INTELLECTUAL OUTPUT O1

INNOVATIVE OPEN TRAINING MATERIAL ON CIRCULAR ECONOMY AND DIGITISATION FOR VET LEARNERS IN THE WOOD&FURNITURE SECTOR

Unit 2

TYPE OF INTELLIGENT FURNITURE. EXAMPLES

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In this unit we intend to show a series of examples in which we can see the introduction of the concept of smart furniture. Throughout the whole block on intelligent furniture we have seen examples of intelligent furniture. In this unit we will see some more advanced examples

1   IoT IN FURNITURE

The Internet of Things technologies are used in many fields, and the case of furniture also shows some examples of implementation.

1.1   SMART SOFA

The concept of the smart sofa is constantly evolving. In addition to the function of the sofa, there has been a trend in recent years to incorporate additional functions. For example, the first smart armchair to emerge on the basis of the Internet of Things was presented to the world by an Italian company and a Swiss furniture manufacturer. Thanks to built-in sensors, it can be varied and adjusted to different shapes and to a certain degree can be controlled with a smartphone. The shape of the sofa can be easily changed and adjusted according to the number of people using it. Other interesting features may be the incorporation of USB chargers with battery or mains connection, inductive chargers, speakers etc...

Figure 1. Smart Sofa. King Cloud III sofa. https://www.kingliving.com.au/furniture/sofas-modulars-recliners/king-cloud-iii#4

It can also interact with other smart devices in home. For example, it can interact with TV. We can control the TV with the sofa. Or it can charge our smartphone thanks to smart sofa embedded connection, powered by AC converter or rechargeables batteries.

1.2   SMART KITCHEN ELEMENTS

The smart kitchen shelf is one of those products that will find in home kitchen in the future. With the digital kitchen shelf, we can search for various recipes, check and compare prices of food and kitchen supplies before ordering them.

https://pantryon.com/

Figure 2. Pantryon system for tech storage

1.3 INTELLIGENT MATTRESS

Not all smart mattresses are conceptually the same design. As a newer and rapidly developing mattress category, smart mattresses do not have a strict definition. However, we can list a number of different technologies and features that are present to a greater or lesser extent.

1. Body and environment monitoring: One of the most popular features of smart mattresses is body and environment monitoring. Through the use of sensors like the ones we have seen in other units, the mattress can collect biometric data about:

-**Existence of body movement,**

-**Heart rate**

-**Breathing**

-**Temperature.** It can also monitor the temperature, noise and light in your bedroom.

- **Sleep tracking:** Using the same set of sensors, many smart mattresses can calculate bedtime, wake-up time, sleep interruptions and sleep position, in a similar way to familiar activity wristbands.

By generating a series of special algorithms, they provide information about the quality and quantity of sleep. They can provide information about your sleep cycle and allow you to get an objective view of how well you are sleeping. Connected sleep apps often provide a sleep score to more easily understand these metrics and offer sleep coaching to help you use the data to get better sleep.

2. Mattress customisation: Traditional beds offer little possibilities for customisation, but many smart mattresses allow you to modify their feel to better suit the needs of users. In the case of a mattress with an air chamber, the firmness level can be changed ,via an mobile app or remote control, and on mattresses with smart temperature control features, the user can set the system so that the mattress doesn't get too hot or too cold, with a corresponding gain in comfort.

3. Automatic adjustments: The ability for the mattress to automatically adjust personal settings during the night is an increasingly popular feature of smart mattresses. Using sensor data and specially designed software, the mattress can adjust the firmness or temperature proactively and without the need to wake up. In this way, the automatic adjustments are a technology-driven feature to keep the user sleeping soundly.

4. Audio features: Special audio settings can include built-in alarms, soothing sounds, mediation programmes and/or connection to a home stereo system. All of which can help make a bedroom more relaxing and conducive to sleep.

5. Connectivity with other applications: Since many smart mattresses connect to home WiFi, there is the possibility to integrate with other apps. Connectivity with Amazon Alexa ™ and Google Home™ are popular features, especially as they can allow the user to adjust mattress settings with your voice. Other WiFi enabled smart devices that are part of the Internet of Things (IoT), such as a thermostat, can also be linked to a smart mattress. As IoT software continues to develop, we are likely to see more and more features driven by connectivity with smart mattresses. It opens up a world of infinite possibilities.
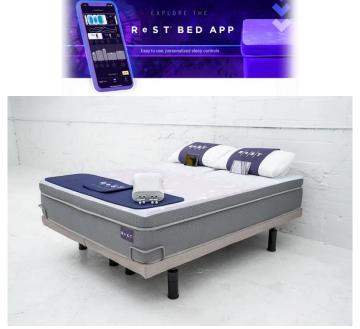
Figure 3. Intelligent mattress by Rest Bed. https://restperformance.com/

1.4   SMART WARDROBE

In the market we can find a smart wardrobe solution. It has the capacity of removing odor and wrinkles in clothing. The wrinkles of garments are removed by the system inside the cabinet

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SMAR RAIN

Figure 4. LG system. https://www.lg.com/us/business/styler-steam-closet/lg-S3RFBN
It also cleans the clothes inside, with odor removal feature without using chemicals.

1.5 SMART DRESSING TABLE

Smart dressing table is a smart furniture that has sensors and gives you many convenience. You can check your daily routines, listen to music and search. You can also take notes, check the weather. In some cases they are the combination of a screen and a mirror like we can see in two way mirrors.

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Figure 5. Image of a Smart Mirror and some of its features

In internet it can be found some tutorials about how to build a smart mirror.

https://www.twowaymirrors.com/diy-smart-mirror/

https://www.twowaymirrors.com/wp-content/uploads/2017/05/how-to-make-a-smart-mirror.pdf

www.smartrain.eu

1.6 CONCLUSION

Home integrated solutions are in our lives with many different products. These products provide comfort to us in every area of our home. In the kitchen, dining room, living room, bathroom. The products created by the Internet of Things technology have many functions. You can do most of your work in a practical way thanks to the integration of these products.

It seemed to imagine that such developments would take place over the past decade. These developments have no limits. In the future, it is envisaged that the Internet of Things technology will be applied in many areas, especially in smart houses.

EXAMPLES

https://www.oriliving.com/

https://vimeo.com/216938984

https://youtu.be/-OIPn26OUIM

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