

SNS COLLEGE OF ENGINEERING

Kurumbapalayam(Po), Coimbatore – 641 107 Accredited by NAAC-UGC with 'A' Grade Approved by AICTE, Recognized by UGC & Affiliated to Anna University, Chennai

Department of AI & DS

Course Name – Internet Of Things & AI

V Semester

UNIT 2 - DESIGN METHODOLOGY







IOT Platforms Design Methodology

- Designing IoT systems can be a complex and challenging task as these systems involve interactions between various components devices and network resources, web services, analytics application and database servers.
- IoT system designers often tend to design IoT systems keeping products/services in mind.
- So that designs are tied to specific product/service choices made. But it make lacksquareupdating the system design to add new features or replacing a particular product/service choice for a component becomes very complex, and in many cases may require complete re- design of the system.

such as IoT components,

specific



- Here we discuss a generic design methodology for IoT system design which is independent of specific product, service or programming language.
- IoT systems designed with the proposed methodology have reduced design, testing and maintenance time, better interoperability and reduced complexity.'





IOT Platforms Design Methodology

It includes:

- Purpose & Requirements Specification
- Process Specification
- Domain Model Specification-domain levels details
- Information Model Specification-how does informations are handled
- Service Specification-how many modules need to desing
- ► IoT Level Specifications
- Functional view Specification-tells about the functions of each module
- Operational View Specification-selecting each components for module
- Device & component Integration
- > Application Development



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of each module ents for module



IoT Design Methodology - Steps

Purpose & Requirements Define Purpose & Requirements of IoT system

> Process Model Specification Define the use cases

Domain Model Specification Define Physical Entities, Virtual Entities, Devices, Resources and Services in the IoT system

Information Model Specification

Define the structure (e.g. relations, attributes) of all the information in the IoT system

Service Specifications

Map Process and Information Model to services and define service specifications

IoT Level Specification Define the IoT level for the system

Functional View Specification Map IoT Level to functional groups

Operational View Specification Define communication options, service hosting options, storage options, device options

> Device & Component Integration Integrate devices, develop and integrate the components

> > Application Development Develop Applications







Purpose & Requirements Specification

- The first step in IoT system design methodology is to define the purpose and • requirements of the system. In this step, the system purpose, behavior and requirements are captured.
- **Purpose :** A home automation system that allows controlling of the lights in a home remotely using a web application.
- Behavior : how the system has to behave, The home automation system should • have auto and manual modes
- . In **auto mode**, the system measures the light level in the room and switches on the light when it gets dark.
- **In manual mode**, the system provides the option of manually and remotely • switching on/off the light.
- System Management Requirement : The system should provide remote monitoring and control functions





Purpose & Requirements Specification

- Data Analysis-System should perform local analysis of the data ullet
- what we do with the data in the example do we want the light is on/off so decide that we need a analysis(local or remote) in our example local is enough.
- **Application Deployment** Application should be deployed locally, but should be \bullet accessible remotely
- Should provide basic security like user authentication Security \bullet





THANK YOU

