SNS COLLEGE OF ENGINEERING

Kurumbapalayam(Po), Coimbatore – 641 107

An Autonomous Institution

Accredited by NAAC-UGC with 'A' Grade

Approved by AICTE, Recognized by UGC & Affiliated to Anna University, Chennai

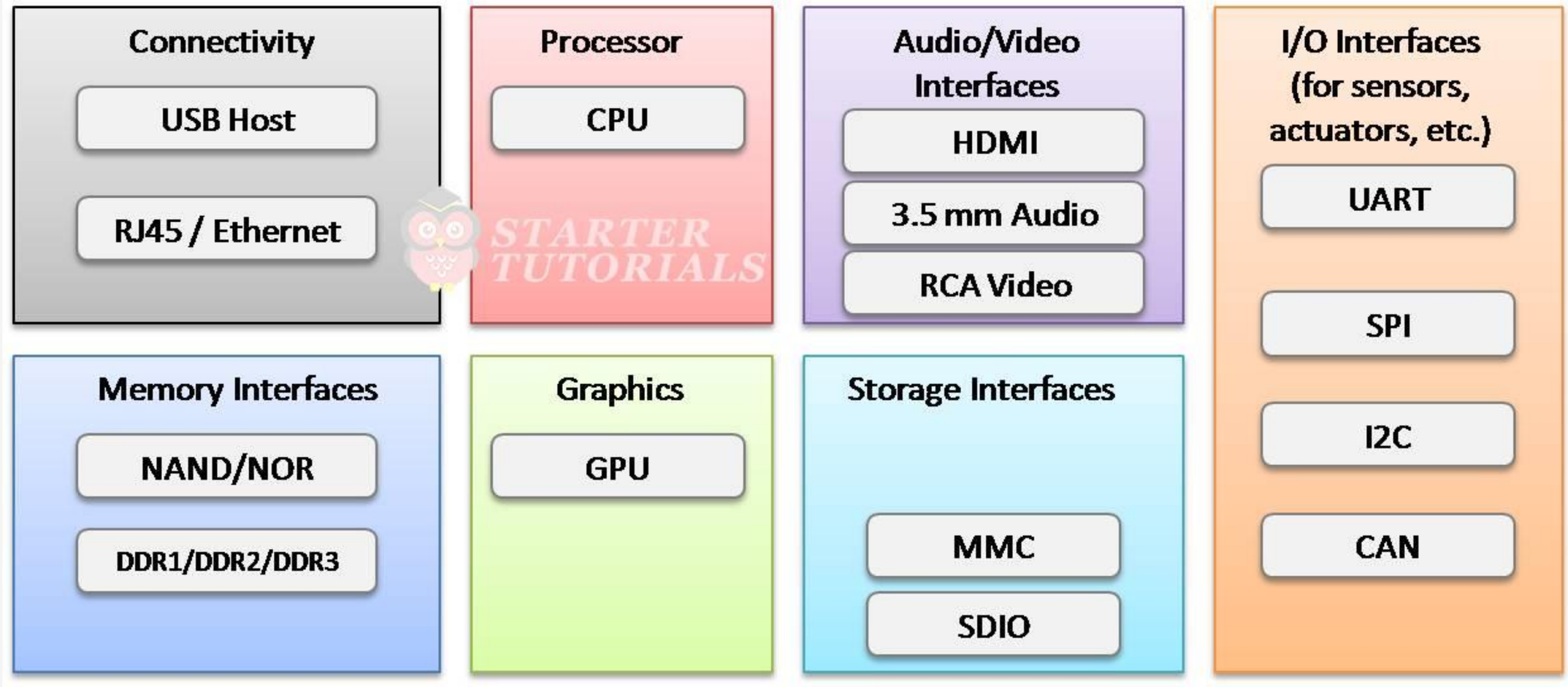
UNIT 1
IOT FUNDAMENTALS

Physical Design of Internet of Things

The **physical design** of an **IoT** system is referred to as the **Things/Devices** and protocols that are used to build an IoT system. all these things/Devices are called Node Devices and every device has a unique identity that performs remote sensing, actuating and monitoring work. and the protocols that are used to establish communication between the Node devices and servers over the internet.

Physical Design of Internet of Things

Things/Devices are used to build a connection, process data, provide interfaces, provide storage, and provide graphics interfaces in an IoT system. all these generate data in a form that can be analyzed by an analytical system and program to perform operations and used to improve the system.


Connectivity
USB Host
RJ45 / Ethernet
Processor
CPU
Audio/Video Interfaces
HDMI
3.5 mm Audio
RCA Video
I/O Interfaces (for sensors, actuators, etc.)
UART
SPI
I2C
CAN
Memory Interfaces
NAND/NOR
DDR1/DDR2/DDR3
Graphics
GPU
Storage Interfaces
MMC
SDIO
STARTER TUTORIALS

Connectivity

Devices like USB hosts and ETHERNET are used for connectivity between the devices and the server.

Processor

A processor like a CPU and other units are used to process the data. these data are further used to improve the decision quality of an IoT system.

Audio/Video Interfaces

An interface like HDMI and RCA devices is used to record audio and videos in a system.

Input/Output interface

To give input and output signals to sensors, and actuators we use things like UART, SPI, CAN, etc.

Storage Interfaces

Things like SD, MMC, and SDIO are used to store the data generated from an IoT device.

WebSocket

This protocol enables two-way communication between a client and a host that can be run on an untrusted code in a controlled environment. this protocol is commonly used by web browsers.

MQTT

It is a machine-to-machine connectivity protocol that was designed as a publish/subscribe messaging transport. and it is used for remote locations where a small code footprint is required.

Transport Layer

This layer is used to control the flow of data segments and handle the error control. also, these layer protocols provide end-to-end message transfer capability independent of the underlying network.

TCP

The transmission control protocol is a protocol that defines how to establish and maintain a network that can exchange data in a proper manner using the internet protocol.

UDP

a user datagram protocol is a part of an internet protocol called the connectionless protocol. this protocol is not required to establish the connection to transfer data.

THANK YOU