UNIVERSIDAD AUTÓNOMA DE TLAXCALA

Facultad de Ciencias Básicas Ingeniería y Tecnología

INGENIERÍA EN COMPUTACIÓN

ACTIVIDAD:

IOT

Use Cases & Technologies

PRESENTA:

DOCENTE:

Carlos Santacruz Olmos

ALUMNO:

Christopher Rojano Jimenez

SEMESTRE Y GRUPO:

8 “B”

Apizaco, Tlaxcala, febrero 2023

1) Two similar applications, belonging to different use cases of the same vertical

a) might be quite different in terms of their platforms, and processing, but are similar in terms of heir regulatory bodies, and standards.

2) In what sense the IoT traffic is not the same as the traffic generated by human?

d) All of the above

3) A wireless sensor network is _____

b) an IoT network, if it is connected to the Internet

4) The term "Internet of Things" was first used by

a) Kevin Ashton, to promote Radio Frequency Identification (RFID) technology

5) Why is there a need for IoT gateway?

a) To enable many IoT devices with different connectivity methods or protocols

to connect to the Internet via the gateway

6) Can IoT devices also play the role of IoT gateway?

a) Yes, but only one IoT device can become the IoT gateway

7) For stationary IoT devices directly connected to the power source and not using batteries, is low power consumption still a requirement?

c) Yes, due to existence of massive number of IoT devices, reducing the power consumption of each device reduces the energy that is needed to be produced to power these devices.

8) What is the principal idea to reduce the power consumption of IoT devices?

c) The IoT device needs to go to sleep if it does not have anything to perform.

9) Technologies such as WiFi, BLE or Zigbee are part of

d) Non of the above

10) IIOT stands for

c) Industrial Internet of Things

11) Can IoT devices be used for medical purposes to treat the patients automatically?

d) Yes, by analyzing the collected data, the information for treatment can be sent to the IoT device. The IoT device should have the equipment needed for treatment.

12) What are the sensor(s) and connectivity options that you can find on an IoT medical device for a person with no mobility issues?

b) An IoT device can have one or several sensors such as body temperature, pulse, blood pressure. The connectivity should be wireless due to the patient's mobility.

13) Assume that IoT applications have generated more than 500 zettabytes of data in 2019. If the number of generated data increases by 4 times in 2020, how much data is generated in this year?

b) 2 Yottabytes

14) Which of the following is an example for smart grid edge device that plays the role of IoT gateway in utility use cases?

a) Smart Meter

Review questions- Chapter 1

1. To find the trajectory of a bird during a year, an IoT device is installed on the body of the bird. Explain what types of IoT connectivity schemes can be used for this application?

El movimiento de las aves no es tan fácil de rastrear o parece impredecible, por lo que se requiere una buena conectividad y cobertura. Creo que una opción podría ser IoT celular.

2. Explain how a smart helmet can provide emergency support in case of an accident. Use a smart phone as an IoT gateway for this application.

Un casco puede tener uno o una serie de sensores conectados mediante BLE. El receptor perfecto puede ser un smartphone. La elección de utilizar esta tecnología convierte al teléfono en una puerta de entrada al Internet de las cosas. El sensor puede detectar vibraciones y el teléfono analiza la información para determinar si es leve o grave.

3. Describe how a smart racket can be beneficial to train the tennis players.

Puedes utilizar una serie de sensores, incrustados en la raqueta, ya sea en el mango, o algún tipo de sensor que detecte a qué distancia golpea la pelota la pelota desde el centro de la raqueta, así puedes analizar la información, el ángulo de inclinación , los tiempos de golpe a la pelota, la potencia y el porcentaje de punto dulce de la raqueta para poder mostrar estadísticas a los jugadores.

4. Give an example of an IoT system that provides safety for the driver of a vehicle.

Se pueden usar gafas y una cámara para detectar el movimiento del conductor, la temperatura corporal y detectar si el conductor parpadea demasiado o si el tiempo de cierre de los ojos supera un cierto umbral. Además, también puede analizar el comportamiento del conductor para comparar. Hay un umbral, por lo que se puede determinar si el conductor está a punto de quedarse dormido o si no está prestando atención, puede alertar al conductor.

5. In the scenario explained in section 1.3.3, it was written that the industrial company generates 15 GB of data per day from its welding machines in each factory. Show how this has been calculated.

Se generan 15Kb por cada punto de soldadura, cada operación toma 10s y se genera un total de 150Kb, porque cada maquina tiene 500 slots para hacer operaciones 150Kb * 500 = 75Mb, la fábrica construye 200 unidades por día, entonces 200 * 75 son 15 Gb