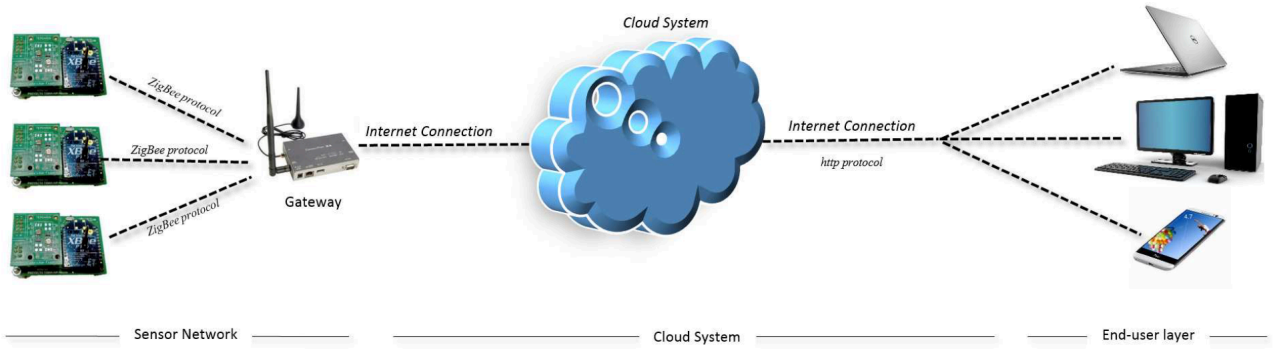
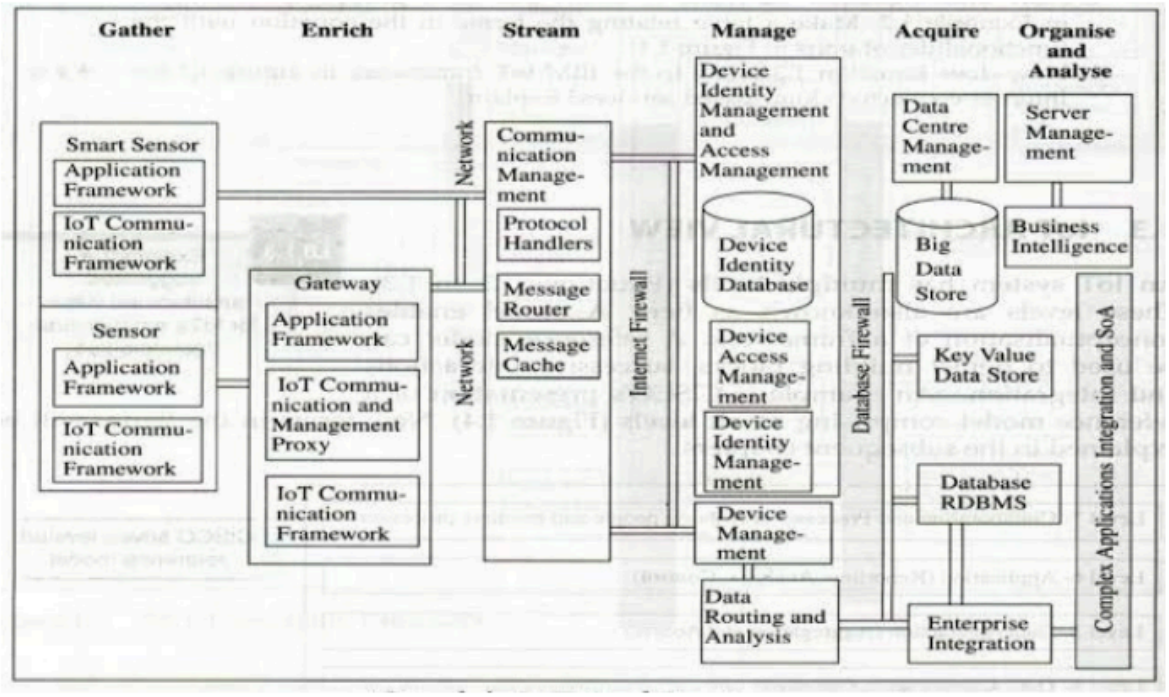
DIAGRAM IOT - IMP

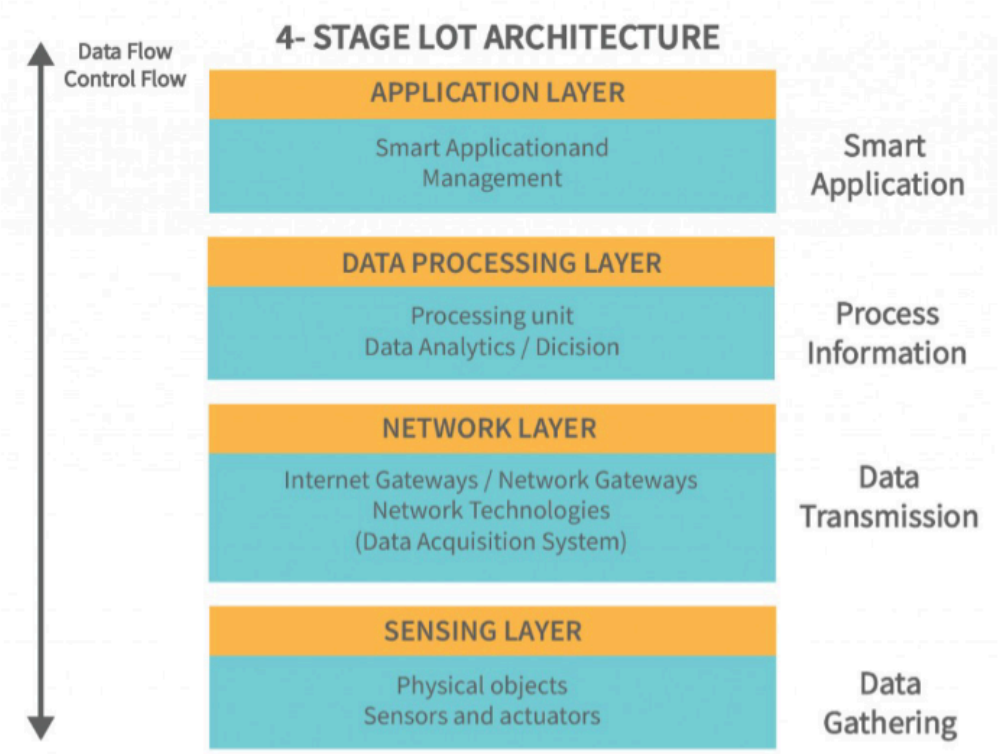
List of Important PYQ-Tagged Topic Images (Concise - With Specific MAC Protocols)

Unit 1: Introduction to IoT

- **4. How does an IoT System Actually Work? [PYQ for conceptual model]**
  - 

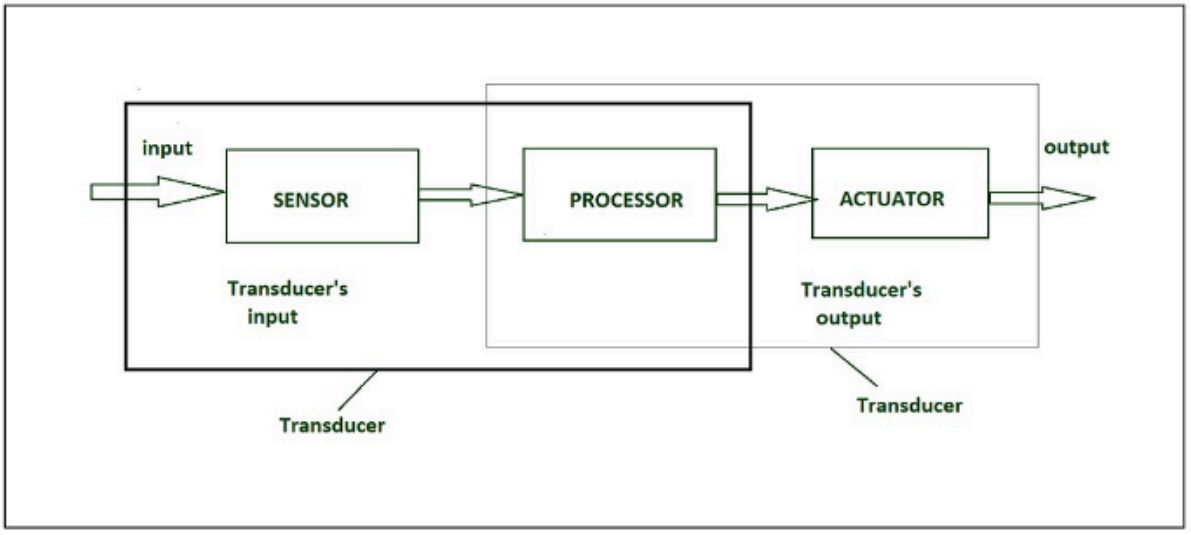
    (Flow: Sensors -> Gateway/Network -> Cloud -> Application/User)
- **8. IoT Conceptual Framework [PYQ]** (Oracle's Suggested Architecture)
  - 

    (Gather, Enrich, Stream, Manage, etc. block diagram)
- **10. Different Layers of IoT Architecture (Standard 4-Layer Model) [PYQ for smart city framework]**



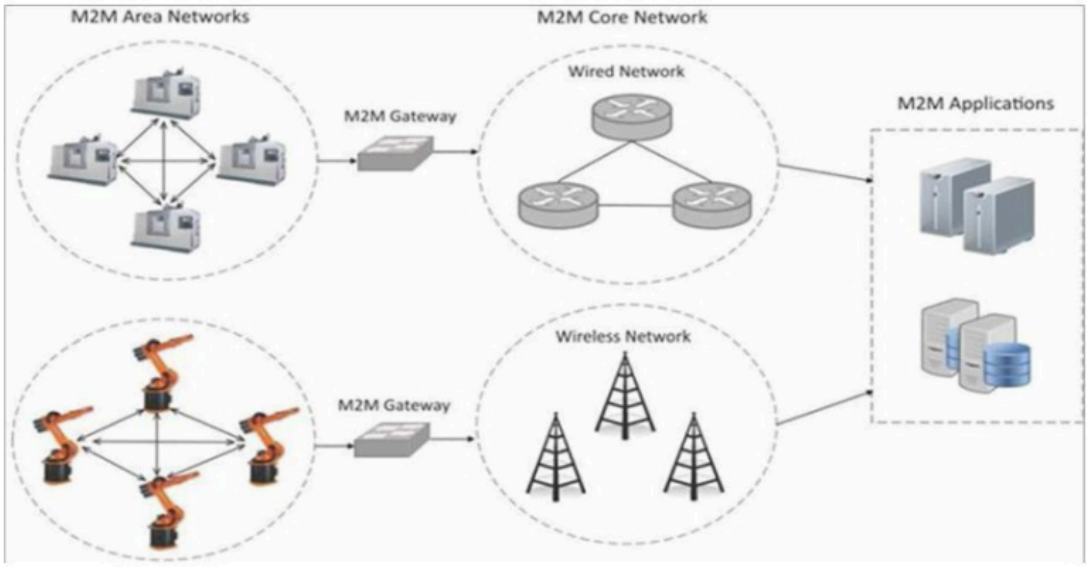
  - *(Sensing, Network, Processing, Application Layer)*

- **11. Sensors / 12. Actuators [PYQ for difference]** (Sensor-Processor-Actuator flow)

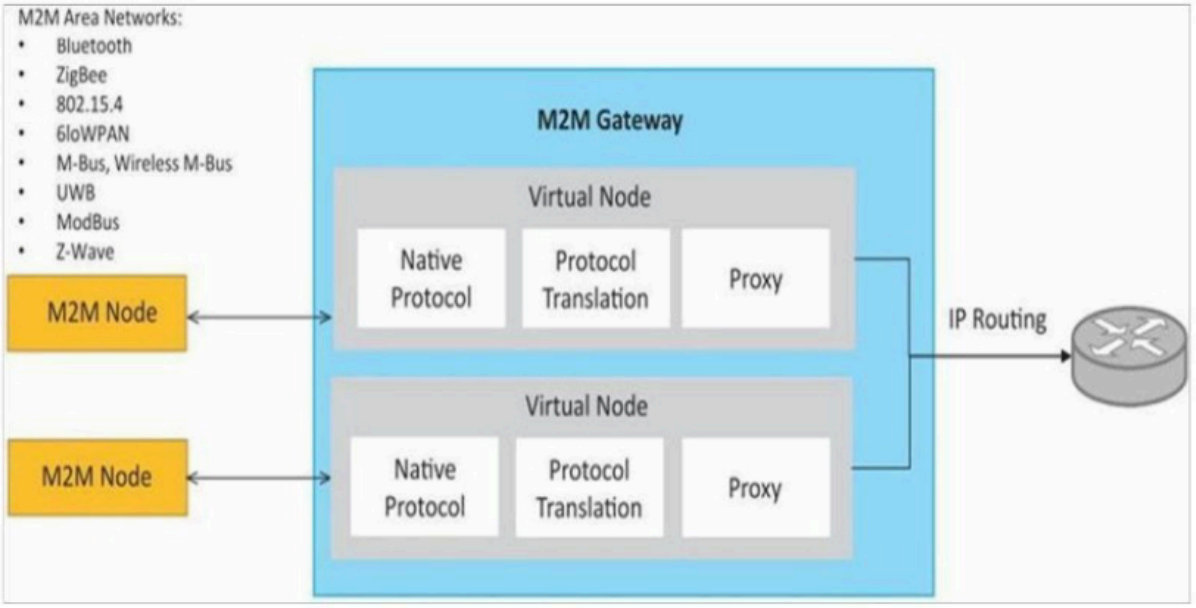


- **19. M2M (Machine-to-Machine) Communication [PYQ for M2M arch. vs IoT levels]**

- (M2M System Architecture)

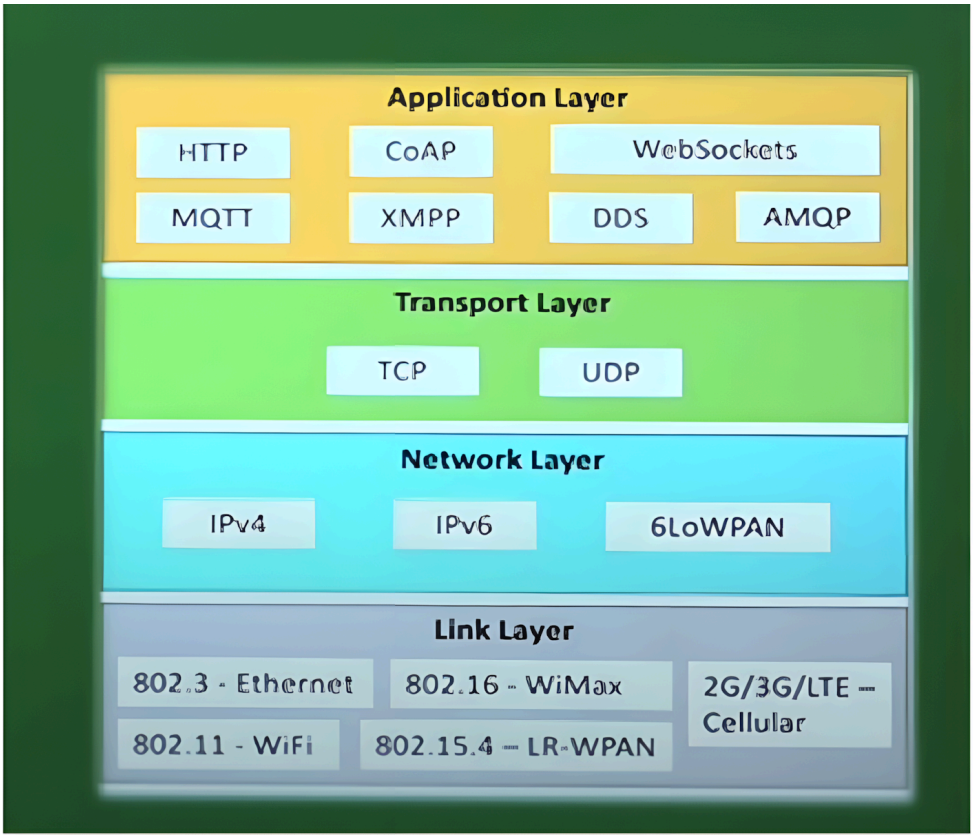


- (M2M Gateway block diagram)

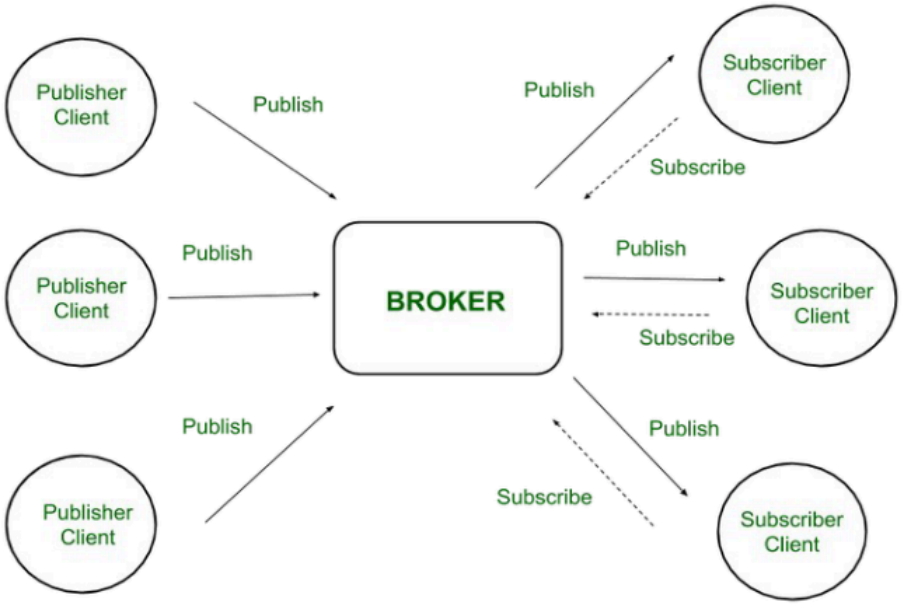


- **22. IoT Protocols [PYQ for CoAP, HTTP, MQTT, XMPP]**

- (IoT Protocols Stack Overview)

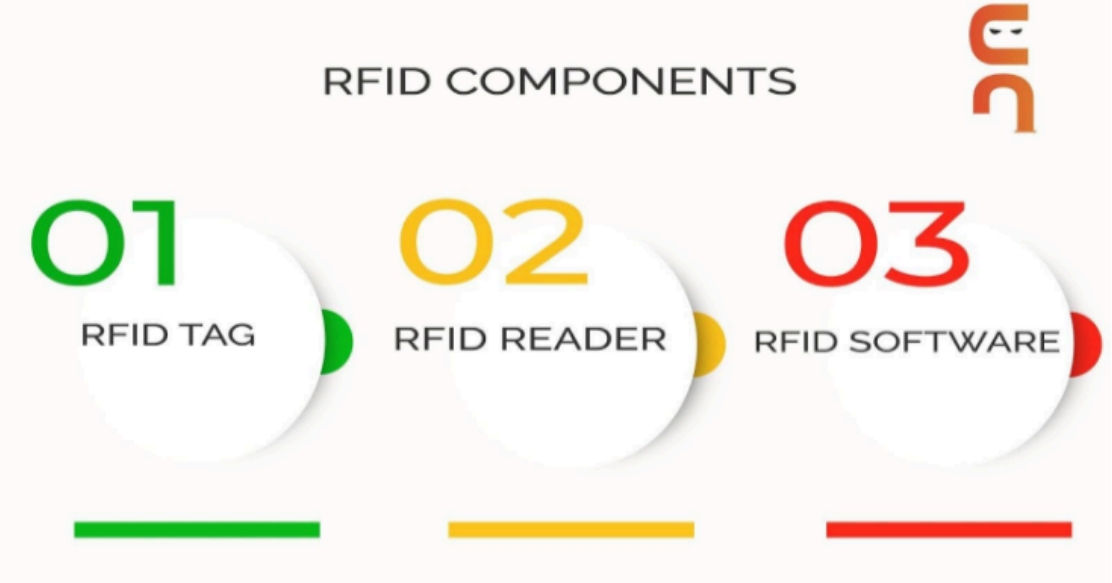


- (MQTT Publish/Subscribe Architecture)

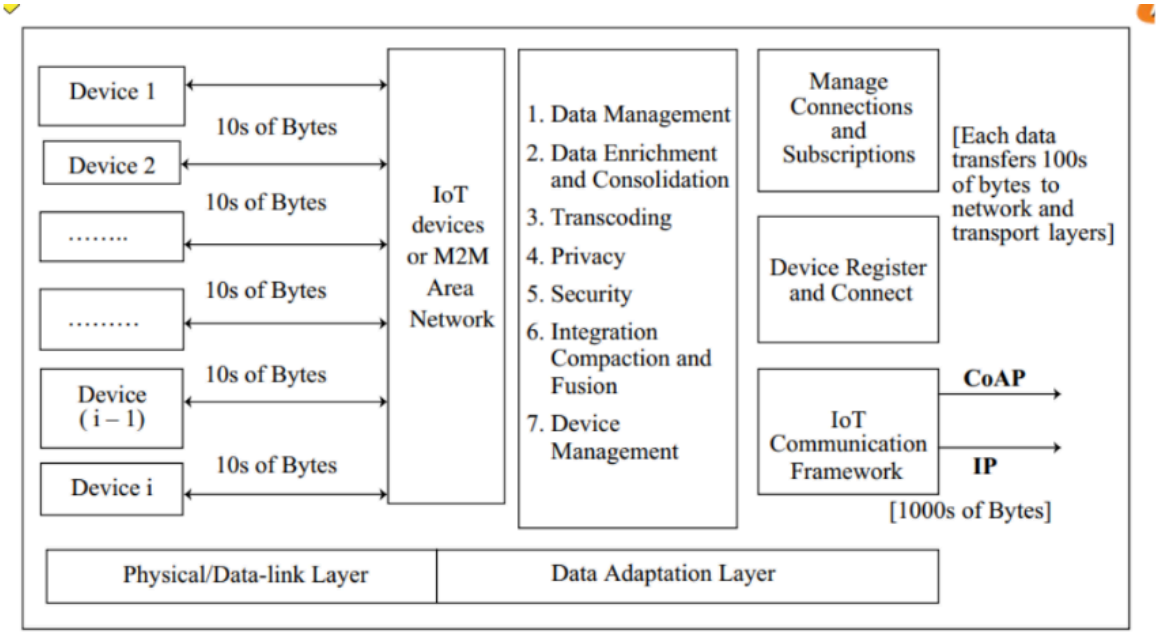


- **23. Communication Technologies [PYQ for NFC/RFID]**

- (RFID Components)

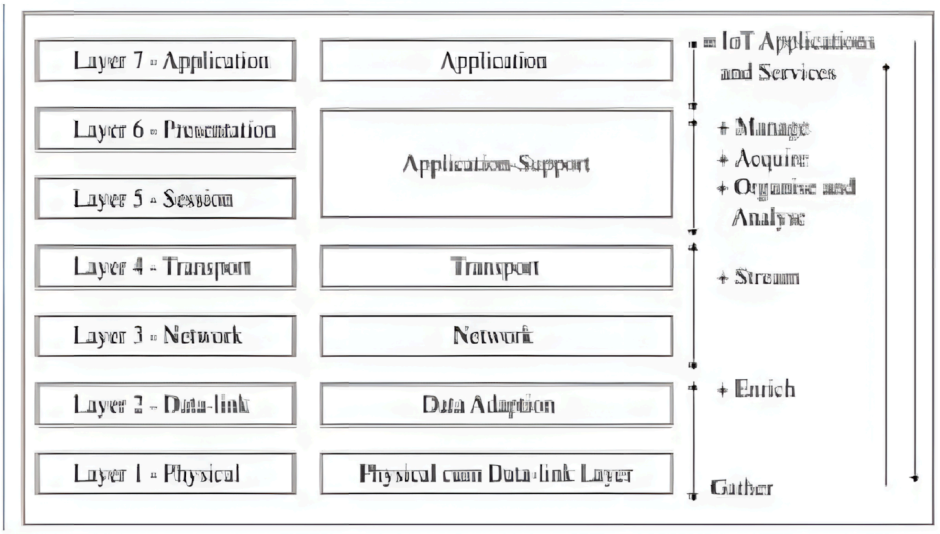


- **25. Device Management Gateway [PYQ for gateway importance]**
  - (Data Enrichment and Consolidation Gateway block diagram - illustrates gateway functions)



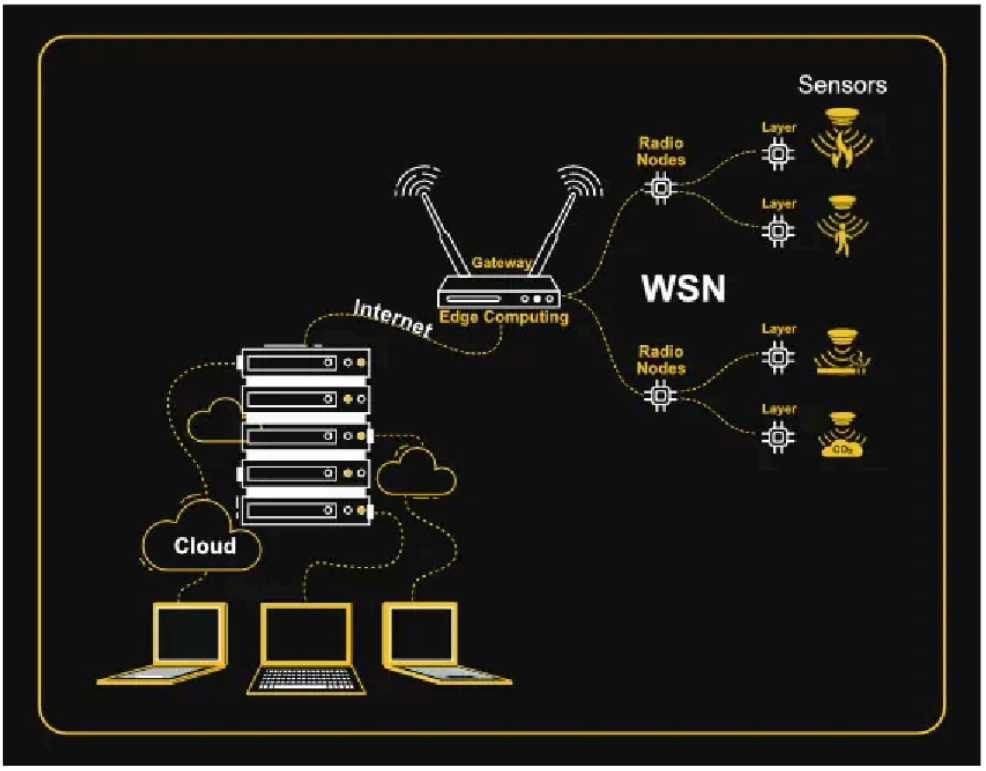
- **26. IoT M2M Systems Layers and Design Standardization [PYQ for IETF model]**

- (IETF six-layer modified OSI model for IoT/M2M vs Oracle Framework)

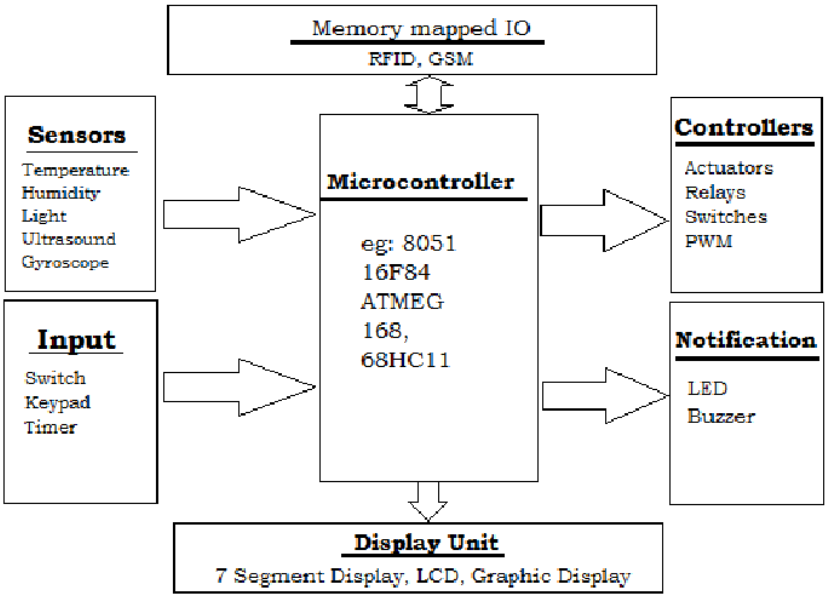


Unit 2: IoT Networking, Platforms, Sensors, and Actuators

- **1. Wireless Sensor Network (WSN) [PYQ Q5a, Q5b]** (WSN Architecture)



- **3. Embedded Devices (System) in IoT [PYQ Q1d, Q2b]** (Embedded Devices System diagram)



- **8. Overview of IoT Hardware Platforms [PYQ Q4b, Q8]**
  - (Arduino Uno Board Image - important for Q8)

  - (Architecture of Arduino board - important for Q8)

Architecture of Arduino board :

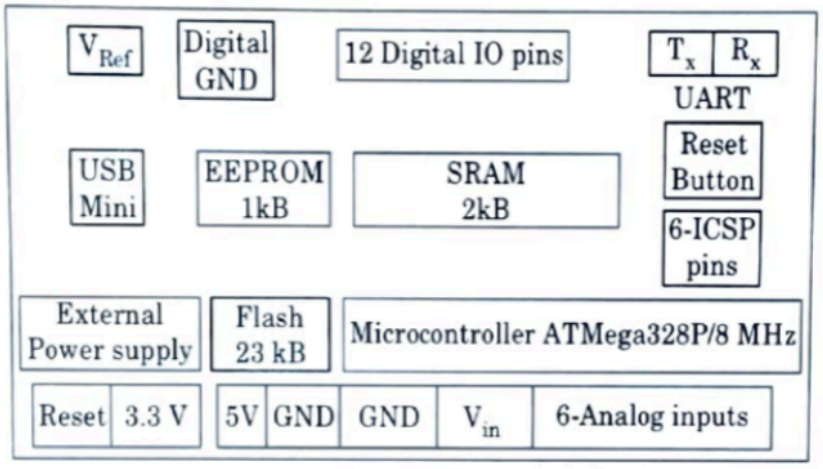
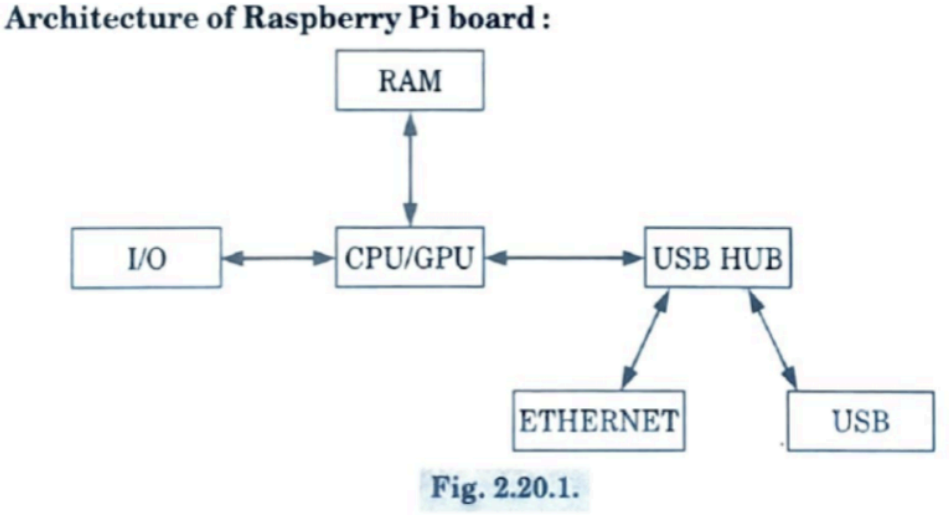


Fig. 2.17.1.

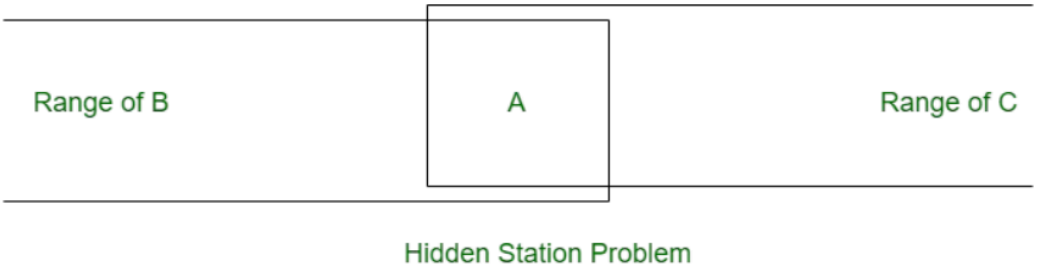
- (Raspberry Pi Board Image - for Q4b context)

- (Architecture of Raspberry Pi board - for Q4b context)

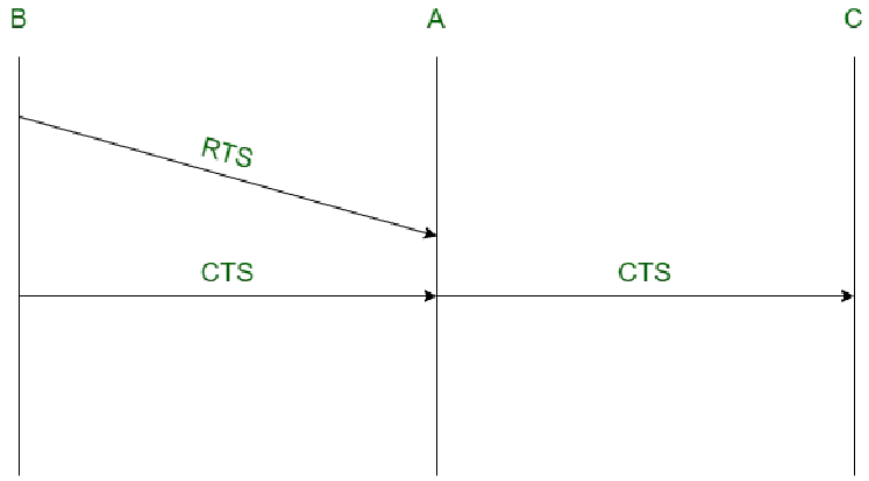


Unit 3: Network & Communication Aspects in IoT

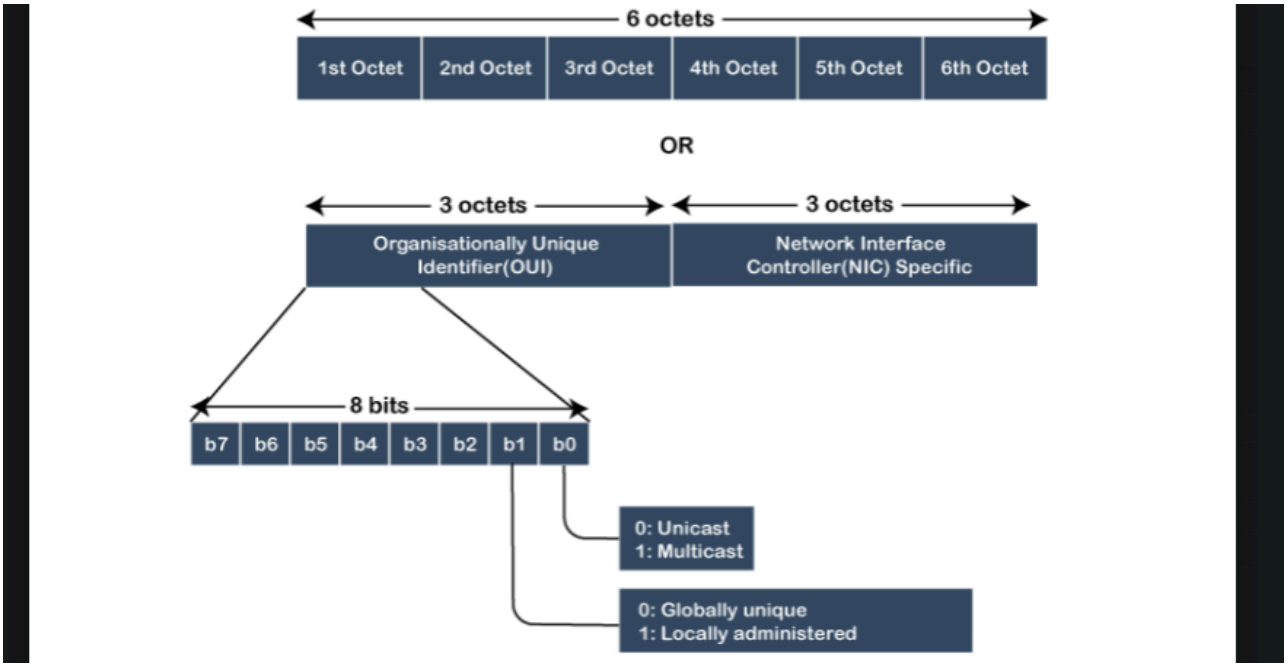
- **2.d. Hidden Station Problem (HSP) [PYQ Q6a - implicitly related]**
  - (Hidden Station Problem Diagram)



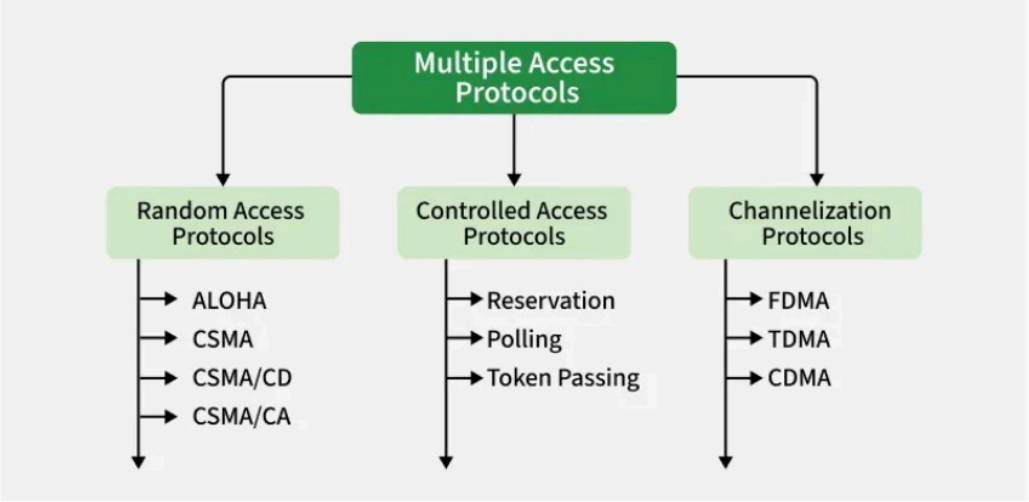
- (Use of handshaking to prevent hidden station problem - RTS/CTS)



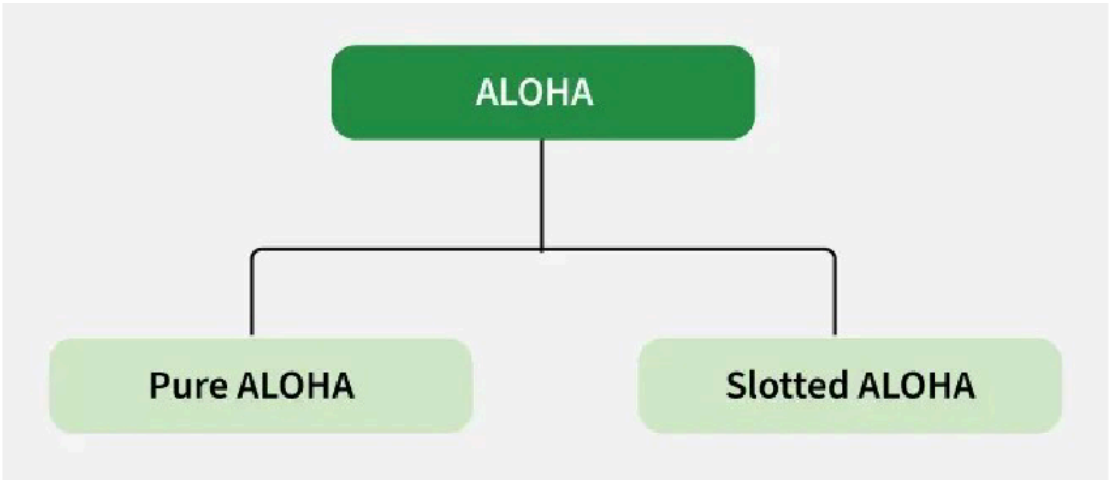
Use of handshaking to prevent hidden station problem

- **4.3. Format of a MAC Address [PYQ Q7a]**
  - 

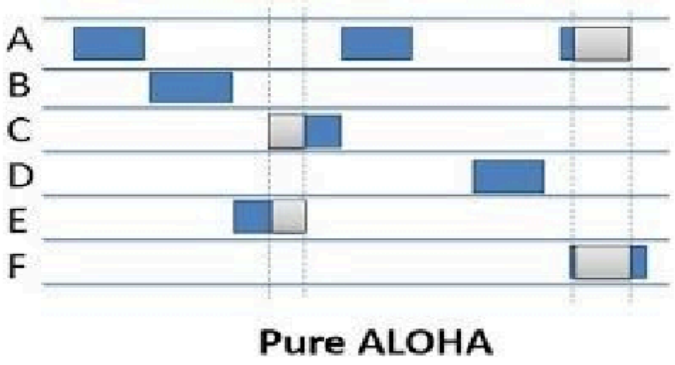
- **6. Subdivisions of Multiple Access Protocols [PYQ Q5a - Data-link layer protocols]**
  - (Multiple Access Protocols - Random, Controlled, Channelization)



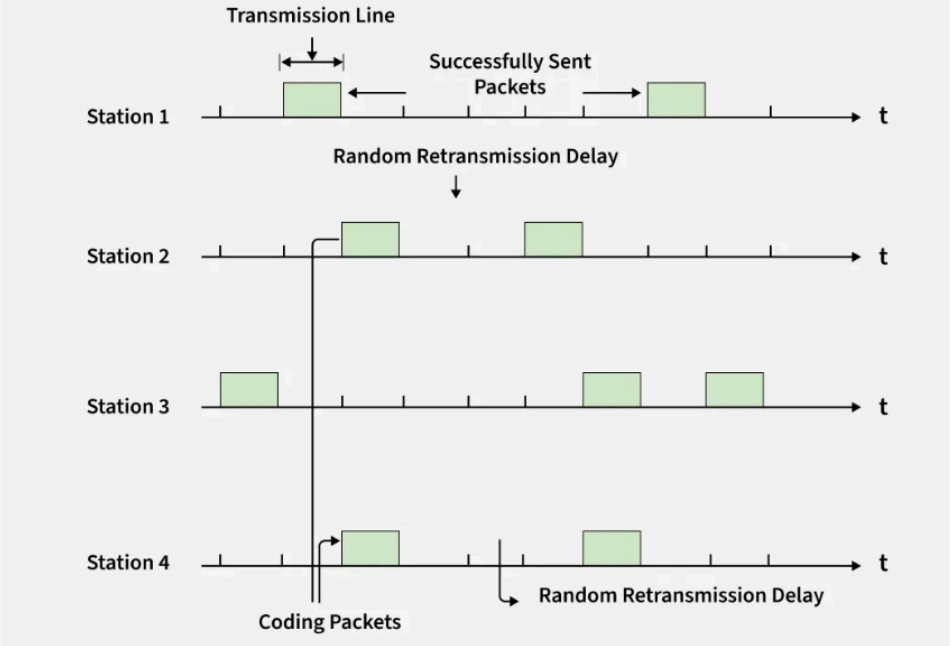
  - **6.1.A. ALOHA** (Pure ALOHA, Slotted ALOHA types)



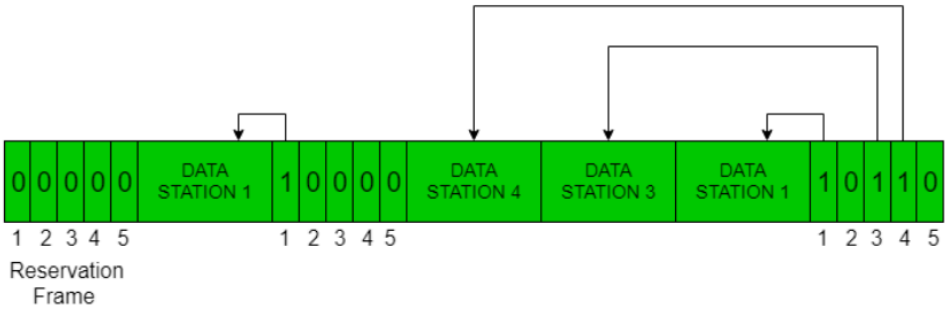
- **6.1.A. Pure ALOHA** (Timing diagram)



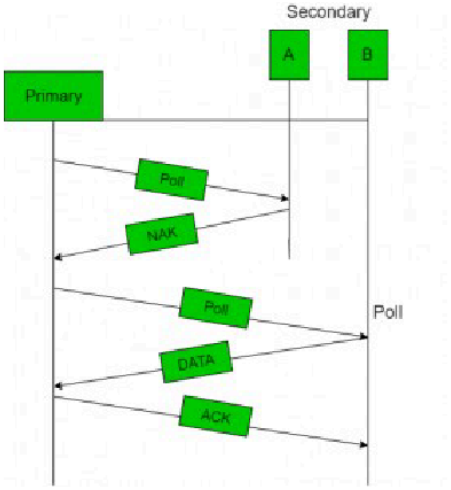
- **6.1.A. Slotted ALOHA** (Transmission line diagram)



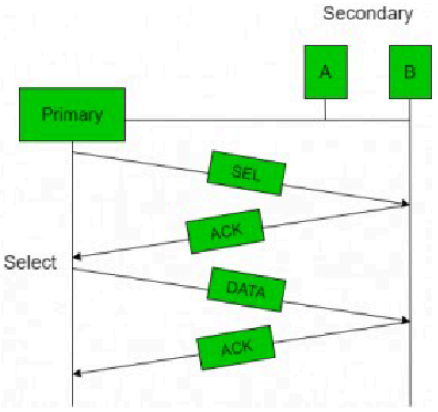
- **6.2.A. Reservation** (Reservation frame example)



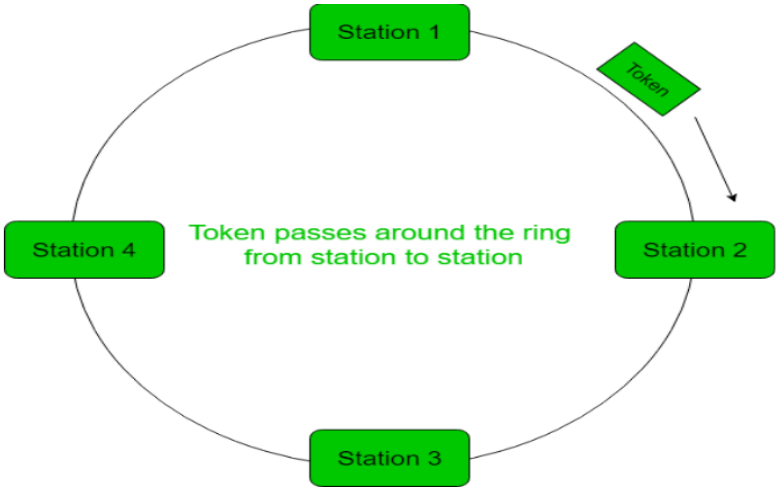
- **6.2.B. Polling** (Polling with NAK)



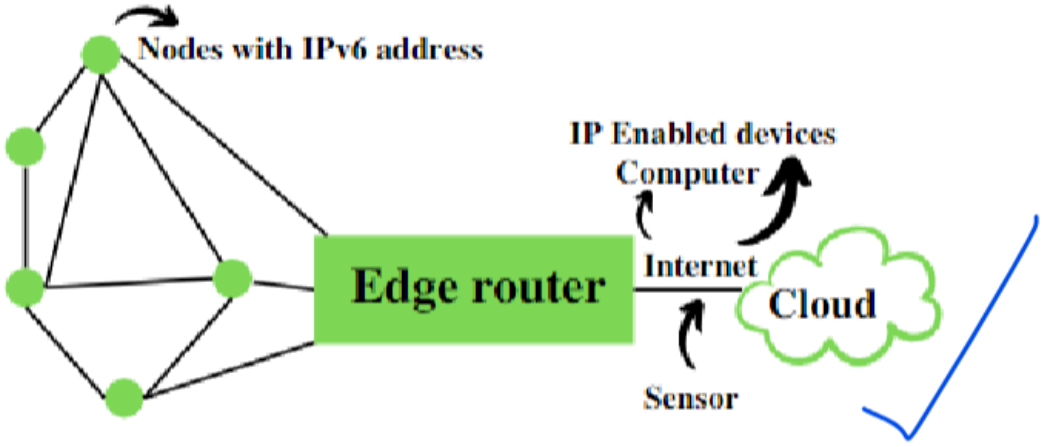
- **6.2.B. Polling** (Polling with Data)



- **6.2.C. Token Passing** (Token Passing in a ring)



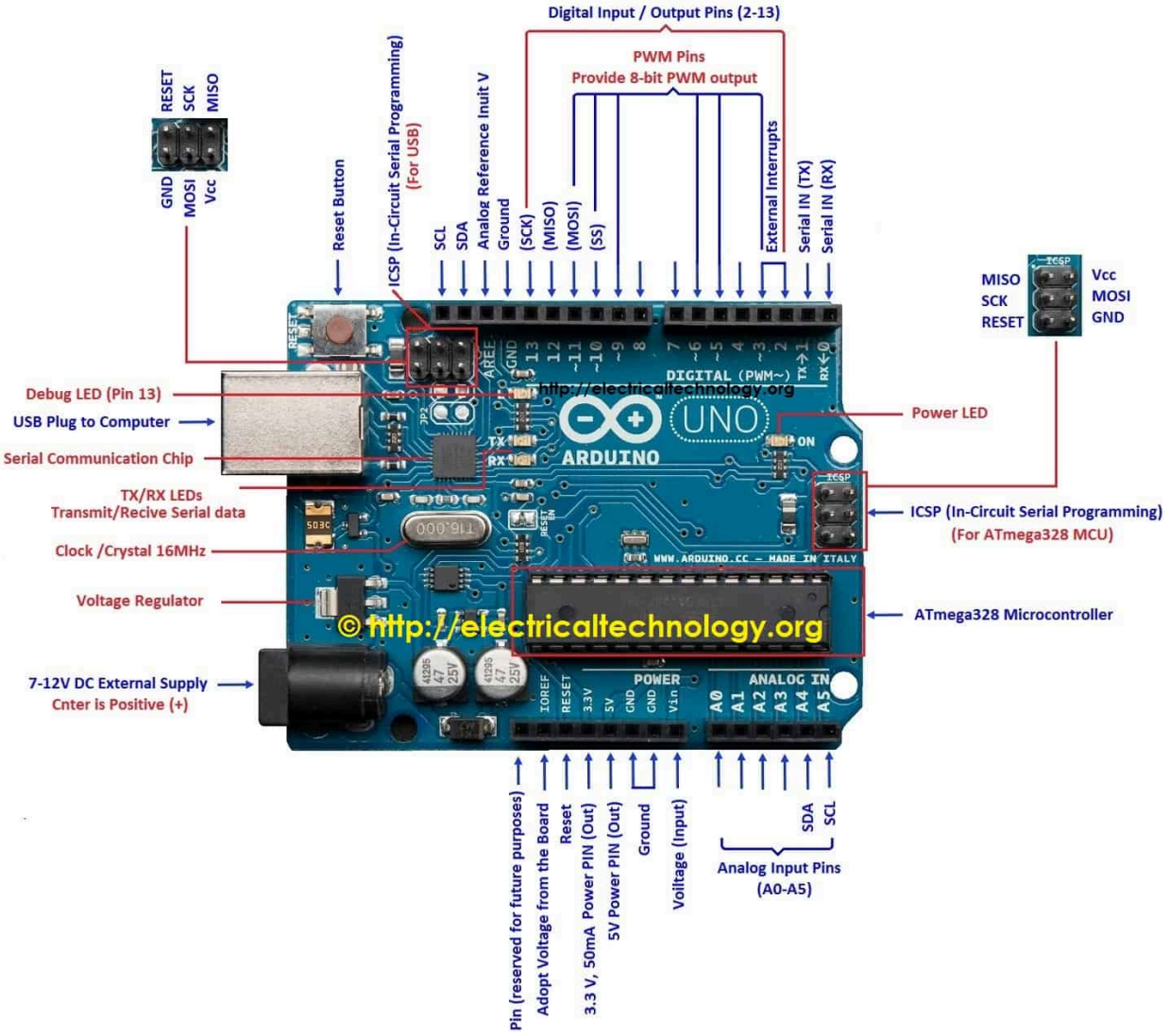
- **6.3.b Why 6LoWPAN at the adaptation layer in place of MAC. (Header fields in 6LoWPAN)**
  - (6LoWPAN conceptual diagram - Nodes, Edge router, Cloud)



Unit 4: Arduino Platform, Anatomy, and IDE

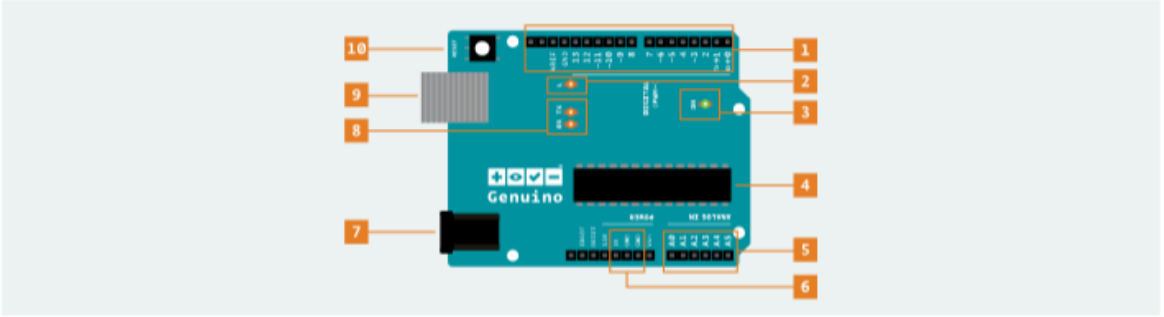
- **3. Arduino UNO Board Anatomy [PYQ Q8]**

- (Annotated Arduino Uno Board Image)

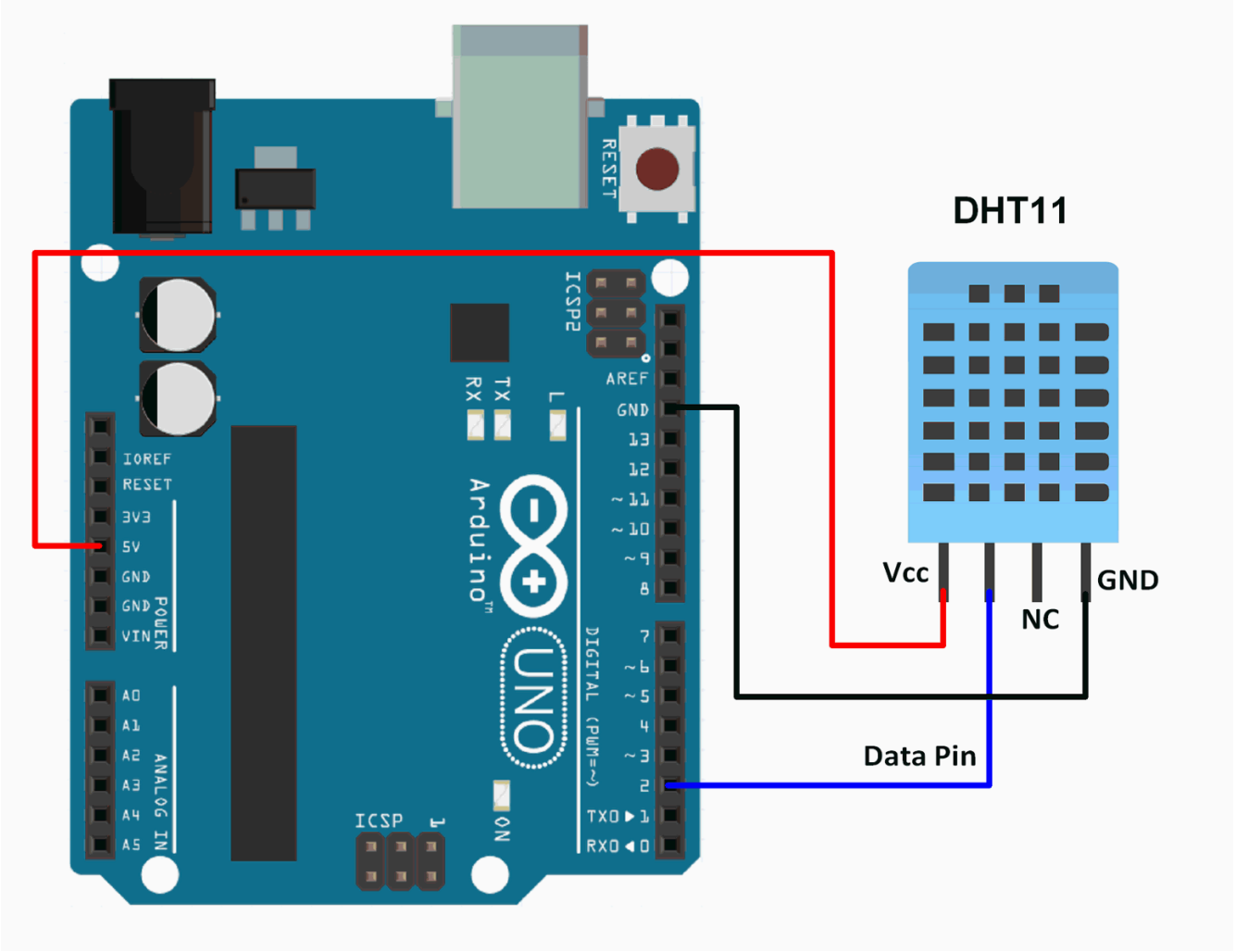


Arduino Programming:
What is Auruino and How to Program it

http://electricaltechnology.org



- **(For Q9 about DHT sensor, a hand-drawn or simple block diagram of the circuit would be expected rather than needing a pre-existing image from notes, but the placeholder for it is**


DHT11
Vcc
NC
GND
Data Pin
RESET
ICSP2
AREF
GND
13
12
~11
~10
~9
8
7
~6
~5
4
~3
2
TXO▶1
RXO◀0
DIGITAL (PWM=~)
TX
RX
L
ON
ICSP
IOREF
RESET
3V3
5V
GND
GND
VIN
POWER
A0
A1
A2
A3
A4
A5
ANALOG IN
Arduino™
UNO