أسئلة السنين السابقة

2- What are the main Parts of Iot systems? (1)
2- What are the Iot layers Protocols (2)
3- What is the difference between wirless Sensor and (3)
the internet of things ? (4)
4- Discuss this statment" The Iot operats at a machine scale" (5)

1- what is hardware utilized in Iot? (6)
2- What is the IOT layered Architecture. (7)
3- What are the open Problems and challenges for Iot? (8)
4- What are the difference between soc and microcontroller? (9)
5- 4 (4)

1- What are the charaterstic of IoT
2- 2 (7)
3- Define IoT hardware Platform and mention 3 of them in debails
4- (9)
5-

What is IoT! The internet of things is a system of interrelated computing devices, mechanical and digital machines, objects, animals or People that are provided with unique identifiers and the ability to transfer data over networks without requiring human2human or human2Computer interaction.

Why IoT?

1- We Want to receive more data
2- we want to control stuff
3- we want to automate
4- we want to make things faster

Computer vs IoT ?

Computer: are general-Purpose
executing any thing
not Particularly for type of code

IoT : are special Purpose
- Software and hardware are effient for tasks, but ~~ineff~~ inefficient for other tasks

IoT Components ? (Parts) 2019 Q2 a
- Cloud Storage
- Cloud Processing
- Internet
- network
- Edge / Gateway
- Sensors.

- Communication Protocols ?
- HTTP
- MQTT
- WebSockets

Connectivity Protocols ?
- TCP/IP
- Wifi
- Ethernet

IoT Benefits?
- IoT makes life easier
- independence from people
- link to the world

What are open problems and challenges for IoT? (2018)

IoT Risks?
- social isolation
- Dependence on technology and infrastructure
  - IoT require power and network
  - network outages and blackouts are more critical.

Privacy and security
- observation by IoT devices is pervasive
  - location
  - Health
  - media watching habits
  - Purchasing habits
  - Driving habits
- data may be used to market to you
- Purchasing IoT device may give the manufacture permission to use or sell your data.

Data may be used by insurance agencies.
Data may not be held in a secure way

Security technologies
- Communication security
- Data Encryption
- JSon Web Token (or equivalent

whats the difference between wireless sensor network (WSN) and the internet of things (IoT) Network (2019)

IoT	WSN
The IoT is a system of interrelated computing service, machines, etc. that are provided with (UID) and the ability to transfer data over network without h2h or h2c interaction.	a collection of wireless sensors that may or may not be connected to the internet.
- Iot systems directly sends data to the internet.	There is no direct connection to the internet, but it sends their data to a router or central node.
- an iot system can utilize a WSN by communicating with it router to gather data.	

discuss the statment "The Iot operates at machine scale"? (2019)
The Iot operates at machine scale, by dealing with machine to machine generated data. this machine generated data generated data creats discrete observation at very high signal rates.

What are The IoT layers Protocols? (2019)
1- Sensing and information
2- Network Connectivity.
3- information Processing layers
4- Application layer.

What is the hardware utilized in IoT? (2018)

The hardware utilized in IoT systems includes devices for a remote dashboard, devices for control, servers, a routing or bridge device, and sensors. These devices manage key tasks and functions such as system activation, action specifications, security, communications, and detection to support specific goals and actions.

What is the IoT layered Architecture. (2018)

Same like layers Protocols.

What is the difference between SoC and micro Controller (2018)

SoC	µicro Controller
- more like complete Computer system on a chip	- An embedded system which is internally programmed to perform specific task
- microcontroller with small fpga on the same chip	- A processor that has its program and data memory built in.
- used for more powerful processors which need external memory to be useful	- used for low powered processors with only small amount of memory
- Include I/O drivers for bigger hardware.	- small embedded control apps
- more geared towards complete flexibility and user interaction.	- minimal user interaction and little or no flexibility.

What are the Charatarstic of IoT?

- Ambient intelligence
- Event driven
- Flexible structure
- Semantic Sharing
- Complex access technology
- special PurPose device.
- Connectivity
- energy
- Intelligence
- Sensing
- Safety
- enormous scale.

IoT hardware Platrforms, and maention 3 of them in details (2017)

it's refer to Platforms that are used for development of things in the IoT.

- Intel Galileo
- Raspberry Pi 3
- Intel Edison
- Arduino UNO.

what is the function of JTAG in Intel Quark SoC X1000?

debug header on the system board.

What are Embedded System?

- Computer-based systems that don't appear to be computers

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Tight Constraints for embedded system.

- manufacturing cost
- Design cost
- Performance
- Power
- Time to market
- very different from traditional software engineering

Design	Co-design
The process of defining the elements of a system such as architecture, modules and components	Computer system design process where Scientific Problem requirment influence architecture design.

Intellectual Property (IP) Core.

- An Integrated Circuits that Performs one function
- cheap in high volume.
- very useful for common task
  - Network Controllers (Ethernet, CAN)
  - Audio / Video (audio Codec, VGA Controller)
- must interface with the micro controller.

FPGA: Hardware that can be Configured via RAM
faster than SW, slower than ASIC
No fabrication needed.

Intel Galileo

Components:-

1- USB host Port
2 - USB Client Port
3- Digital Pins
4- Analog Pins
5- Power Pins
6- Pin 13 led
7- Reset
8- Power indicator
9 - 5V Power
10- SD activity indicator
11- μ SD card
12- Ethernet
13- Reboot button
14- RS.232 Port
15- IoREF Select

Capabilities

1- Powerful functionality with low Power consumption
2 - 400MHz speed
3- 32-bit width
4- real time
5- 16kB L1 Cache
6- 8MB Flash memory
7- 11kB EEPRom
8- No GPu
9- No video support
10- Various apps as robotics & IoT

Intel Galileo Gen2 development board is a micro controller board based on the Intel Quark SoC X1000 application processor, a 32-bit Intel Pentium brand system on Chip (SOC).