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KEY TRENDS OF SMART HOME DEVELOPMENT

In today's world technology is advancing with a fast pace, radically changing our lives. A lot of companies which produce various household appliances and gadgets implement some kind of artificial intelligence technologies in them. Moreover, these devices can be linked into a single network. This enables them to "communicate" with each other and with the host, thus forming a system of "smart house".

Of course, such systems are a far cry from real smart homes from science fiction shows, where systems of artificial intelligence behave like a human, fully in charge of the house and are able to create Virtual Reality. But this is only the beginning.

In the past the concept of "smart home" often meant a system of remote control of light, heating and washing machine. Today this concept has become much wider. Nowadays there are "smart" materials, programs for smartphones that allow you to control appliances at a distance. They can do cleaning for you and many more. We have identified three main technologies that can change our houses and become their integral part in the future.

1. Smart materials for smart homes.

All surfaces in the homes of the future will be made of "smart materials". They will have many different functions. For example, the walls will be able to prevent leaks of Wi-Fi signals. So no one will be able to hack your home network or make use of your Wi-Fi network. French researchers from the *Institut Polytechnique de Grenoble* have created wallpaper, which can help prevent from electromagnetic pollution and "stealing" your Wi-Fi. Special paper blocks the Wi-Fi signal, thus not allowing it to go beyond the walls of particular rooms or houses.

The windows of our houses will also become multifunctional. New technologies are gradually turning them into huge transparent screens. This technology was presented at CES 2012. *Samsung* Professionals have developed a *Smart Window* – the window, which, as the journalists said – resemble "a giant virtual translucent tablets".

Another hi-tech development in this area is *Gravity Space floor*, which is able to recognize people by their weight. This floor represents a big screen on which, for example, may appear a hologram of a virtual ball, if you want to play football.

2. Smart appliances of a smart home.

Appliances at the smart home will also be multifunctional. For example, on the screen of a refrigerator human will be able to look for recipes, leave notes and many more. In 2013, *Samsung* unveiled the *T9000* refrigerator, which runs on the *Android* system. On the screen of the fridge one can not only find recipes, but also view Google calendar, make notes in Evernote, listen to music and even send tweets.

Generally speaking, home appliances will be intelligent and they can be managed not only with help of a touch screen, but also by receiving voice commands. One of the recent artificial intelligence technologies for the home is "*Cleopatra*". With its help the house can recognize quite a lot of voice commands such as "Turn on the lights in the living room", "Reduce the temperature to 18 degrees" and so on. In addition, with built-in motion sensors and a built-in sensor in the owner's wrist watch, the house will be able

to recognize when the owner is approaching home and unlock the doors automatically. Also, for example, "*Cleopatra*" can notify about missed calls, remind you about various events, etc.

Today majority of appliance manufacturers supply their products with remote control systems through which we can turn on or off a particular appliance by simply pressing a button on the smartphone screen. Pretty soon these technologies will allow your smartphone to control all appliances in the home: starting with coffee machine and ending with the door lock.

3. Intelligent robot assistants.

If vacuum cleaner robots already are becoming routine, assistant robots that are able to do all the housework for you, are yet to become a reality. Moreover, such General-purpose assistant robots like in the movie "*I, robot*" are still very far. But this does not mean that in the nearest future our smart home will have such a multi-purpose robotic assistant. Some examples of assistant robots are the following: *Hector* is able to remind elderly people to take pills; *Rumba* robot itself cleans up the floor, and *the Mint* robot washes; *Mirra* robot cleans the pool.

Regarding humanoid robot assistants, they are still a far cry. The only already working humanoid assistant robot is *Asimo* from *Honda*. The truth is that the list of capabilities is rather limited. Nevertheless, this robot cannot be bought, but only rented.

Of course most of us will say that the technology of "smart home", even in developed countries, will not receive a wide distribution soon; and Ukraine is far behind. Now in Ukraine there are some companies which offer advanced experience in systems of this type. So maybe very soon you will be able to enjoy the benefits of "smart home".