**Computer Science**

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**Smart Devices**

There are many things or objects in the realm of the Internet of Things. Different works of literature have referred to the objects in many names, such as smart objects, mobile devices, smart things, or smart devices. However, the term smart device is the most used to refer to these objects or things around the Internet of Things. Smart devices are considered to be objects that are capable of computation and communication tasks. They range from simple sensors, smartphones to smart home appliances. The devices should be capable of dynamically adapting to the changes in contexts and act based on the conditions presented to them. They should be interoperable and self-configuring with unique identities helping them communicate and share data with other smart systems or devices. Therefore for a device to be considered smart, it must have network connectivity and be context-aware (Silverio-Fernández et al., 2018).

The different types of smart devices include smart cars, smartphones, smart thermostats, smartwatches, tablets, smart locks, smart doorbells, smart key chains, Radio Frequency Identification, sensors, and smart bands. The introduction of the Industry 4.0 aimed to develop new forms of organizations controlled by smart devices (Silverio-Fernández et al., 2018). This would help take this generation of the industrial revolution into a new level of efficiency and sustainability. The main objective of the current industrial revolution supported by Industry 4.0 is to fulfill the needs of consumers that affect areas of research and development, management, recycling and utilization, and manufacturing. Smart devices have made it possible to harness the power of data available on the Internet to create value across all industries. The Internet of Things has facilitated the change of machines and devices into self-learning and self-aware gadgets (Silverio-Fernández et al., 2018). Consequently, the maintenance and overall performance of the machines and devices have improved significantly over time. Smart devices are interacting better with their surroundings than ever before.

The benefits of smart devices to consumers are perceived and understood through five dimensions. The dimensions are adaptability, multi-functionality, autonomy, reactivity, and the ability to cooperate. The dimensions are vital in finding the perceived influence of smart devices on consumers. First, adaptability refers to the capability of a smart device to improve the relationship between its functionality with the environment (Lee & Shin, 2018). The consumer directly enjoys this benefit because the adaptability of a smart device increases consumer satisfaction and experience. Second, multi-functionality is perceived by a consumer as a benefit of smart devices. With a smart device, the consumer does not need to carry many gadgets, which provides convenience and flexibility. For instance, with a smartphone, a consumer does not need to carry their credit cards or Identification cards to initiate a transaction. Smart apps on smartphones help the consumer to process any transaction anytime and anywhere. Multi-functionality of smart devices provides the consumer with an excellent problem-solving ability (Lee & Shin, 2018).

Third, autonomy is a crucial benefit that smart devices provide consumers with. The consumer can communicate, buy products, control appliances at home and make applications only with smartphones. The smartness of the consumers’ cell phones offers the consumer the freedom and autonomy to do many things with just a single gadget (Lee & Shin, 2018). For instance, a consumer can order and pay for products online, turn off the refrigerator or lights, or play music remotely just using their phones remotely. Fourth, the reactivity of consumers to a smart device helps boost their satisfaction and experience. If a smart device helps the consumer do something more accessible, the reaction would be tremendous and compel them to rely heavily on it. Finally, the ability to cooperate and interact with other consumers through smart devices helps consumers share their experiences. In this case, they can help each other to get better product or price deals. One consumer can refer another to a place where they can get affordable products (Lee & Shin, 2018). Therefore smart devices massively benefit consumers, especially in the current world propelled by the Internet of Things.

Everything has its advantages and disadvantages because nothing in this world is perfect. For that case, smart devices are not an exemption because they have both advantages and disadvantages. The first advantage of smart devices is convenience to a person’s daily activities. Using a smart device like a smartphone, a person can program security systems, heating systems, lighting systems, and other activities instead of manually repeating the same procedure. Installing automated devices such as thermostats for temperature control and smart doorbells for security also increases user convenience (Petrova, 2020). The second advantage of smart devices is that they are easy to install and saves on energy. They also help in tracking cost and consumption to control expenditure. The third advantage is that smart devices provide big data, mobility, and focus on consumers for the organizations. This helps to make production and decision-making efficient by using the data that indicates the current trends in the market. The last advantage of smart devices is enhanced security because sophisticated technologies are used to secure the devices. The use of security cameras, motion sensors, and automatic doors also offer advanced protection (Petrova, 2020).

On the downside, smart devices have their disadvantages. The first disadvantage is that they are expensive to acquire compared to other forms of devices. The initial cost of acquiring smart devices is high such that most of them are only affordable to the wealthy population. The second disadvantage is an increased reliance on electric power such that in case of power surges, they become ineffective (Petrova, 2020). For this reason, people using smart devices in their homes require a reliable power supply that is always available. The third disadvantage of smart devices is that they can be prone to compatibility issues. Because the manufactures of these devices are different, it might be hard to make smart devices from multiple manufacturers compatible. Therefore a person has to own smart devices that are compatible with one another. Finally, smart devices are heavily reliant on the Internet connection to operate effectively (Petrova, 2020). Therefore the user has to have reliable Internet to enjoy the benefits of the devices.

References

Lee, W.-jun, & Shin, S. (2018). *Effects of product smartness on satisfaction: Focused on the perceived characteristics of smartphones*. MDPI. https://www.mdpi.com/0718-1876/13/2/9.

Petrova, S. (2020). *Advantages and Disadvantages of how to Store Data from Smart Home Devices*. http://ceur-ws.org/Vol-2845/Paper\_40.pdf.

Silverio-Fernández, M., Renukappa, S., & Suresh, S. (2018). *What is a smart device? - a conceptualisation within the paradigm of the Internet of things*. Visualization in Engineering. https://viejournal.springeropen.com/articles/10.1186/s40327-018-0063-8.