ТЕМА 2.4.5. УМНЫЕ ДОМА

SMART BUILDING

READING AND SPEAKING

1. Read the text *The Concept of a Smart Building.* Say what information about smart buildings is new for you. Exchange your opinion with your groupmates.

THE CONCEPT OF A SMART BUILDING

A smart, or intelligent building is a rather recent development. The concept itself was first introduced in the end of the 20th century. The literature already includes several definitions of smart buildings, all of which broadly refer to the presence inside the building of more or less complex building management systems, providing active systems and controls that allow the motorized action of specific subordinate functions and appliances. Therefore, the objective of smart buildings is to increase the comfort and to make the day-to-day life of the occupants easier. This can be achieved by identifying the relevant human activity and increasing the automation, or by using remote control to provide high level of comfort, security, energy management and reduce emissions. Overall, smart homes generally have the following fundamental characteristics:

- automation;
- multifunctionality;
- adaptability;
- interactivity;
- efficiency.

A smart building network consists of a variety of sensors, a network for data transier and a central station where all data is collected and monitored. The sensors are placed within the building and can be connected to a hub (through wireless technology). This hub connects several computers (or central stations) that can be accessed by the administrators of the network. Some sensors that can be used in a building are:

- temperature sensors;
- irradiation sensors;
- humidity sensors;
- dry contact sensors;
- magnet-based open / close sensors;
- passive infrared (PIR) sensors.

The configuration of sensor network can usually be modified to suit their application (e.g. frequency of measurement).

Many of the advantages of a smart building arise from the capability to provide reliable performance and responsiveness of information. The rapid advancements in communication and information handling technologies has allowed the smart building system to be fully realized. In turn, this has resulted in improved efficiency, increased automation, reliable forecasting (by monitoring behavior over time) and safer operation of appliances within the building. This can be further extended to smart electricity grid, where usage of electricity from the grid can be optimized to reduce financial cost and emissions.

Smart buildings are cyber-physical solutions able to suppoit and aid the daily routines of users and to optimize the management of the building. The models currently available for smart buildings cover Multiple domain areas, such as health, energy, and security. These Models can operate persistently with a close interaction with the users or in a fully autonomous way. Nonetheless, the solutions provided in smart, buildings have a common goal to address and solve or mitigate recurrent issues occurring in the building or in the users' daily activities.

2. *A. Make up word combinations with the verbs. Find appropriate nouns in the text The Concept of a*

Smart Building.

To provide ...; to increase ...; to reduce ...; to collect...; to improve...; to support ...; to optimize ...; to operate ....

B. Choose three word combinations from ex. 2. A and make up sentences with them.

3. ***Match the parts of the sentences.***

1. A smart or intelligent building is	a) consists of a variety of sensors, a network for data transfer and a central station.
2. The objective of smart building is	b) cover multiple domain areas, such as health, energy, and security.
3. A smart building network	c) the capability to provide reliable performance and responsiveness of information.
4. The advantage of a smart building involve	d) to address and solve or mitigate recurrent issues occurring in the building or in the users' daily activities.
5. The models currently availablefor smart	e) a complex system that can automate and assist the occupants of the building with control of the environment.

4. ***Use the QR-code and choose the appropriate name of each smart building network sensor.***

5. ***Work in pairs. Discuss the questions.***

1.What is a smart building? 2. Is the concept of smart buildings a ne one? 3. What are the objectives of smart buildings? 4. What fundamental characteristics have smart homes? 5. What is a smart building network 6. What sensors can be used in smart buildings? 7. What advantages does smart building have?

6. ***Make up a short summary of the text The Concept of a Smart Building according to the plan. Retell it using your notes.***

1) The title of the text is...
2) The text is devoted to...
3) The main idea of the text is...
4) It consists of...
5) The first part is about...
6) The second (third, fourth, etc.) part deals with ...
7) The conclusion is that...