Final Project Part 2

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**Internet of Things**

The internet of things is practically connecting devices, such as your phone, laptop, oven, microwave, and even your car, to each other. This enables the devices to send and receive data to one another. In modern technology, the Internet of Things (IoT) is used everywhere.

An example of IoT is the smart home. A smart home is a home that can be entirely controlled from one device, such as a phone or computer. Some basic smart home properties are controlling your heat, lighting, microwave, oven, or stove top. Some good examples of these devices are the Amazon Echo or Google Home, which can consist of security cameras, alarms, and thermostats.

The future development of IoT is broad in the sense that there are billions of devices that are already connected to the internet (Symantec Co., 2019). IoT could expand well past the consumer market to businesses and the government in the terms of industrialization, mechanized roads, and AI enabled vehicles.

In terms of industrialization, factories could one day be operable from anywhere, if there is an internet connection. This would be possible by controlling machines from a handheld device, such as a tablet or phone. To speculate, the whole factory’s process would be mapped out and would send and receive data to the device, where the user could control the number of products the factory would need to produce, in a set amount of time. The machines would be able to send error messages when problems occur.

Cities could use IoT in the sense of mechanized roads. The roads would be able to sense the type of weather that is occurring, such as rain or snow. Additionally, the roads would have cameras that would scan license plates to help find criminals, along with a much larger variety of things, such as video-taping crime scenes and being able to view everything that happened.

There is future development in IoT through cities in the sense of AI-enabled vehicles. An idea, primarily for areas that snow a lot, such as the Midwest in the United States, or Russia in general, would be to have AI controlled snow plows. The snow plows would be sent out to plow the snow whenever snow would fall, which would then be controlled via handheld device. The idea would be that each snow plow is connected to one another, along with street cameras, roads, and parking lots, which would be able to notify one of road conditions.

Career opportunity examples for those interested in IoT would be jobs such as: web development engineers, software engineers, software architects, mobile development, information security, hardware engineering, networking, and business intelligence. These career opportunities would require IT technologists to invest in knowledge of sensors, communicative chips, communication gateways, cloud management, security solutions that cut across the IoT stack (Henry-Stocker, 2017). IoT sensors are devices that compute, contact, sense, and act within the network to transmit information; communicative chips are chips that send data to one another in the most efficient way possible; communicative gateways are things like Bluetooth or Wi-Fi, which provide a network for devices to connect to; cloud management is the ability to analyze data and provide information to IoT devices; IoT security solutions is simply having knowledge of how to completely secure the IoT network, from device to device and to be able to test the security measures; domain knowledge is understanding the regulations on security and privacy that the system must comply with (Henry-Stocker, 2017).

In conclusion, IoT is one of the fastest growing fields, as technology is ever advancing. From the roads that we pave, to industrialization, to even the devices within our homes, IoT is highly capable of reaching new depths, and soon enough, all devices will be able to connect to one another.

**Reflection**

The chosen topic, IoT, was chosen because I have always had a passion for making the things in my life easier and simpler to do. This course helped inform that choice by giving me a broader outlook on IoT. Before, I thought that IoT would be much more home-based, but once I’d done more research, I’ve come to understand that IoT is one of the hugest and most innovative topics in the computer science industry.

My future plans in relation to IoT at this point in my computer science career are to take a network and cloud courses. From my research, I’ve found that network and cloud play huge roles in IoT, as devices will need to store data that is collected, that could be accessed at any time.

Data structures and algorithms are important functions in IoT because algorithms support wireless sensor network and cloud-based networks. Designing these algorithms are important for intelligent devices used in IoT, as these devices need to learn as they are used. Algorithms, additionally, are pertinent to ensuring there is security and privacy on the network, as someone could easily steal or corrupt the data on the network. Without algorithms, there would be no foundation for the devices or network in IoT.

References

Symantec Co. (2019). The future of IoT: 10 predictions about the Internet of Things. Retrieved February 22, 2019, from https://us.norton.com/internetsecurity-iot-5-predictions-for-the-future-of-iot.html

Henry-Stocker, S. (2017, November 03). 6 IoT skills that will future-proof your career. Retrieved February 22, 2019, from https://www.networkworld.com/article/3236046/internet-of-things/future-proofing-your-career-with-iot.html