SNS COLLEGE OF ENGINEERING

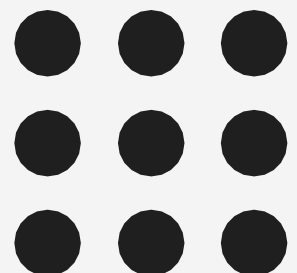## Department of Information Technology

Course Name –Internet of Things &AI

III Year / V Semester

Unit 1 – IoT INTRODUCTION AND APPLICATIONS

Topic 2- IoT Framework

IoT Framework

A high level M2M system architecture (HLSA)

- Defined by ETSI TS 102 690 V1.1.1 (European Telecommunications Standards Institute – Technical Specification)

- The HLSA comprises the

1) **device and gateway domain**
2) **the network domain**
3) **applications domain**

4) 1. device and gateway domain

5)   **a.M2M device**: A device that runs M2M application(s) using M2M service capabilities.

6)   M2M devices connect to network domain in the following manners:

7)   Case 1 —Direct Connectivity

8)   Case 2 —Gateway as a Network Proxy

IoT Framework
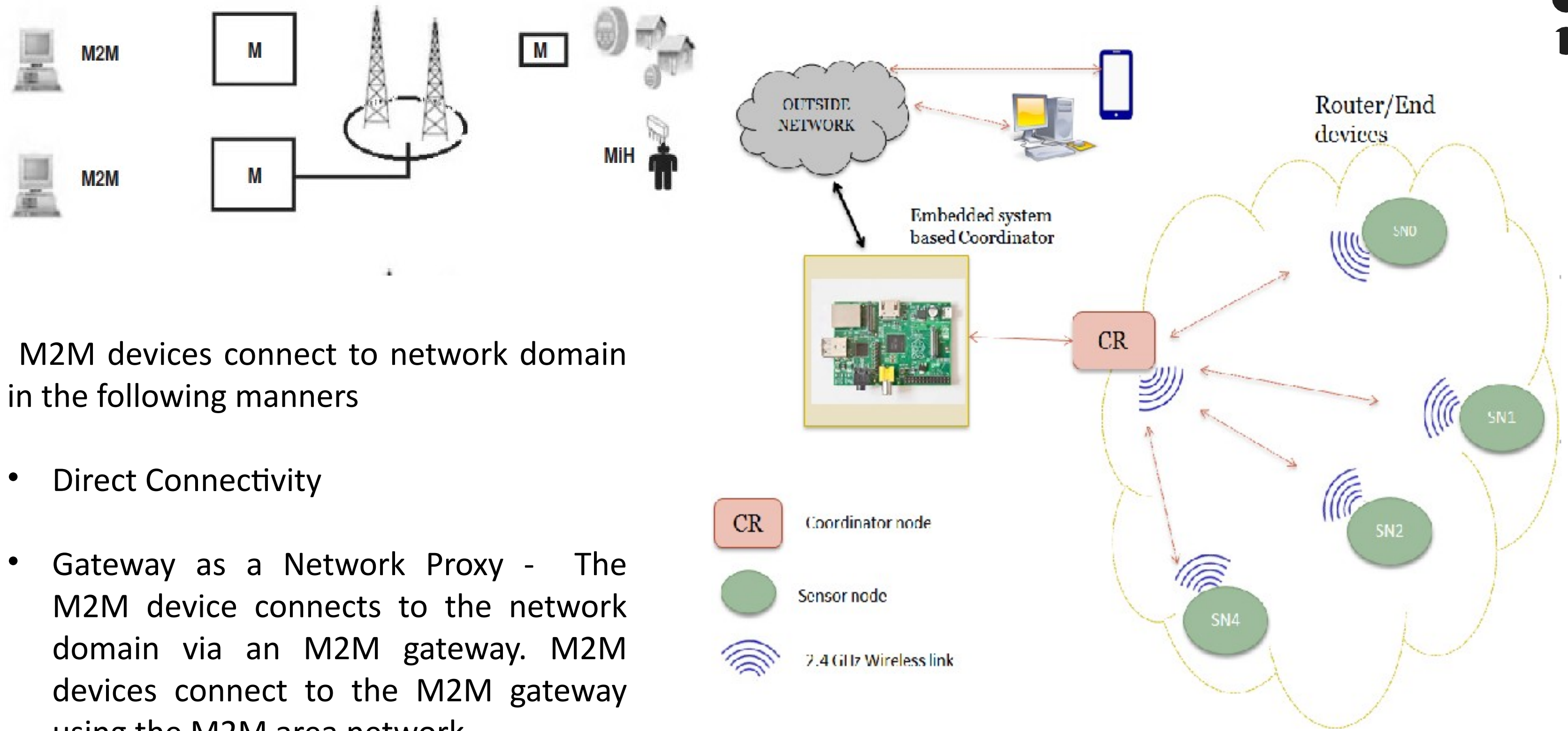
M2M devices connect to network domain in the following manners

- Direct Connectivity

- Gateway as a Network Proxy - The M2M device connects to the network domain via an M2M gateway. M2M devices connect to the M2M gateway using the M2M area network
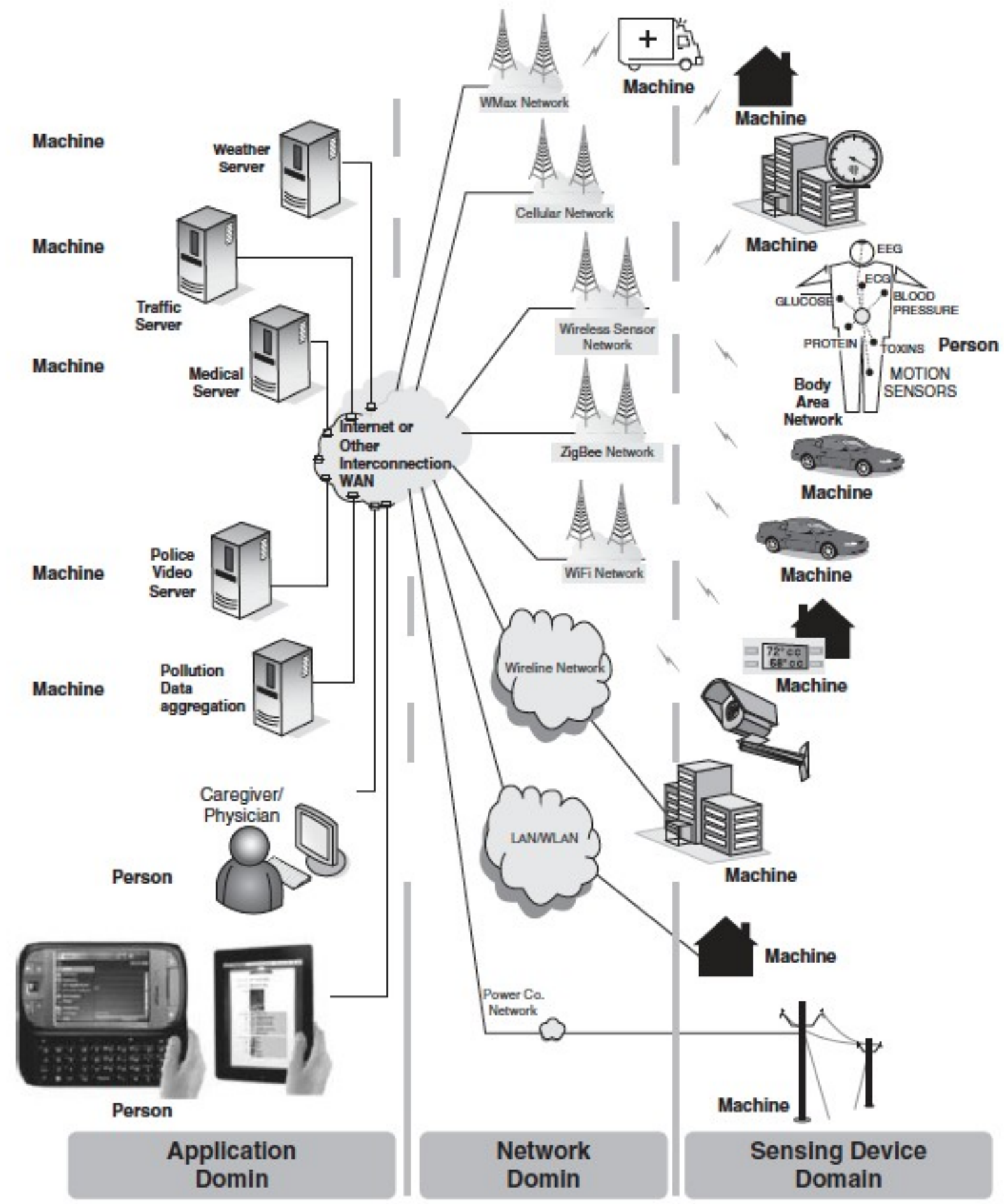
IoT Framework

M2M area network: It provides connectivity between M2M devices and M2M gateways.

- Examples of M2M area networks include personal area network (PAN) technologies such as IEEE 802.15.1, Zigbee, Bluetooth, IETF ROLL, ISA100.11a, among others, or local networks such as power line communication (PLC), M-BUS, Wireless M-BUS, and KNX.

- **M2M gateway**: A gateway that runs M2M application(s) using M2M service capabilities. The gateway acts as a proxy between M2M devices and the network domain. The M2M gateway may provide service to other device.

1)

| Application Domin | Network Domin | Sensing Device Domain |

IoT Framework

The **network domain** is composed of the following elements:

1. Access network: A network that allows the M2M device and gateway domain to communicate with the core network
Access networks include (but are not limited to) digital subscriber line (xDSL), hybrid fiber coax (HFC), satellite, GSM/EDGE radio access network (GERAN), UMTS terrestrial radio access network (UTRAN).

2. Core network: A network that provides the following capabilities (different core networks offer different features sets):
– *IP connectivity at a minimum, and possibly other connectivity means ,Service and network control functions, Interconnection (with other networks), Roaming, Core networks*

3. M2M service capabilities:
– Provide M2M functions that are to be shared by different applications, Expose functions through a set of open interfaces, Use CoN functionalities, Simplify and optimize application development and deployment through hiding of network specificities

IoT Framework

The **applications domain** is composed of the following elements:

1. **M2M applications:** Applications that run the service logic and use M2M service capabilities accessible via an open interface.

There are **also management functions** within an overall M2M service provider domain, as follows:

2. Network management functions: Consists of all the functions required to manage the access and core networks; these functions include provisioning, supervision, fault management.

2. M2M management functions: Consists of all the functions required to manage M2M service capabilities in the network domain

THANK YOU