



UTM
UNIVERSITI TEKNOLOGI MALAYSIA

**SECP1513-07 TEKNOLOGI DAN SISTEM
MAKLUMAT**

PROJECT 1

(Low Fidelity PrototypeFile)

Lecturer's Name: Mr Hairudin Bin Abdul Majid

Group Leader Contact Number: +6011-11468854

Group Members	 LIM SHI KAI **Group Leader	 CHIH ZHEN EN	 TIA SIAW XUEN	 CHUA XIN LIN	 MA ZE JUN
Matric Number	A21EC0196	A21EC0167	A21EC0233	A21EC0020	A21EC4009

Table of Contents

Contents	Page
1.0 Introduction	3
2.0 Content about Augmented Reality (AR)	4
3.0 Architecture Planning and Design	6
4.0 Conclusion	8
5.0 Reference	9

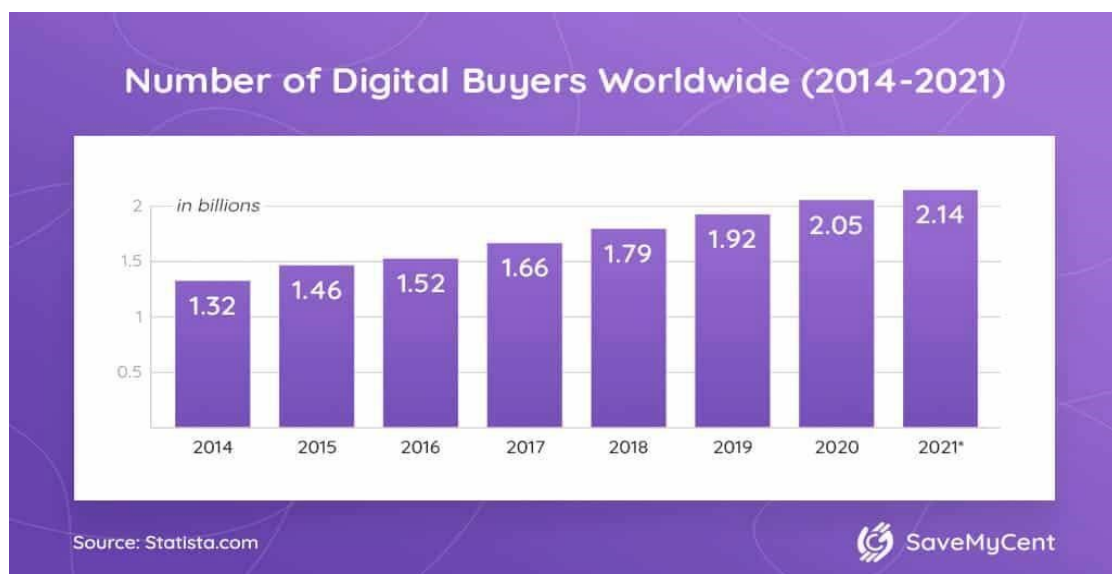
1.0 Introduction

The prototype is the draft, early sample or an original model to test a concept or process. It allows us to explore our ideas and show the users the purpose of some specific features or the overall design concept. The prototype consists of low-fidelity (lo-fi) prototyping and high-fidelity prototyping (hi-fi). Low-fidelity prototyping is often paper-based, and user interaction is prohibited, while high-fidelity prototypes are computerised and permit user interaction. In this project, our group requisite to develop a Low Fidelity Prototype project based on one of the Fourth Industry Revolution (IR 4.0) technologies for the e-commerce platform. After discussion, we decided to apply the concept of Augmented Reality (AR) technology for our project. Nowadays, AR technology is commonly used, especially in shopping malls or stores that sell cosmetics, clothes or furniture. For instance, Sephora, Zeekit and Ikea. This technology allows customers to view or test the product to know which product is more suitable than buying it down. However, this technology is not frequently used in e-commerce platforms like Shopee and Lazada. We noticed that many e-commerce users faced problems such as buying the wrong size clothes or shoes, or results are not ideal when they use the purchased products, maybe because of the deviation of lipstick colour, furniture size or clothes colour. We believe that these complaints or problems can be reduced and solved by using AR technology as the chances for customers buying unsatisfying products will decrease.

2.0 Content about Augmented Reality (AR)

Our selection of 4th IR technology is **Augmented Reality**, widely known as **AR**.

Augmented reality, in short, is the evolved version of the real existing physical world. Instead of stepping into virtual reality, AR is the advanced technology that can truly affect us from our senses. Its implementation includes digital visual elements such as vision and other sensory stimuli, allowing the overlay between AR technologies and the real world. Without our notice, AR technologies have already blended into our daily life. A real-life example would be the mobile application Pokémon Go since 2016, which grants inescapable sensation to the players. Secondly, the camera filters with cartoon or makeup features are extensions of AR technology. The future of Augmented reality is a highly expected scenery and is becoming more pervasive among a wide range of application programs.



Completing tasks online has been a compulsory skill with the rapid progression in technology. Working online has made everything convenient; almost everything can be settled online, such as online learning, online working, and even online shopping. We know that online shopping has become the new trend nowadays through statistics.

Nowadays, various online shopping platforms such as Shopee, Lazada and Zalora. Our project hopes to help online buyers by implementing Augmented Reality (AR) in their shopping

experience. The feature in our program is known as a virtual try-on solution. On most online shopping web pages, shoppers can see that the products such as clothes, shoes and accessories are worn on mannequins. Many buyers are afraid that the product outcome may look very different from what they expected. Thus they would want every precaution to avoid that. Our AR feature can effectively help the buyers to try on their clothing items and consider if the product suits them. This helps the online buyers to have clear direction on what they are buying and how the items look on them.

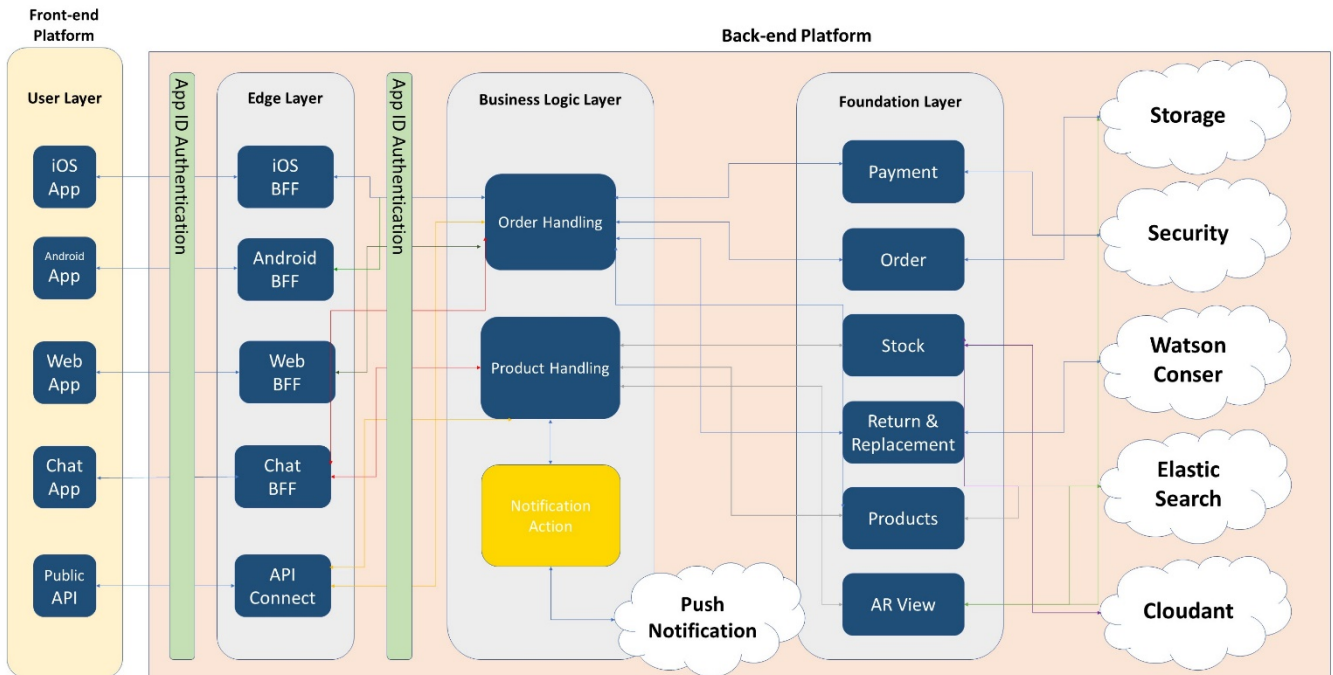


Potential Client

All online buyers are interested in wearable products such as clothes, hats, shoes etc. Our project gives the buyers an intuitive experience about the products they are interested in. Buyers can see how the products work and realistically see their effects. By implementing AR technology in online shopping, our project hopes to provide a satisfactory experience to every online shopper.



3.0 Architecture Planning and Design



It is a collection of components required to provide Cloud Computing Services for cloud computing architecture. Several features, such as a front-end platform and back-end platform, are needed for a cloud computing architecture to function.

The front-end platform, known as the user interface, is responsible for providing services to the client-side of a computing system. It is a viewable interface to the customers, clients, users and their network-enabled devices such as iOS App, Android App, Web App. At the same time, the chat app and Public API are also part of the front-end platform, which provides the interface from cloud computing.

Then, the back-end platform also is important for cloud computing architecture. Nevertheless, what is the meaning of a back-end platform? Is it like the behind-the-scenes team in the movie? Yes, a back-end platform, also known as a cloud service provider, keeps track of all the website's front end applications. Furthermore, the multiple front-end digital channels communicate to their edge-of-network through a Back-end For Frontend(BFF) pattern. This is a common approach to cloud-native apps that enables deploying a new version of a mobile app and the APIs that support it without necessarily iterating all other parts of the overall application back-end.

The BFF orchestrates API calls into the various microservices below: order handling, product handling, and notification action. Then, the microservices from order handling will be sent to the foundation layer associated with the order problem like payment, return & replacement, and products. When a user has the order with our e-Commerce platform, the order will be sent to each service at the foundation layer, like order services will have the integration at database in the form of cloud or object storage. Actually, what is the storage for cloud computing? It is a service used to manage remotely, backup, and preserve data and make it accessible to users through the network. It has made it simpler for users to share and collaborate a massive quantity

of data for online functionality like online shopping, research, social media networking, and entertainment. Many businesses are ready to perform their business operations through the cloud due to its large storage capacity. So, storage is an essential component of the back-end architecture for providing adaptive storage capacity for storing and handling large amounts of data.

For the payment, the payment will have the integration at security, which asks for the verification from the buyer and ensures the money did not charge wrongly. However, what means to security in cloud computing architecture? Cloud computing security software offers data security and regulatory compliance for data in cloud architecture. Security software can secure an organisation's data against unauthorised access by monitoring and protecting them. Encryption, sandboxing, and data recovery are common features in cloud computing security software. Malware, DDoS, and other cyberattacks are protected by cloud computing software. It enables businesses to become cost-effective and promptly.

The return and replacements in the foundation layer will be associated with Watson Conservation, a question-answering computer system capable of answering posed in natural language and developed by International Business Machines (IBM) Corporation. When a buyer needs to have the return process due to receiving faulty or incomplete products from the seller, they need to ask for the procedure with the customer service team. So, Watson Conservation will be doing its job to answer the question from the buyer according to the question bank designed by the e-Commerce platform.

Then, the product handling in the business logic layer will integrate with stock, products, and AR View. The stock for product handling is used to check the availability of items that the buyer wants to buy from the seller. So, Cloudant, an IBM software product, provides the integrated data management search and cooperate with Elastic Search, to search the product info and stock availability to the buyer and send it back to their devices. When the buyer brought that product or the seller updated the stock availability, Cloudant also updated it once it received the command from the business logic layer.

Next is the AR View, which is crucial for our project. Sometimes the buyers will be worried about the shoes or clothes that are suitable for them. When the AR view is added to the e-Commerce platform, the buyers cannot get the view in the app and make the decision. Nevertheless, how does the flow get the AR View from the back-end platform in the cloud computing architecture? Firstly, the AR view will have the elastic search at the cloud storage and send back to the user in Augmented Reality (AR) View.

Lastly, the notification action is used to push the notification to the user and update the product status to them, like stock availability, price changes, and dispatching the order from the seller. So, they can alert and have the next step when the notification is popping out.

4.0 Conclusion

In general, our team developed a low-fidelity (lo-fi) prototyping project based on one of the fourth Industrial Revolution (IR 4.0) technologies. Our project used the concept of Augmented Reality technology. That is AR. For example, some camera filters with makeup and special effects functions, various shopping platforms, and others. AR technology has been unconsciously integrated into our daily life. This technology allows customers to view or test products. The customers can be using their devices to get the information on the simulated human model through AR technology to observe the required items' size and colour to know which product is more suitable for them, rather than necessarily buying it. It can effectively reduce and solve customers' anxiety before shopping and after-sales problems after shopping. With the development of science and technology, more and more things will be done online in the future. Online shopping will become more and more popular, so our project can significantly improve the shopping experience of such users. Through the front-end platform, we provide services to the clients of the cloud computing system, whether PC, mobile phone or tablet computer, so that different cloud computing systems have other interfaces that users can use. Second, we track all the applications, including applications, services, cloud runtime, storage, infrastructure and others, which run on the site's front end through the back-end platform, the cloud service provider, and the back-end provides services according to customer needs. I suppose the customer has a problem with the order. In that case, commodity processing stage, the order processing micro-service will be sent to the base layer related to the payment, return and exchange, products and other order problems. For the problem when payment occurs, our payment mode will have security integration, requiring verification from the buyer and ensuring that the money is not wrongly charged. We have developed a question answering computer system IBM for after-sales questions to answer some of the customers' natural language questions. When customers need to return an unsatisfactory product from the merchant, they need to ask the customer service team about the procedure. Our project will consider customers shopping experience at any stage to meet their needs.

5.0 Reference

1. Afreen, S. (2020, June 17). What is cloud computing architecture: Benefits, components & more | Simplilearn. Retrieved December 5, 2021, from https://www.simplilearn.com/tutorials/cloud-computing-tutorial/cloud-computing-architecture#cloud_computing_architecture
2. Assistant Secretary for Public Affairs. (2014, February 19). Prototyping. Retrieved December 7, 2021, from <https://www.usability.gov/how-to-and-tools/methods/prototyping.html>
3. BigCommerce Pty. Ltd. (2021, June 28). Augmented reality in ecommerce: How does it work? Retrieved December 4, 2021, from <https://www.bigcommerce.com/articles/ecommerce/ecommerce-augmented-reality/#how-ecommerce-businesses-are-using-augmented-reality>
4. Djordjevic, M. (2021, September 16). 26 useful statistics on online shopping vs in store shopping [The 2021 edition]. Retrieved December 4, 2021, from <https://savemycent.com/statistics-on-online-shopping-vs-in-store-shopping/>
5. Hayes, A. (2020, December 2). Augmented reality definition. Retrieved December 4, 2021, from <https://www.investopedia.com/terms/a/augmented-reality.asp>
6. Inc, C. (2020, July 15). Cloud computing Architecture — A blueprint of cloud infrastructure. Retrieved December 5, 2021, from <https://click2cloudtechnology.medium.com/cloud-computing-architecture-a-blueprint-of-cloud-infrastructure-b932aa9461b9>
7. Intellipaat.com. (2021, September 1). Cloud computing architecture with diagram - Intellipaat. Retrieved December 11, 2021, from <https://intellipaat.com/blog/cloud-computing-architecture/#no12>
8. Jena, S. (2021, March 25). Architecture of cloud computing. Retrieved December 5, 2021, from <https://www.geeksforgeeks.org/architecture-of-cloud-computing/>
9. Peterson, R. (2021, October 23). Cloud computing architecture and components. Retrieved December 5, 2021, from <https://www.guru99.com/architecture-of-cloud-computing.html>
10. Sumo Logic. (2019, August 9). Cloud management. Retrieved December 11, 2021, from <https://www.sumologic.com/glossary/cloud-management/>
11. TrustRadius. (n.d.). TrustRadius CAPTCHA. Retrieved December 11, 2021, from <https://www.trustradius.com/cloud-computing-security>
12. Cloudant. (2011, January 16). Retrieved December 15, 2021, from <https://en.wikipedia.org/wiki/Cloudant>
13. How to build a cloud-native app in 30 minutes. (2018, March 13). Retrieved December 15, 2021, from <https://www.ibm.com/cloud/blog/building-cloud-native-app-30-minutes>
14. Watson (computer). (2009, April 27). Retrieved December 15, 2021, from [https://en.wikipedia.org/wiki/Watson_\(computer\)](https://en.wikipedia.org/wiki/Watson_(computer))