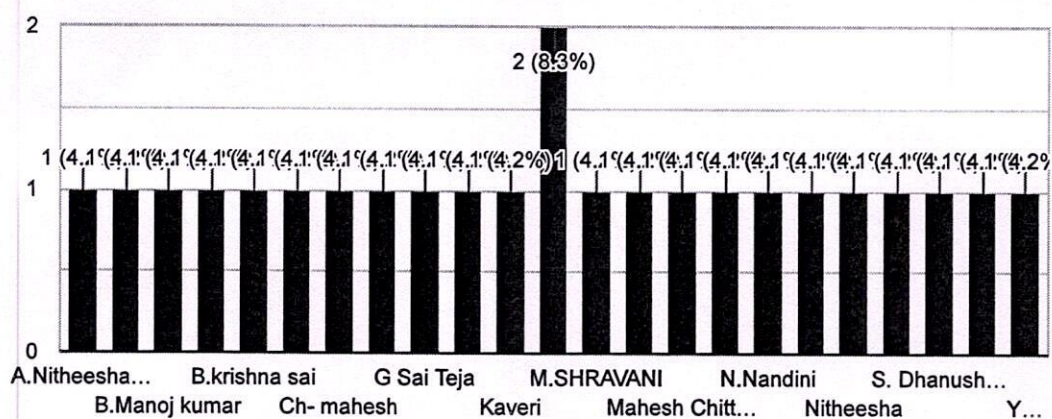| Full Name | User Action | Timestamp |
|---|---|---|
| SAIDA | Joined | 1/29/2022, 9:53:55 AM |
| 21QM1A0568 | Joined | 1/29/2022, 9:55:30 AM |
| 21QM1A0440 | Joined | 1/29/2022, 9:55:33 AM |
| 21QM1A0433 | Joined | 1/29/2022, 9:55:33 AM |
| 21QM1A0570 | Joined | 1/29/2022, 9:55:53 AM |
| AMRUTH SAGAR | Joined | 1/29/2022, 9:55:57 AM |
| 21QM1A0447 | Joined | 1/29/2022, 9:56:00 AM |
| 21QM1A0567 | Joined | 1/29/2022, 9:56:04 AM |
| 21QM1A0461 | Joined | 1/29/2022, 9:56:35 AM |
| 21QM1A0516 | Joined | 1/29/2022, 9:57:03 AM |
| 21QM1A0418 | Joined | 1/29/2022, 9:57:04 AM |
| 21QM1A0462 | Joined | 1/29/2022, 9:57:11 AM |
| 21QM1A0414 | Joined | 1/29/2022, 9:57:24 AM |
| 21QM1A0449 (Guest) | Joined | 1/29/2022, 9:58:20 AM |
| 21QM1A0413 | Joined | 1/29/2022, 9:58:22 AM |
| 21QM1A0403 | Joined | 1/29/2022, 9:59:06 AM |
| 21QM1A0441 | Joined | 1/29/2022, 10:02:10 AM |
| 21QM1A6718 | Joined | 1/29/2022, 10:02:39 AM |
| 21QM1A6626 | Joined | 1/29/2022, 10:03:09 AM |
| 21QM1A6653 | Joined | 1/29/2022, 10:04:11 AM |
| 21QM1A05A0 | Joined | 1/29/2022, 10:04:48 AM |
| 21QM1A0581 | Joined | 1/29/2022, 10:07:07 AM |
| 21QM1A0542 | Joined | 1/29/2022, 10:08:45 AM |
| 21QM1A0548 | Joined | 1/29/2022, 10:09:29 AM |
| 21QNA0549 (Guest) | Joined | 1/29/2022, 10:09:44 AM |
| 21QM1A05A5 | Joined | 1/29/2022, 10:11:39 AM |
| 21QM1A05A4 | Joined | 1/29/2022, 10:14:13 AM |
| 21QM1A0547 | Joined | 1/29/2022, 10:15:21 AM |
| 21QM1A0506 | Joined | 1/29/2022, 10:17:36 AM |
| 21QM1A0454 | Joined | 1/29/2022, 10:17:38 AM |
| 21QM1A6764 | Joined | 1/29/2022, 10:19:24 AM |

*HOD*

HEAD
DPT. OF ELECTRONICS & COMMUNICATIONS ENGINEERING
K.G. REDDY COLLEGE OF ENGINEERING & TECHNOLOGY
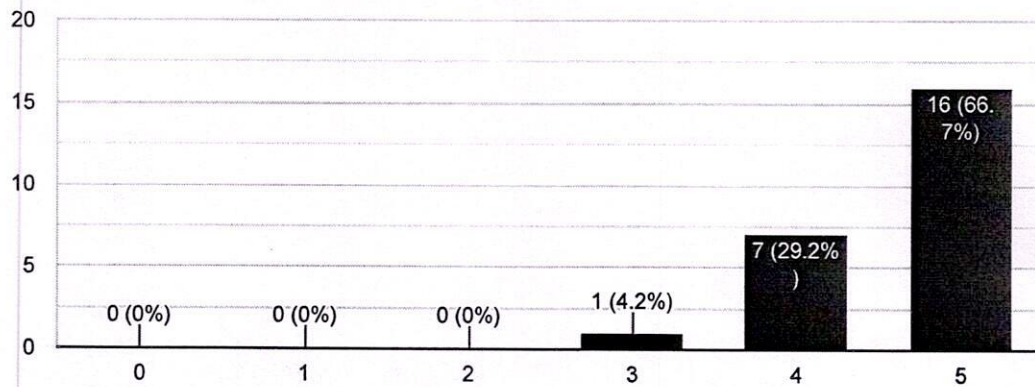CHILKUR (V), MOINABAD, R.R. DIST.501 504.

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# Foundation Course on IoT Certification
Organized by IoT Club and
Department of Electronics and Communication Engineering
In association with
Department of Humanities and Science

**Academic Year** : 2021-22          **Date:** 05:02:2022
**Session on** : Internet of Things Prototype to product          **Year & SEM:** I-I

Attendance and Feedback Sheet of Activity

| S. No | Roll Number | Name of Students | Feedback/Comments from Student |
|---|---|---|---|
| 1 | 21QMIA0548 | G. Pruthvi | Exciting & Interesting |
| 2. | 21QMIA0516 | B. Krishna Sai | Interesting. |
| 3. | 21QM1A6764 | V. Akhila | Exiting |
| 4 | 21QMIA0568 | M. Deekshitha | Interesting... ☺ |
| 5 | 21QMIA0594 | P. Varalakshmi | Interesting |
| 6. | 21QMIA05A0 | R. Anjali | Interesting. |
| 7. | 21QMIA05A5 | S. mounika Reddy | very useful. |
| 8 | 21QMIA0461 | S. Anand sarma | Good |
| 9 | 21QMIA0462 | V. likitha | Good. |
| 10 | 21QMIA0433 | M. Revathi | Good. |
| 11 | 21QMIA0401 | Nitheesha | Intresting. |
| 12 | 21QMIAbbB3 | Andoneyulu | Good. |
| 13. | 21QMIA0581 | M. Mentosh Reddy. | Good. |
| 14) | 21QM1A6753 | Prabhakar | Great. |
| 15) | 21QMIA05A4 | S. Pramod | Great. |
| 16) | 21QM1AC728 | M. Vasithha | Good. |
| 17) | 21QM1AC718 | K. Manish | Good |
| 18) | 21QMIA0560 | K. Venkat Tesan | Good. |
| 19) | 21QMIA0542 | G. Swapna | Good |
| 20) | 21QMIA0570 | M. Varshini | Good. |
| 21) | 21QMIA0549 | J. Mamatha | Intresting and good. |
| 22) | 21QMIA0567 | M. Mohana | Intresting. |
| 23) | 21QMIA0629 | K. Ramesh | Good. |
| 24) | 21QMIA0534 | D. Indu | Good |
| 25) | 21QMIA6749 | P. Rahul Reddy | Good. |
| 26) | 21QMIA0559 | K. Dinesh Kumar | Good |
| 27) | 21QMIA0515 | B. Arun Goud | Good. |
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## Department of Electronics and Communication Engineering

**Academic Year** : 2021-22  
**Session on** : IoT Use Cases  

**Date:** 19:02:2022  
**Year & SEM:** B.Tech I SEM  

Attendance and Feedback Sheet of Activity

| S. No | Roll Number | Name of Students | Feedback/Comments from Student |
|---|---|---|---|
| 1. | 21QMIA05A5 | S.mounika Reddy | very intresting. |
| 2. | 21QMIA0567 | M.Mohana | Good. |
| 3. | 21QMIA05A0 | R.-Anjali | Good |
| 4. | 21QMIA0570 | M. Vagshini | Vagshini Good. |
| 5. | 21QMIA0401 | A. Nlitheesha | Intresting |
| 6 | 21QMIA0483 | M.Revathi | good |
| 7 | 21QMIA0594 | P. Varalakshmi | Good |
| 8 | 21QMIA0542 | G. scuapna | Good |
| 9 | 21QMIA0443 | P. Srihari | Good |
| 10 | 21QMIA0461 | S. Anand Sarma | Very Good |
| 11 | 21QMIA0749 | P. Rahul Reddy | Good |
| 12 | 21QMIA6683 | R. Anjaneyulu | Good |
| 13 | 21QMIA6718 | manish | Good. |
| 14 | 21QMIA0540 | G. Pruthvi Sidharalu | Excellent. |
| 15. | 21QMIA0516 | B. Krishna Sai | Intresting |
| 16. | 21QMIA6753 | Prabhakar | Good. |
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Total Students Participated in activity: 16

Name of faculty with Signature

A. Saida

HOD

PRINCIPAL

## Advanced Course on IoT Certification
Organized by IoT Club and
Department of Electronics and Communication Engineering
In association with
Department of Humanities and Science

**Academic Year** : 2021-22                          **Date:** 26:02:2022

**Session on** : Networking & Hardware          **Year & SEM:** I

<u>Attendance and Feedback Sheet of Activity</u>

| S. No | Roll Number | Name of Students | Feedback/Comments from Student |
|-------|-------------|------------------|-------------------------------|
| 1. | 21QM1A0437 | M. Shravani | Good |
| 2. | 21QM1A0570 | M. Varshini | Good |
| 3 | 21QM1A0447 | G. Sai Teja | Excellent |
| 4) | 21QM1A0441 | M. Pavan Kumar | Good |
| 5. | 21QM1A0442 | N. Nandini | Excellent |
| 6. | 21QM1A0457 | Md. Shaik | Good |
| 7 | 21QM1A0454 | Md. Salmaan | Good |
| 8 | 21QM1A0440 | N. Kaveri | Good |
| 9 | 21QM1A0414 | Ch. Mahesh | Good |
| 10 | 21QM1A0502 | B. Manoj Kumar | Excellent |
| 11 | 21QM1A0567 | M. Mohana | nice experience |
| 12 | 20QM1A0433 | T. Usha | |
| 12. | 21QM1A0403 | lokesh yadav | good. |
| 13. | 21QM1A0426 | B. prem kumar | Good |
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Coordinator

HoD

# A Five Week Foundation Course on Internet of Things Google Feedback- A. Y: 2021-22
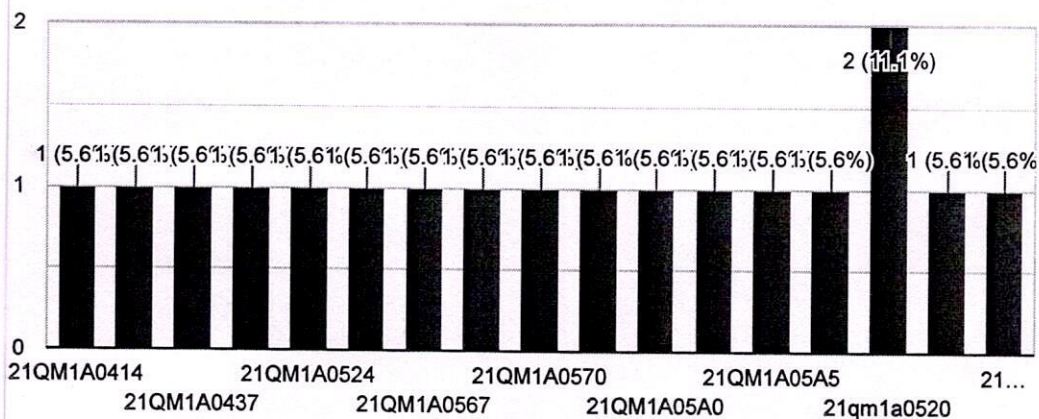
24 responses

Publish analytics

## Roll No(TEN DIGITS)          Copy
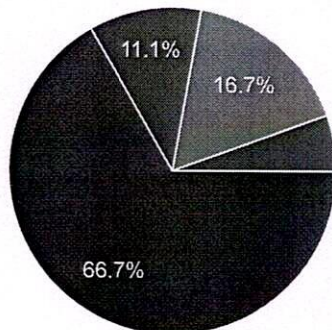
24 responses



## Name of the student:          Copy

24 responses

### 3. Are you satisfied with the time and venue?

Copy

24 responses



### 4. How much interesting this session was for you?

Copy

24 responses
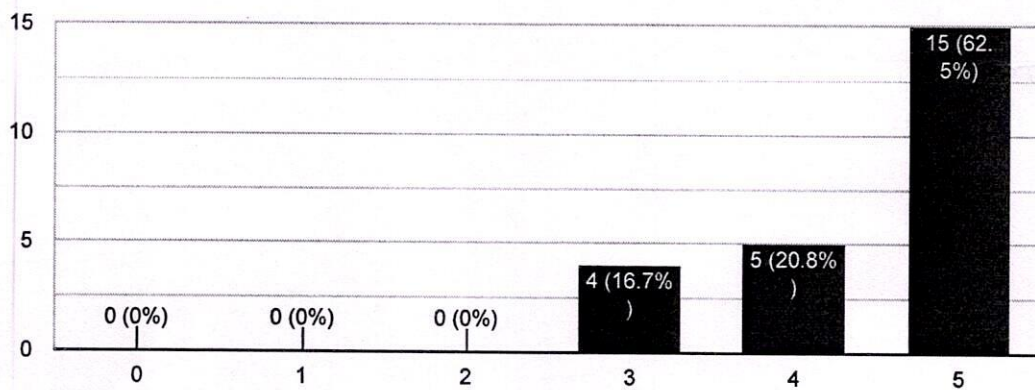
## 7. What is your opinion about the speaker?

Copy

24 responses
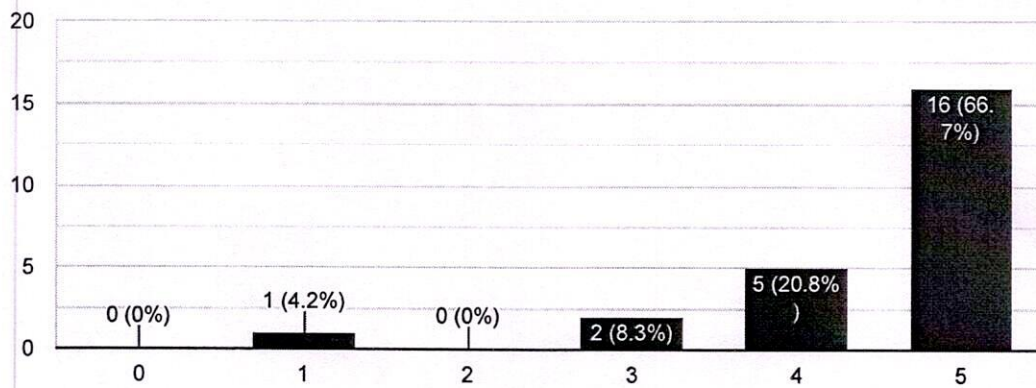


## 8. How much this session was useful from the knowledge and information point of view?

Copy

24 responses
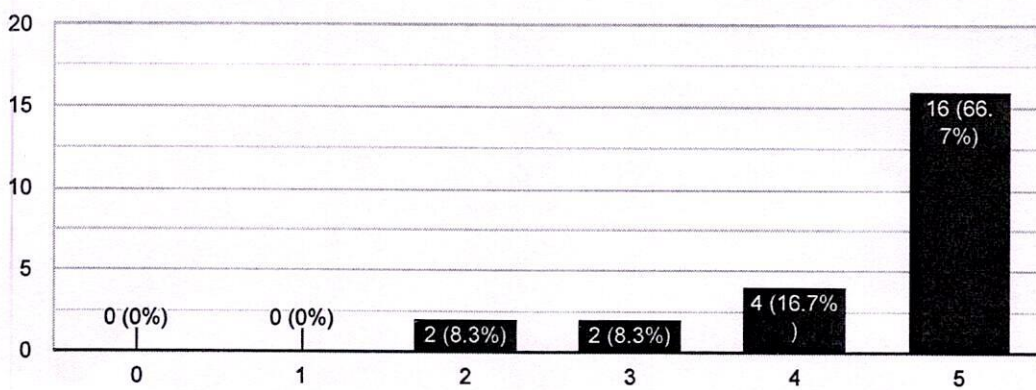
10. What did you like best about the foundation course on IoT?

24 responses

.

Knowledge about IOT

Skills

Knowing about the hardware systems

Development prototype

Exploring about the iot

Nothing I like

About drone

Nothing much

Things we get from it

Nothing

Working with esp32 boards

.

...

New technologies

Working on projects

New technologies

Cleared explanation

Knowledge about iot

12. Please state things you would want to see improved in future advanced course on IoT?

24 responses

.

Knowing about the hardware systems

More activities

They should provide the boards and all needed equipment

Every thing have to change

Batter people

Virtual classes

Regular classes

Make more working hours

.

...

More projects

Nothing

More projects

Real time projects

Time and sessions should be increase

Real time projects

Learning

13. Please mention other areas of foundation course on IoT that you would like to have?

24 responses

.

Nothing

Nothing

Knowing about the hardware systems

No

Continuation and practiccal experience

Hm

.

Practical knowledge

Building prototype

.

....

...

I don't know

Online mode

Sorry i don't know

Don't no

# IoT CLUB: Foundation Course on IoT Certification Online Quiz A. Y: 2021-22

18 responses

Publish analytics

## Roll No(TEN DIGITS)    📋 Copy

18 responses



## Name of the student:    📋 Copy

18 responses
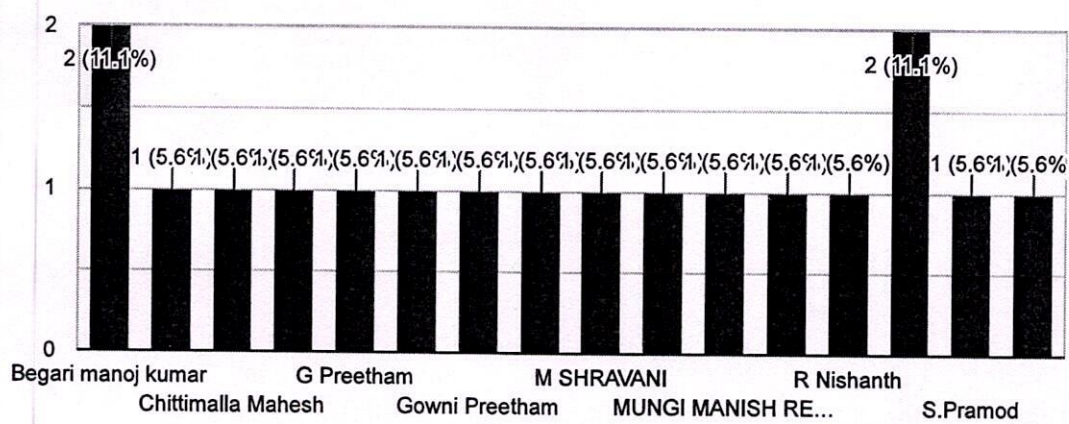
4. Who coined the term "Internet of Things"?

18 responses



- Kevin Aston
- Smart Grid
- Arduino
- Smart City

11.1%
16.7%
66.7%

5. Which of the following layers provides end-to-end communication in IoT?
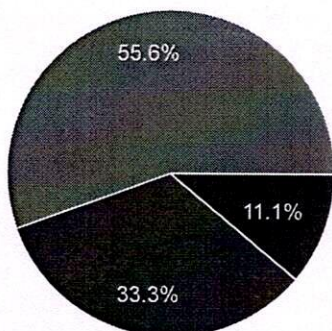
18 responses



- Logical layer
- Data link layer
- Transport layer
- Session layer

55.6%
11.1%
33.3%

6. When was the actual term "Internet of Things" coined?
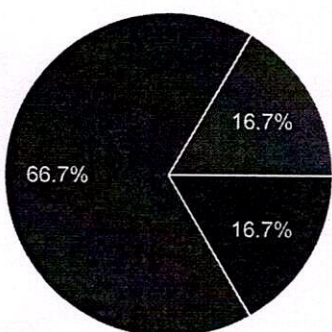
18 responses



- 1998
- 1999
- 2000
- 2002

66.7%
16.7%
16.7%

## 10. How many types of capacitive touch sensors in IoT?        ▢ Copy

18 responses
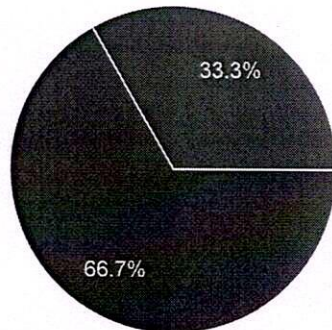


- ● Two types
- ● Five types
- ● Seven types
- ● Nine types

33.3%
66.7%

## 11. Which of the following is false about IoT devices?        ▢ Copy

18 responses
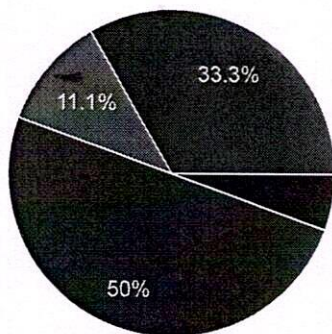


- ● Resistive touch sensors
- ● Human sensor
- ● Capacitive touch sensor
- ● IoT devices are completely safe

33.3%
11.1%
50%

## 12. Which of the following languages does GSN work on?        ▢ Copy

18 responses
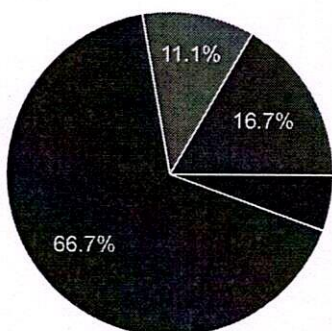


- ● Python
- ● JAVA
- ● Android
- ● C++

11.1%
16.7%
66.7%

16. Which language is preferred for IoT analytics ?                    Copy

18 responses



- C ++
- Python

61.1%

38.9%
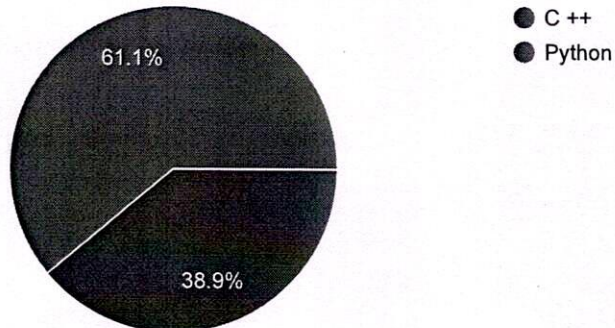
17.  Which of the following is not an IoT platform?                    Copy

18 responses



- Common Gateway Interest
- Flipkart

72.2%

27.8%
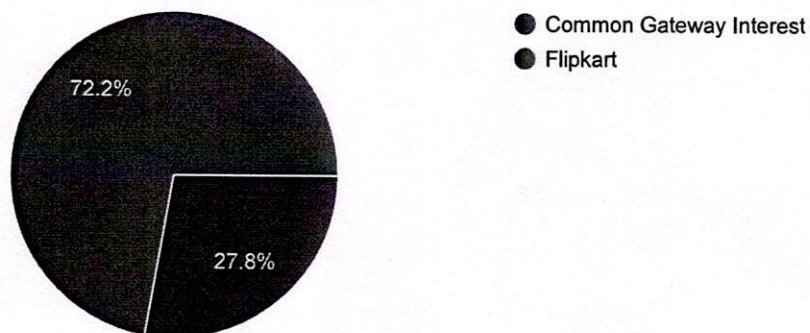
18. IoT stands for?                    Copy

18 responses



- Introduction of Things
- Internet of Things

94.4%
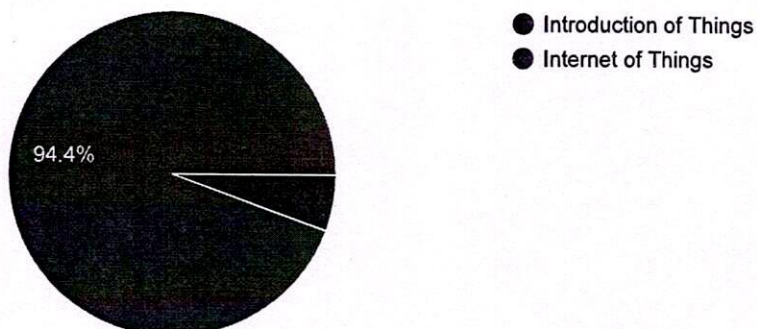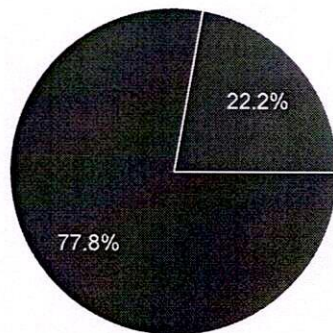
22. Which of the following is not a fundamental component of an IoT system?
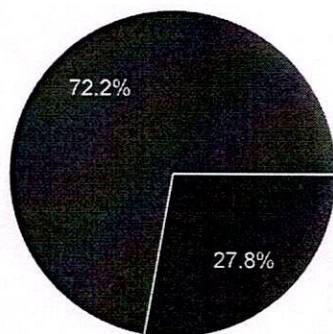
18 responses



- Transformer
- It makes the complete failure of the system.

22.2%

77.8%

Copy

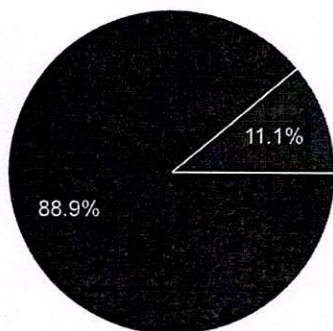23. In Which year, the term "Internet of things" was coined?

18 responses



- 1998
- 1999

72.2%

27.8%

Copy

24. What is the full form of IIOT?

18 responses



- Industrial Internet of Things
- Index Internet of Things

11.1%

88.9%

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INTERNET OF THINGS CLUB

IoT Club, Dept. of ECE
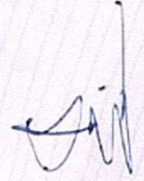In association with H & S Department

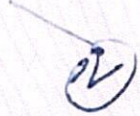CERTIFICATE OF PARTICIPATION

This is to certify that Mr./Ms. _Kaneei_ has attended the

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At KG Reddy College of Engineering and Technology from 22nd January to 26th February 2022. As a part of Emerging Technology Course under Engineering for Sustainable Development Program.

Mr. Angotu Saida
Co Ordinator

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Dr M N Narsaih

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