CLASS NOTES TO UNIT: SMART CITIES AND IOT (Video lesson + Class + Portfolio assignments)

In this unit we are going to:
-Learn the vocabulary related to smart cities (1).
-Read and talk about smart cities apps in relation to the COVID-19 crisis (2).
-Write about an app solution for COVID-19 on campus (3).

Parts 1-2 will be dealt with in the video lesson and in class, including exercise a. Part 3 must be done after the class and included in the students' portfolio

1. Introduction: Let's watch this video about smart cities and clarify the following terms, and/or the connections among them: *sensor networks and data infrastructure / Open city data / IES cities / companies, cities and councils / prosumers / linked data management, service presuming and social data mining / SMEs*

2. Reading: Let's read the following news excerpts about smart cities and the COVID 19 crisis:

Smart cities join forces against the coronavirus.

As part of an ever-increasing international collaboration to face the pandemic, the **United Nations's agency for International Telecomunication (ITU)** selected **Valencia**, in Spain, to lead an international task force that will share innovative solutions and best practices in cities all over the world.

Ernesto Faubel, chief analyst at the ICT Project-Innovation Service at the Valencia City Council explains: "The goal of this initiative, called '**Emergency response of Covid-19 cities**', is to monitor the evolution of the disease, analyse what signs can help to forecast, anticipate the behaviour of citizens and thus try to slow down the spread of the virus. We will provide a global data-sharing platform and develop a policy framework for smart management of public health emergencies in cities." Data will come from mobility, water consumption and garbage collected during confinement.

Faubel adds: "In Valencia region, we have designed a big data project which analyses aggregated and anonymised data from the telecom companies and looks for patterns in people's mobility and the impact that they have on the spread of the virus. We are also developing artificial intelligence (AI) tools that could explain the people's movement behaviours and identify places where they tend to converge too much. With all this, we will be able to design dashboards with estimations about citizen mobility and build epidemiological models of the virus."

Coronavirus: An EU approach for efficient contact tracing apps to support gradual lifting of confinement measures

Conditions for the implementation of these apps:

- They should be fully compliant with the EU data protection and privacy rules.
- They should be implemented in close coordination with, and approved by, public health authorities.
- They should be installed voluntarily, and dismantled as soon as no longer needed.
- They should aim to exploit the latest privacy-enhancing technological solutions. Likely to be based on Bluetooth proximity technology, they do not enable tracking of people's locations.
- They should be based on anonymised data: They can alert people who have been in proximity for a certain duration to an infected person to get tested or self-isolate, without revealing the identity of the people infected.
- They should be interoperable across the EU so that citizens are protected even when they cross borders.
- They should be anchored in accepted epidemiological guidance, and reflect best practice on cybersecurity, and accessibility.
- They should be secure and effective.

Exercise a: Write possible answers to these questions, we will discuss them in class:

a) Identify the purposes/uses of each of the three projects (*e.g.. to monitor, to trace, to analyse…*)

b) Identify the technologies used.

c) Identify the requirements (in noun and adjective form) that describe these apps (e.g. *accessible/accessibility…*)

d) Which privacy issues do these texts mention?

Chain-speaking: In class, think of an app that you could design for this situation and briefly explain its purpose, technology, requirements and privacy limitations. The following student must either a) state his/her objection, or b) add an improvement. Both possibilities must be grounded on objective reasons (viability/feasibility).

3. Assignment for your portfolio: Write a paragraph about an app that you could design to fight the COVID-19 on campus (that is, related to class attendance, students' mobility etc.). Focus on the uses and requirements, but also on the technical side (technologies required, systems implemented: sensors, microwaves…). Approx. length: 120 words.