

# IoT



IOT



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## Introduction to IoT

- What is Internet of Thinking?
- Machine to Machine Communication
- Industrial Automation
- Explain how it works
- How is it change the world?
- IoT devices
- IoT Ecosystem
- IoT Adoption
- IoT Decision Framework
- Major Player in IoT Market
- Use cases of IoT

## Design Consideration of IoT Systems

- Reference Architectures
- Explain Interoperability Issues
- What to consider in Design
- Architectures Device
- Network and Cloud Component
- Centralized and Distributed Architectures
- Communication Technologies and Protocols

## Cloud Computing Platforms for IoT

- What is Cloud Computing
- Explain Public, Private and Hybrid clouds
- Cloud-based Gateway solutions
- Explain Cloud components and services like
- Device Management, Databases, Visualization, Reporting, etc
- Discussion on AWS IoT Services
- AWS IoT Button
- AWS Lambda Function
- AWS Device Gateway
- AWS Rules Engine



## IoT Protocols

Different Types of Wireless Communications  
Discussion on Short-range Communication Devices and Properties (Bluetooth, Zigbee and WiFi)  
Discussion on Wireless Long-range communication devices and Properties (Cellular communication and LPWAN)  
Architecture of Sensor Node  
MQTT  
HTTP/HTTPs

## Working with Arduino

Hardware and Software components  
Setting up Arduino  
Configure Sensors, Signals  
Microcontroller  
Create project using this Setup  
Sending data to Cloud

## working with Raspberry Pi

Setting up Raspberry Pi  
Hardware Interactions with the Raspberry Pi  
Understand Sensing Actions  
Create project using this setup

## Interacting IoT with Azure

Cloud Infrastructure for IoT  
IoT Hub components on Cloud  
Common Message Broker in AWS  
Register Raspberry Pi with Gateway  
Configure Send and Receive messages from Raspberry Pi  
View Stored Data on Cloud  
Restrict connect to Cloud



## IoT Security

Overview of Securities

Vulnerabilities

Restrict what kind of data to communicate

Authentication

Authorization

Hardware level securities

