



SNS COLLEGE OF TECHNOLOGY

(An Autonomous Institution)

COIMBATORE-35.



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Approved by AICTE, New Delhi & Affiliated to Anna University, Chennai.

DEPARTMENT OF AUTOMOBILE ENGINEERING

COURSE NAME : 19AUT205 – INTERNET OF THINGS IN AUTOMOTIVE SAFETY

II YEAR /IV SEMESTER

Unit 3- IoT Server

Topic 2 : Internet of Things Device Design Methodology



CONTENT



❖ IoT Design Methodologies



1. What is IoT Server?
2. Is it possible to use the IoT device with out server?





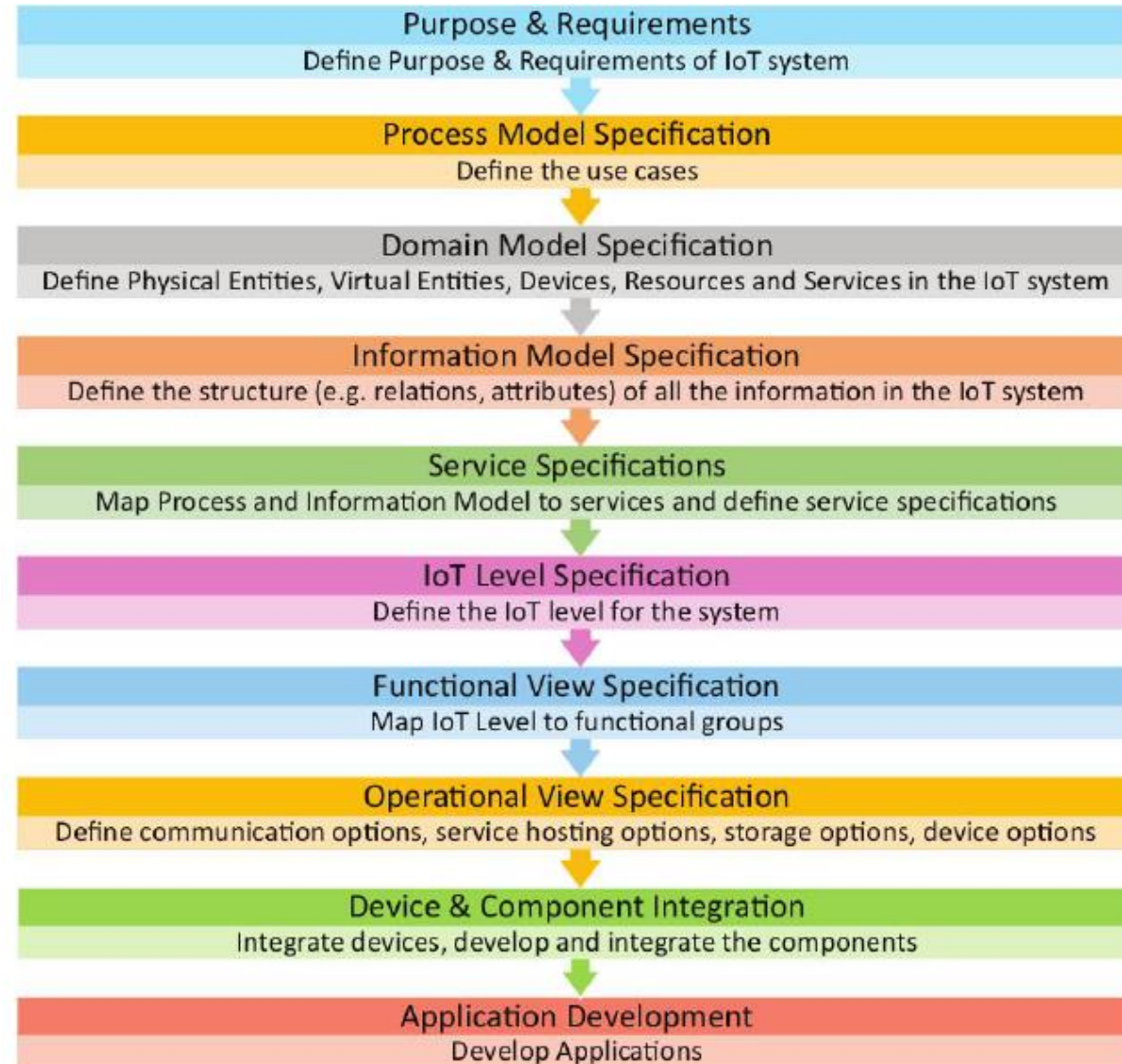
IOT DEVICE DESIGN METHODOLOGY



- ❖ Purpose & Requirements Specification
- ❖ Process Specification
- ❖ Domain Model Specification
- ❖ Information Model Specification
- ❖ Service Specifications
- ❖ IoT Level Specification
- ❖ Functional View Specification
- ❖ Operational View Specification
- ❖ Device & Component Integration
- ❖ Application Development



STAGES





PURPOSE & REQUIREMENT SPECIFICATIONS



- ❖ The first step in IoT system design methodology is to define the purpose and requirements of the system.
- ❖ In this step, the system purpose, behaviour and requirements are captured
- ❖ Requirement includes data collection requirements, data analysis requirements, system management requirements, data privacy and security requirements, user interface requirements.



PROCESS SPECIFICATIONS



- ❖ The second step in the IoT design methodology is to define the process specification.
- ❖ In this step, the use cases of the IoT system are formally described based on and derived from the purpose and requirement specifications



DOMAIN MODEL SPECIFICATIONS



- ❖ The third step in the IoT design methodology is to define the Domain Model.
- ❖ The domain model describes the main concepts, entities and objects in the domain of IoT system to be designed.
- ❖ Domain model defines the attributes of the objects and relationships between objects.
- ❖ Domain model provides an abstract representation of the concepts, objects and entities in the IoT domain, independent of any specific technology or platform.
- ❖ With the domain model, the IoT system designers can get an understanding of the IoT domain for which the system is to be designed.



INFORMATION MODEL SPECIFICATIONS



- ❖ The fourth step in the IoT design methodology is to define the Information Model.
- ❖ Information Model defines the structure of all the information in the IoT system, for example, attributes of Virtual Entities, relations, etc.
- ❖ Information model does not describe the specifics of how the information is represented or stored.
- ❖ To define the information model, we first list the Virtual Entities defined in the Domain Model.
- ❖ Information model adds more details to the Virtual Entities by defining their attributes and relations



SERVICE SPECIFICATIONS



- ❖ The fifth step in the IoT design methodology is to define the service specifications.
- ❖ Service specifications define the services in the IoT system, service types, service inputs/output, service endpoints, service schedules, service preconditions and service effects.



IOT LEVEL SPECIFICATIONS



- ❖ The sixth step in the IoT design methodology is to define the IoT level for the system.



FUNCTIONAL VIEW SPECIFICATIONS



- ❖ The seventh step in the IoT design methodology is to define the Functional View.
- ❖ The Functional View (FV) defines the functions of the IoT systems grouped into various Functional Groups (FGs).
- ❖ Each Functional Group either provides functionalities for interacting with instances of concepts defined in the Domain Model or provides information related to these concepts



OPERATIONAL VIEW SPECIFICATIONS



- ❖ The eighth step in the IoT design methodology is to define the Operational View Specifications.
- ❖ In this step, various options pertaining to the IoT system deployment and operation are defined, such as, service hosting options, storage options, device options, application hosting options, etc



DEVICE AND COMPONENT INTEGRATION



- ❖ The ninth step in the IoT design methodology is the integration of the devices and components.



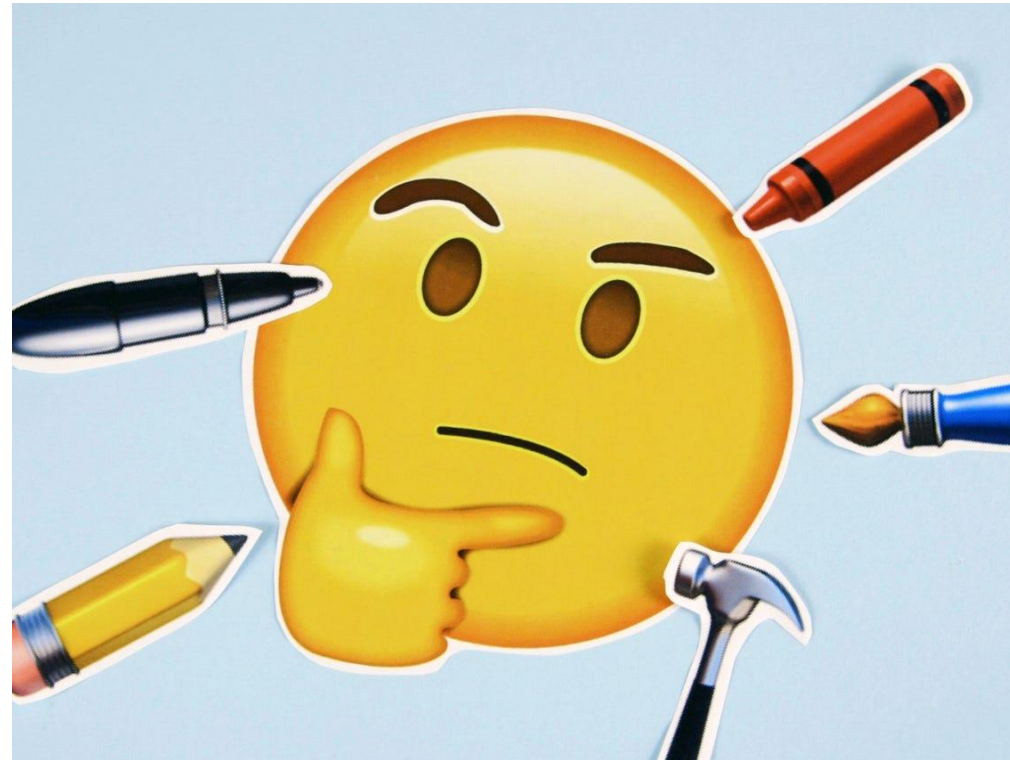
APPLICATION DEVELOPMENT



- ❖ The final step in the IoT design methodology is to develop the IoT application.



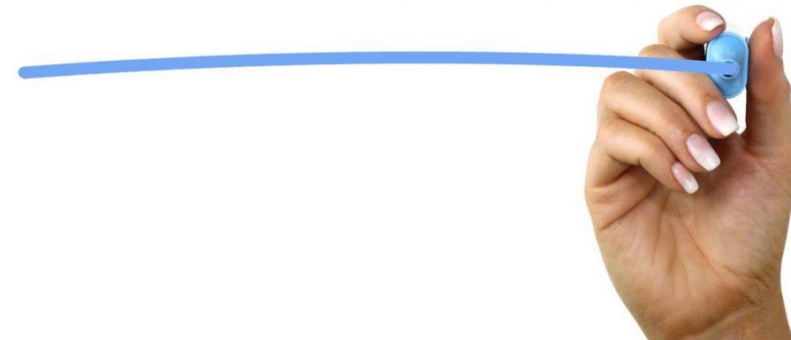
Task





1. Mention the stages of IoT Design Methodology?
2. How many levels are there in IoT?

ASSESSMENT





REFERENCE



- ❖ https://www.webnms.com/iot/help/iot_deployment_guide_cloudgate/iot,_sensors,_and_cloud_server.html



THANK YOU !!!