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| **Academic Essay** |

Internet of Things

The Internet of Things(IoT) is being dubbed the “Fourth Industrial Revolution” (Chou 2019). The internet has become the centre for all major aspects of human life and has changed the landscape of our society. Rather than having to physically travel to obtain information and to communicate, we can now do it anytime wherever we are. This has enabled us to change the way we live in the modern world.

The IoT has a macro effect on the world. It allows for communication between devices on a massive scale. Therefore, it is being used as a method to create “sustainable open, and user-driven innovation ecosystems” (Scuotto, Veronica Ferraris, Alberto Bresciani, Stefano 2016). These technologies are being used to create smart houses and smart systems that use constant feedback from sensors to maintain a specific “ecosystem”. Moreover, the IoT enables the capability to introduce the latest technologies and integrate them immediately to society. The internet of things has introduced a distribution of knowledge which has never been seen (Scuotto, Veronica Ferraris, Alberto Bresciani, Stefano 2016). Likewise, it has created a significant number of jobs for computer science. A study commissioned by Kevin Ashton – the founder of the term ‘Internet of Things’ – showed that “98% [of business leaders] have an understanding of IoT and that “72% [of] enterprises have introduced IoT devices into the workplace” (arubanetworks.com 2017).

The world’s financial landscape has been significantly affected by the IoT. It has caused industry to have “state-of-the-art status, digitization, and smart automation” (Chou 2019) and manufacturing to incorporate IoT to produce products more efficiently and effectively than ever before. The ability to “digitalize functions and key capabilities of industrial-age products” (Wortmann, Flüchter 2015). Therefore, this creates more opportunities to create physical products as well as digital software, which all contribute to increasing the financial effect of IoT. (Wortmann, Flüchter 2015). Subsequently, it is estimated that “80% of retailers will be using IoT” by 2021. (Gymarthy 2019). Consequently, this increases the amount of jobs created for Computer Scientists to maintain and improve these systems. Furthermore, the IoT reduces the cost to create products and distribute them to the world. The majority of processes that rely on IoT have to use sensors to function. In recent years there has been a decrease in costs to buy and maintain the sensors and therefore, the “smart systems“ (Chou 2019) are more affordable to use. The Statista Research Department (2020) shows that 212 billion dollars were spent on IoT solutions. However, they have forecast that by 2025 the “market size of end-user spending on IoT solutions worldwide” will be 1,567 billion dollars. However, the total spending on IT worldwide was 2255 billion dollars (Holst 2020). This means 9.4% of spending on IT was spent on IoT solutions. However due to IoT spending is increasing at a high exponential rate, the percentage of spending on IoT will increase dramatically (Wortmann, Flüchter 2015). Thus, the importance of computer scientists is increasing rapidly.

“The internet is becoming the town square for the global village of tomorrow” (Bill Gates). The IoT has had a significant impact on people’s social life. the internet enables people to converse from anywhere in the world. The number of cellular connections will reach “3.5. billion by 2023” (Gymarthy 2019). This highlights how massive this network of devices is. This web of connections is essential to the world today, with many companies operating internationally. Therefore, many companies would be handicapped or non-functional because of the heavy reliance upon the IoT (O’Maley 2016). The ability to communicate via the internet instantly, has reduced the amount of time people physically spend with each other. Furthermore, the reliance on the internet to have social interactions has created a necessity to be able to use the internet.

Moreover, due to the huge financial implications of the IoT, the relationship between the internet and the consumer has never been so prevalent. Everyone who has access to the internet is a consumer. However, an unanticipated effect of the IoT is the security danger that it brings to the consumer (R. Williams, E. McMahon, S. Samtani, M. Patton, H. Chen 2017:179-181). At the end of the 20th century, scientist proposed that internet would lead to “triumph of liberal democracy”. Despite this early optimism, the internet is now viewed much more negatively. Whether it be governments have more data and control on the general public or the creation of an “empire of connected devices”. The IoT brings great benefits as well as great vulnerability (O’Maley 2016). Without proper education on the internet or security there are many risks which can cause significant problems. In 2019 “32% of businesses [in the UK] reported having any kind of cyber security breach or attack” (Vaida 2019:43). The cyber-attacks occur more often due to the IoT allowing devices to have many connections which can be used to infiltrate the device. Therefore, caution should be used when using the IoT otherwise people could be taken advantage of.

In conclusion, the IoT has affected all the aspects of our lives, and will continue to do so for many years to come. The internet has had a massive economic, social and industrial effect on the world. Humans now rely on the internet constantly and therefore we have become reliant on a global network for our society to function. This is why the Internet of Things has totally changed the landscape of our massively networked world.

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