**COIS13034 Cloud Based Smart Application Management**

**Term 1, 2022**

**Assessment 2 – Research Report**

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##### Objectives

1. Research multiple resources (e.g. websites, articles, books) to answer a series of connected questions;  
2. Prepare a report to answer the questions according to the given guideline in the assignment;  
3. Write a case study which addresses assignment requirements.

# Introduction

# Report body

In this report, there are total of six research paper that will be discussed related to the topic of this chosen for this assignment. Following are the list of the report that will be discuss throughout this report.

First article:

Sicari, S., Rizzardi, A., Grieco, L. and Coen-Porisini, A., 2015. Security, privacy and trust in Internet of Things: The road ahead. *Computer Networks*, 76, pp.146-164.

Second article

J. Bugeja, A. Jacobsson and P. Davidsson, "An analysis of malicious threat agents for the smart connected home," 2017 IEEE International Conference on Pervasive Computing and Communications Workshops (PerCom Workshops), 2017, pp. 557-562, doi: 10.1109/PERCOMW.2017.7917623.

Third article

Fagerstrøm, A., Eriksson, N. and Sigurdsson, V., 2020. Investigating the impact of Internet of Things services from a smartphone app on grocery shopping. *Journal of Retailing and Consumer Services*, 52, p.101927.

## **Article Summary**

### **2.1.1 First article**

The article mentions the technology of the Internet of Things (IoT), the integration of IoT in our daily lives, data collected by the IoT devices for assisting activities, and the importance of security, privacy, and trust that plays fundamental roles in IoT.

Moreover, the article highlights the base requirement of each IoT security, which is necessary for IoT devices and enforcing policies to maintain order, security, and data consistency in IoT scenarios. For instance, what they will do with the data collected from the IoT devices and the possible weakness of the security protecting those data with the solution of each weakness.

### **2.1.2 Second article**

The article mentions that the Internet of Things (IoT) smart homes come with the benefits they offer, how it helps people's daily lives and many potential smart home users. However, despite all the benefits, it comes with several threats involving privacy and cybersecurity that can disturb users' daily lives or endanger them. There are a variety of threats, threat agent (or the one who launches the attack), threat model, motivation, and hypothetical examples of attacks they will make. The article aims to identify threat agents in the smart connected home In IoT to understand better what type of attack they are currently facing and a much more protection strategy.

### **2.1.3 Third article**

The article mentions of how the impact of Internet of Things (IoT) services integrated in the smartphone app assists in a retail grocery shopping situation. The aims of this article is to find out if the use of IoT increases the likelihood of customer purchasing a certain product in retail grocery store with the parameter provided such as the price, expiry date, quality indicators and offer. Furthermore, the result of the research will help the grocery manager to focus on certain aspects that help to develop more effective marketing strategies that will assists and make the consumers convenient in shopping.

## **Problem address by article**

### **2.2.1 First article**

The articles mainly address the problems of how data collected by IoT devices are managed and secured. The articles highlight the security characteristics such as anonymity, confidentiality, and integrity of the system in managing the data process by the devices. The articles highlight how each of the data collected is distributed among the systems or users using authorization and authentication methods. Furthermore, the article addresses mobile security in IoT and the issues middleware in IoT are facing due to the large number of technologies available in IoT.

### **2.2.2 Second article**

The article mainly addresses the problem of the potential danger of the data collected from the Internet of Things (IoT) devices or smart home devices. For instance, how the stolen data obtained by the threat agents are used. The articles will then introduce each threat agent and their motivation, gains, and potential danger or cause that will affect the victim from how they will utilize the data collected.

### **2.2.3 Third article**

The article mention that although Internet of Things (IoT) devices are a device that are implemented with the aim to deliver intelligent and autonomous solution to improve consumer convenience when shopping that will have the potential to support the customer experience when shopping. However, the article mentions that there are probability that the retail grocery stores are not able to keep up with the trend to increase customer by using smart retailing.

## **How they address the problem**

### **2.3.1 First article**

The way the articles address the problem is first, they tell the details of the features along with the issues it is facing and the impact it will have on the data or aspect involving security and privacy. Once the features and issues are discussed, the impact is discussed. It will then give out several solutions regarding the issues that the feature is currently facing. It will give out a brief description and the strength and weaknesses of each solution. Finally, the report will give a better option from the mentioned solution and its reasons.

### **2.3.2 Second article**

The articles address the problem by introducing the use of the Internet of Things (IoT) with its features, especially in smart homes, and the types of interfaces or devices often used by a larger number of people. The article will then discuss how data is collected to assist the user in their daily activities. After that, the article will then introduce what threat agents are with each of their types and what types of data each threat agent will take, their motivation in their action, and what benefits them from their action.

### **2.3.3 Third article**

The articles address the problem by specifying the purpose of this report. For instance, to understand better the interaction of customer in retail grocery shopping environment with Internet of Things (IoT) services, the article paired will pair the IoT services with parameter of that most customer will see in the retail store. The article will then discuss each of the parameter, how it affects customer and it will then finally analyse the result obtained which then will be passed to the marketing strategies that will assists and make the consumers convenient in shopping.

## Impact of the topic to the industry

# Case Study

Although most physical shopping has migrated online and much more will soon be automated or online, the retail industry is not going away. People still enjoy shopping and need to buy for a variety of reasons. The precise form of that retail experience, though, is about to shift with the arrival of IoT.

The promise of IoT for customers is a more customised shopping experience. For merchants, the Internet of Things offers to better specifically target buyers' requirements and, perhaps, persuade them to make a purchase.

These potential advantages are two sides of the same coin made possible by technology that acknowledges individual shoppers entering a store. It will then retrieve their personal information and shopping history and then provides pointers with promotions that guide them to specific areas or products within the store. The smart store recognises its consumers' preferences and tailors the shopping experience appropriately.

When people enter a store, the store recognises them because it tracks their smartphone. When the business detects its presence, it searches its database for their personal information and purchase history. Of course, they are alerted to these promotions via their smartphone. They may be a text message with a digital voucher attached or an alert to the store's smartphone app.

The shop may also use this information to lead them to specific locations or items. They may get a phone message or an app alert telling them to go to Aisle 12 to see something unique or to the second-floor sports goods section for a tailored presentation.

Furthermore, the smart store will know when they put something in their shopping basket due to the RFID tags on each item. The business can then suggest other things or accessories that they would want to buy. If they put a dress shirt in their basket, they may get a text message or a smartphone alert pointing them to the store's tie selection and a discount voucher.

Alternatively, if they are in the grocery store, the smart cart may email their recipes based on their chosen products and coupons for extra items to finish those dishes.

This data also gives insight into client management in the long run. An intelligent store can successfully watch them travel around the store, recording their journey and what they look at, using the same tracking technology. This data may adjust store layout for different customers as the store learns about each of its customers in that shop.

# Conclusion

# Reference

Sicari, S., Rizzardi, A., Grieco, L. and Coen-Porisini, A., 2015. Security, privacy and trust in Internet of Things: The road ahead. *Computer Networks*, 76, pp.146-164.

J. Bugeja, A. Jacobsson and P. Davidsson, "An analysis of malicious threat agents for the smart connected home," 2017 IEEE International Conference on Pervasive Computing and Communications Workshops (PerCom Workshops), 2017, pp. 557-562, doi: 10.1109/PERCOMW.2017.7917623.

Fagerstrøm, A., Eriksson, N. and Sigurdsson, V., 2020. Investigating the impact of Internet of Things services from a smartphone app on grocery shopping. *Journal of Retailing and Consumer Services*, 52, p.101927.

Miller, M., 2015. The Internet of things: how smart TVs, smart cars, smart homes, and smart cities are changing the world 1st ed., Indianapolis, Indiana: Que.

(Sicari, Rizzardi, Grieco and Coen-Porisini, 2015)

(Bugeja, Jacobsson, Daviddson, 2017)

(Fagerstrøm, Eriksson and Sigurdsson, 2020)