

UNIVERSITI TEKNOLOGI MARA

**Developing Augmented Reality Application for
Advertising Local Snacks Product (Ropis)**

**MUHAMMAD AFFIQ DARIMY
BIN HAZIL AZRAN**

Thesis submitted in fulfillment of the
requirements for

Bachelor Degree (Hons) in Graphic Design

Faculty of Art & Design

FEBRUARY 2022

CONFIRMATION BY EXAMINER

I certify that an examiner has met on 6th February 2022 to conduct the final examination of Muhammad Affiq Darimy Bin Hazil Azran on his Bachelor's Degree (Hons) in Graphic Design thesis entitled Developing Augmented Reality Application for Advertising Local Snacks Product (Ropis) in accordance with Universiti Teknologi MARA Act 1976 (Akta 173). The examiner undersigned recommends that the student be awarded the relevant degree.



Nurhikma Binti Mat Yusof
Senior Lecturer
Faculty of Art & Design
Universiti Teknologi MARA
Cawangan Melaka
(Internal Examiner)
Date: 6 February 2022



Azahar Harun, PhD
Assoc. Prof. Dr.
Academic Writing Coordinator
Faculty of Art & Design
Universiti Teknologi MARA
Cawangan Melaka
Date: 6 February 2022

AUTHOR'S DECLARATION

I declare that the work in this thesis was carried out in accordance with the regulations of Universiti Teknologi MARA. It is original and is the results of my own work, unless otherwise indicated or acknowledged as referenced work. This thesis has not been submitted to any other academic institution or non-academic institution for any degree or qualification.

I, hereby, acknowledge that I have been supplied with the Academic Rules and Regulations for Undergraduate, Universiti Teknologi MARA, regulating the conduct of my study and research.

Name of Student : Muhammad Affiq Darimy Bin Hazil Azran
Student I.D. No. : 2020143987
Programme : Bachelor Degree (Hons) in Graphic Design- AD241
Faculty : Art & Design
Thesis Title : Developing Augmented Reality Application for Advertising Local Snacks Product (Ropis)

Signature of Student:



Date: February 2022

ABSTRACT

Augmented reality (AR) is an enhanced version of the real physical world that is achieved through the use of digital visual elements, sound, or other sensory stimuli delivered via technology. It is a growing trend among companies involved in mobile computing and business applications in particular (Hayes, 2020). It is yet a technology that is not a big part of our lives. However, developers are still exploring the potential of how far and how big, augmented reality (AR) can be. Mark Zuckerberg of the Facebook company recently announced that they have rebranded into Meta, preparing for their vision in creating the Metaverse, where people can connect using virtual reality (VR) and augmented reality (AR) for a more immersive experience. According to Mark, you will be able to do almost anything you can imagine, get together with friends and family, work, learn, play, shop, create, as well as entirely new categories that don't really fit how we think about computers or phones today (Zuckerberg, 2021). Since the announcement, Meta has made it clear that they are already working a lot and will work a lot more in achieving the ultimate dream. Due to that, the application of augmented reality (AR) and virtual reality (VR) is inevitable whether it is sooner or later. In this research, the aim is to investigate and understand the society's view upon using augmented reality (AR) for advertising. A questionnaire will be done in order to get responses upon the society's view to achieve the aim as it can help any further developments in getting ready for the future and applying more use of augmented reality (AR) in our daily lives such as in advertising. The research is also to study about the use of augmented reality (AR) for advertising local snacks product.

ACKNOWLEDGEMENT

Firstly, I am thankful and humbled to be able to go through ups and downs in this journey on completing my bachelor's degree. My gratitude for my supervisor Madam Ilinadia Binti Jamil. Thank you for your patience, attention, time, support and ideas in guiding me to get through with this project. My highest appreciation goes to my family, friends, and lecturers who became the backbone of my research in sharing knowledge, opinion, and all the little things that directly or indirectly contributed to my academic writing study. Finally, the research is made dedicated for the loving memory of my parents, Hazil Azran Bin Ramli and Shuhaila Binti Kamis. My biggest love is for the both of you and the rest of my family. This achievement should be celebrated.

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CHAPTER ONE

INTRODUCTION

1.1 Research Background

Ever since pandemic and the covid outbreak happened, many lives are affected and caused them to find new ways of getting incomes. Many shifted careers and get started in new business ventures to improve their lives. Some examples of business venture are selling cosmetics products, providing skill-based services (graphic design, photography, painting, etc), or food and beverages (F&B) business.

Ropis, is a local snacks product brand that has been around in the industry for a while. Two of their main products are Ropis Crunch and Ropis Rangup. Ropis Crunch is mini crunch covered in hazelnut and milk chocolate. This kind of snacks are usually being referred as ‘chocojar’ which is short for ‘chocolate in a jar’. Meanwhile Ropis Rangup is fried banana roll that is topped with many different options of toppings. The options are Rotella, Roreo, and Rocheese which are the rebranded names for Nutella, Oreo, and cheese in the respective order.

Despite being one of the early brands that came up with ‘chocojar’ in the local food industry scene, the food trend has also started a bandwagon of many other brands in also having their own take of the trending food mentioned. Now that the market has become more and more saturated, it brings challenge for everyone to advertise and market their products when everyone is similar or same from one and another.

As part of the researcher’s project, the researcher decided to develop augmented reality (AR) to be applied onto the local snacks product in order to stand out in the advertising game and make the brand more appealing when compared to others. The solution also brings question in applying augmented reality (AR) as a medium for advertising, hence, this research is made to study and understand better regarding the topic.

1.2 Problem Statement

In this modern world, everything is at our fingertips. With the development of technology, information can be easily shared across the globe just within seconds. Due to that, we also gain information that we do not look for. For instance, advertisements. We do not search for

advertisements, but they are everywhere all around us. They are usually made to promote brands, products, or services. When there are so many competitors, how do we make our advertisements stand out from the crowds? The answer is by doing unique and creative advertisements. We tend to remember things that caught our attention, interest, or curiosity. One of the methods of going unique in the advertising world is by doing augmented reality (AR) as it is still not fully utilized by many yet. The problem is, what are the society's view about using augmented reality for advertising? Does the society feel interested in seeing augmented reality (AR) as a medium for advertising? How relevant it is to use augmented reality (AR) used in advertising?

1.3 Research Objective

The objective of this research is as below:

1. To investigate and understand the society's view upon using augmented reality (AR) for advertising.
2. To study if the society is interested in seeing augmented reality (AR) as a medium for advertising.
3. To understand how relevant it is to use augmented reality (AR) in advertising.

1.4 Research Question

The aim of the research is to study the following questions:

1. What are the society's view upon using augmented reality (AR) for advertising?
2. Does the society feel interested in seeing augmented reality (AR) as a medium for advertising?
3. How relevant it is to use augmented reality (AR) used in advertising?

1.5 Statement of Significance

The result of the study will bring benefit for the followings:

Advertisers: This study can help advertisers to understand the view of the society regarding augmented reality (AR) as a medium for advertising, whether it is supported, accepted, and effective to be used in advertising.

Multimedia designers: The result of this study can help them in understanding the good elements that can be applied onto their works and can help in the decision making whether augmented reality is relevant for them to jump into.

Students: This study can benefit them in finding and trying creative approach in their projects. What they learn can be applied onto their presentations and assignments to improve the quality of work as a student.

1.6 Research Framework

The framework of this research is as shown in Table 1 below.

Topic \ Week	1	2	3	4	5	6	7	8	9	10	11	12	13	14
Abstract	■	■												
Background of Study		■	■											
Literature Review			■	■	■	■								
Methodology							■	■	■					
Findings and Discussions										■	■	■		
Conclusions													■	■

Table 1: Research Framework

The research will be consisting of six topics which are the abstract, background of study, literature review, methodology, findings and discussions, and finally conclusions. Based on the table, abstract will be done on week 1 and 2, background of study will be done from week 2 to week 3, meanwhile literature review on week 3 to week 6, and then methodology on week 7 until 9, followed by findings and discussions on week 10 to week 12, and last but not least, conclusions which will be done on week 13 and 14.

CHAPTER TWO LITERATURE REVIEW

2.1 Introduction

Augmented reality (AR) is a view of the real, physical world in which elements are enhanced by computer-generated input (Berner, 2020). It is a technology that has been around for long and has continue to develop as technology grows. In fact, the history of the first augmented reality (to some extent) goes all the way back in 1957, achieved by a cinematographer called Morton Heilig. He invented the Sensorama which delivered visuals, sounds, vibration and smell to the viewer (Berner, 2020). Although it is very different with the idea of augmented reality (AR) that we would imagine today which related to computer-generated input (CGI), but it was the first study in the concept of adding additional data to an experience.

2.2 Mobile Game



Image 1: Pokemon Go Application

The application of augmented reality (AR) has started to be used around the world in different mediums like games, learning, advertising, and many more since many years ago. But it was not until the year 2016 when the application of augmented reality (AR) is widely used, and more people become aware of the technology. It was due to the Pokemon Go app that become an instant global and cultural phenomenon in just a month of release in July 2016. In the game, people can immerse in the experience of becoming a Pokemon trainer by using GPS technology that enables to track down and catch Pokemon in the real world. The app also breaks five new world records for being ‘most revenue grossed by a mobile game in its first month’, ‘most downloaded mobile game in its first month’, ‘most international charts topped simultaneously for a mobile game in its first month (downloads)’, ‘most international charts topped simultaneously for a mobile game in its first month (revenue)’, and last but not least, the ‘fastest time to gross \$100 million by a mobile game’ (Swatman, 2016).

2.3 Smartphone Features



Image 2: iPhone X Augmented Reality (AR) Feature

In the following year, 2017, augmented reality (AR) became more common when Apple unveil the iPhone X (pronounced as iPhone 10). It was considered one of the biggest upgrades to an iPhone ever with a whole lot of new features that was revealed in the trailer.

The model was the first to remove the signature home button, have bigger screen-to-body ratio with a notch at the top, wireless charging, 'FaceID' which is a new facial recognition technology for iPhone, Animoji, and specifically mentioned, augmented reality (AR). Among all the features mentioned above, two of them are related to augmented reality (AR) technology which are the Animoji and the augmented reality (AR) itself. The release of Animoji was followed by Memoji on the next year (2018) which works pretty much the same way but slightly different with customizable features. Animoji are animated emoji characters designed to mimic your facial expressions, while Memoji are customizable humanoid Animoji characters that you can design to look just like you (Hardwick, 2020).

2.4 Music Industry



Image 3: Stray Kids AR Photocard

The use of augmented reality (AR) grows as time pass and the application of it also have a huge variety. In the K-Pop industry, they have been applying augmented reality (AR) in merchandises as well. For example, groups like Stray Kids and Tomorrow X Together (TXT) (just to name a few) created augmented reality (AR) cards for their fans. With the card, they are able to use a mobile application to scan it and a video will play. The cards feature different

members of the groups on it and the augmented reality (AR) video will play accordingly based on which member card it is. The video is some sort of a short, personalized video where the artist interacts with the camera for few seconds. These cards are usually included in sets of different items or even included as extra inclusions in the groups' albums. Another example is from a girl group called Aespa which recently released their album in few versions and one of the versions is able to be scanned for an interactive augmented reality (AR) that can be experienced by fans worldwide.

2.5 Food Industry



Image 4: Choki Choki Boboiboy AR Card

In another case, Choki Choki, an Indonesian brand chocolate paste stick snack collaborated with one of the most known Malaysian-made 3-dimensional animated show Boboiboy. For the collaboration, they came out with collectible augmented reality (AR) cards based on the characters and elements of the show. The collaboration has been done few times and there are three different versions of Choki Choki x Boboiboy augmented reality (AR) cards throughout the years with changes for improving the features. These free cards come at random as a surprise when you buy the 5 pieces Choki Choki pack. The way the cards work is by downloading a dedicated smartphone application that allows the user to scan the cards for the

augmented reality (AR) to work. When scanned, a character will appear based on the card used and users are also able to see the characters in action using their own superpowers and abilities. Other than Boboiboy, Choki Choki also worked with brands under Hasbro such as Transformers and My Little Pony as a marketing that includes similar surprise that works in similar way with Boboiboy's augmented reality (AR) card. Choki Choki is an example of a brand that has been implementing and exploring augmented reality (AR) as a part of their marketing and advertising for a long time and they have been targeting towards the younger audience.

Those are some of the examples of augmented reality (AR) that has been used all around the world. The examples covered very different uses of the technology for instance, games, social media, interactive merchandise and collectible cards. It is safe to say that the technology has been implemented for a huge range of users of different ages and it is not something rare that we never know of.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Sample Study/Artwork

There are quite plenty of augmented reality (AR) applications that has been made. The application of the technology varies for different needs. Here are few samples of applying the augmented reality (AR) technology feature.

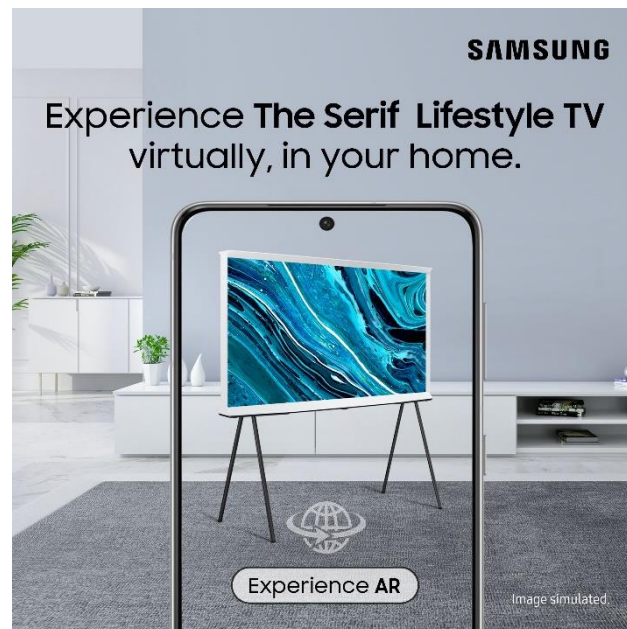


Image 5: Samsung Experience AR

The first sample is Samsung's project in creating augmented reality (AR) experience at home where consumers get to browse products and able to mock up placing the product in your house. The benefit of this is that it can help with knowing how the product will look and fit into consumer's house so consumer can get better buying experience without having other issues after making the purchase of the products if it does not fit the consumer's desire or needs.

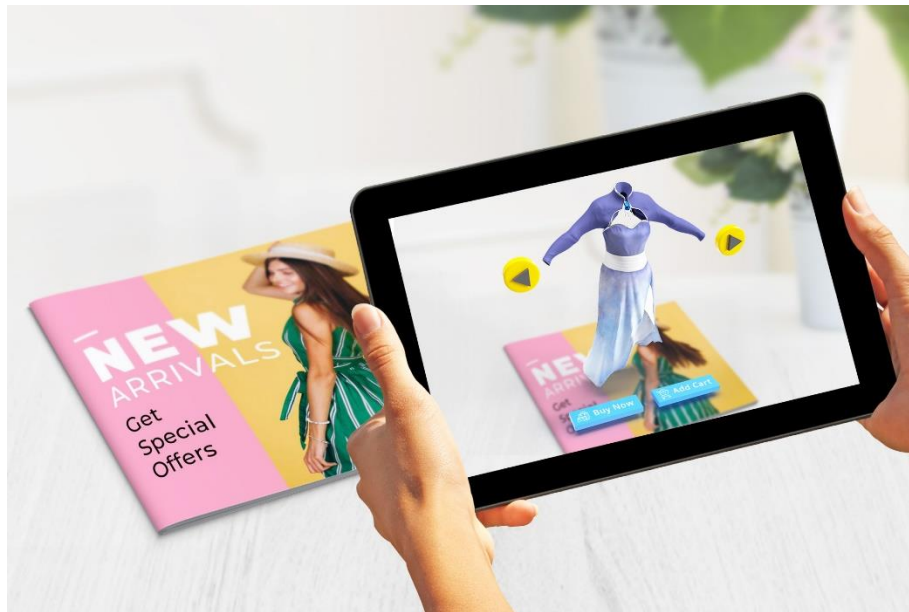


Image 6: AR Fashion Product

As seen in Image 6, it is a sample where people can view products in 3-dimension. In this case, clothing. It allows people to see how the product look in terms of shape, fit, style, and more. A good idea since the shopping magazine or look book can be taken home and it will be helpful when potential customers are wanting to review the products again. This is a good take on improving consumer's experience in buying products.

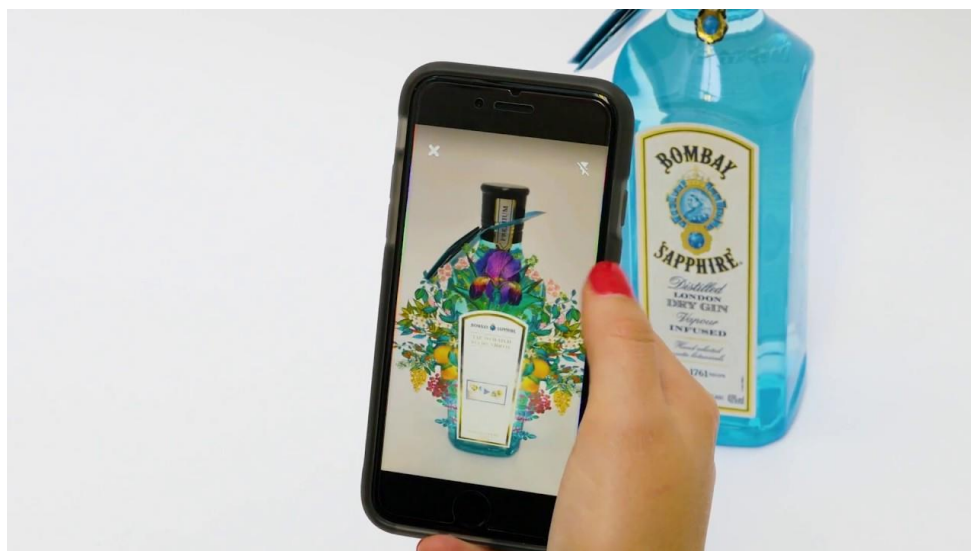


Image 7: Product Packaging

Last but not least, the biggest inspiration or most relatable one to the project is the application of augmented reality (AR) in product packaging. There are a few ways to do it such as having interesting and fun animation for aesthetic purpose or make it informative where consumers get to understand the product. If it is done right, it can set apart a brand's impression to the others.

3.2 Design and Development Process

The idea for this project is to develop augmented reality (AR) experience so that consumers get to enjoy the interactive experience with the products while using that as an opportunity of consumers sharing their experience with the product. It is a strategy in creating a good brand impression by a creative approach while educating the consumers or viewers of the product's unique selling points. The way it works is when the product box is scanned, as the front of the box is detected, the augmented reality (AR) experience will happen.

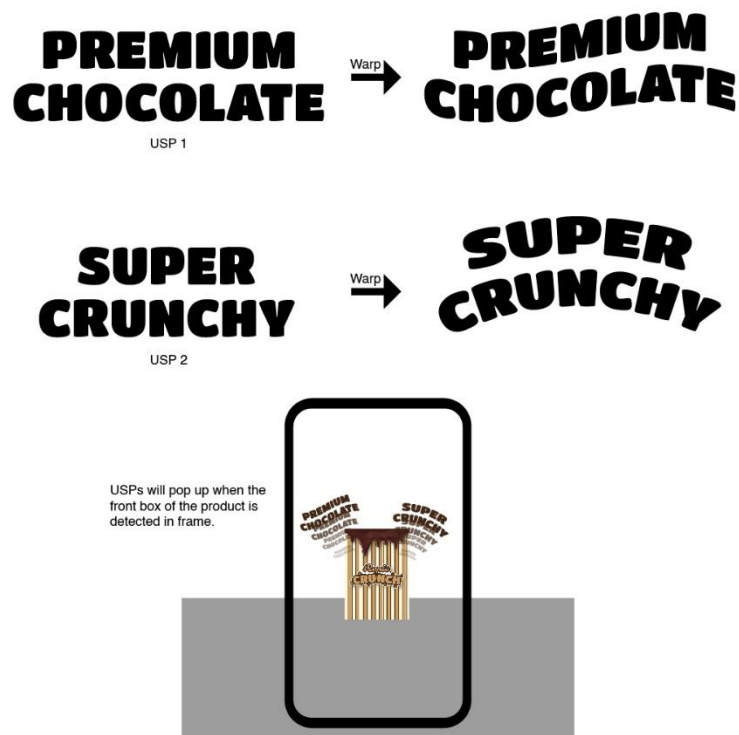


Image 8: Project Ideation

Image 8 is the project ideation or visualization of how the outcome should look.



Image 9: Design Development

The texts in the design are warped to create more interesting shape and movement. Outline is used and a 3-dimensional depth effect is added to emphasize the texts when the augmented reality (AR) effect is on.

3.3 Analysis

Since augmented reality (AR) is more than certain to be a bigger part in our lives in the future, the purpose of this research is to investigate and understand the society's view upon using augmented reality (AR) for advertising. To study if the society is more interested in seeing augmented reality (AR) as a medium for advertising. To understand how relevant, it is to use augmented reality (AR) in advertising. The results of this research can be helpful for those who needs data to get in depth about the topic.

For this research, a survey is done to collect quantitative data and qualitative data. The survey is hosted by the researcher and is done online through Google Form. A set of questions is compiled to gather data for both quantitative and qualitative data. The reason quantitative method is used because some data is required in in statistics to help understand the research better. Quantitative data becomes the supporting element of the qualitative data collected.

As stated, the research is done by Google Form and spread among the society. The target is not limited to only students as this research targets a wider audience and the target is to reach between 50 to 100 respondents. The question for the survey is as below:

- 1) Demographics (age, gender, state, residential, race, religion, education level, occupation) (quantitative)
- 2) Rate how much do you use/experience AR. (quantitative)
- 3) How often do you use AR? (quantitative)
- 4) Are you interested in experiencing AR advertising? For example, you are able to scan products with your smartphone and watch interactive special effects appear on the screen. (quantitative)
- 5) Would you be more likely to pick a snack product that has AR feature among other similar products that do not have the feature? (quantitative)
- 6) What is your view on using AR as a medium for advertising? (qualitative)
- 7) Do think it is relevant to use AR as a medium of advertising? State why. (qualitative)

CHAPTER FOUR RESULT AND DISCUSSION

4.1 Design Output



Image 10: Design Outcome

Image 10 shows a snapshot of the design outcome. It will feature animation for the texts popping out to have eye-catching motion and grabs the attention. It should be fun and interesting to see by the viewers. This can be an element that sets apart the Ropis brand to the competitor brands in the market. It should make the product be more outstanding and attract buyers in trying and sharing the augmented reality experience to other people and get the brand out there. As the reach for the brand is higher, the probability of getting buyers will be higher too.

4.2 Discussion

For the survey, a total of 67 responses have been collected. The survey can be separated in three parts, demographic, quantitative, and qualitative survey. The demographic of the respondents is sorted by age, gender, state, residential, race, religion, education level, and occupation. The data collected for demographics is listed in the appendices.

Quantitative Survey

Before going further into the survey, in the survey form, the respondents were given a compilation of examples of augmented reality (AR) applications to help them understand better about the topic. This should help and guide them in answering the survey based on their actual experience, understanding, and opinions. Image 11 is the given example.

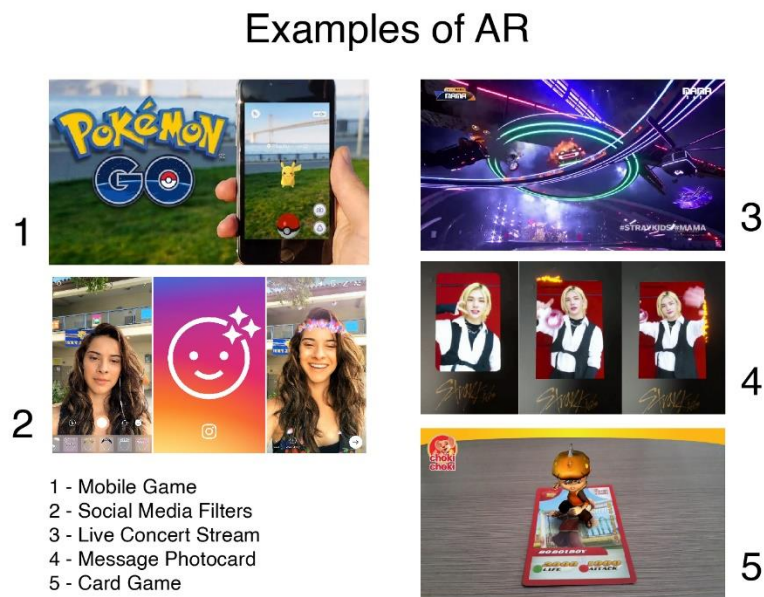


Image 11: Examples of AR Given in the Survey

Referring to the Chart 1 below, most of the society are familiar with augmented reality (AR).

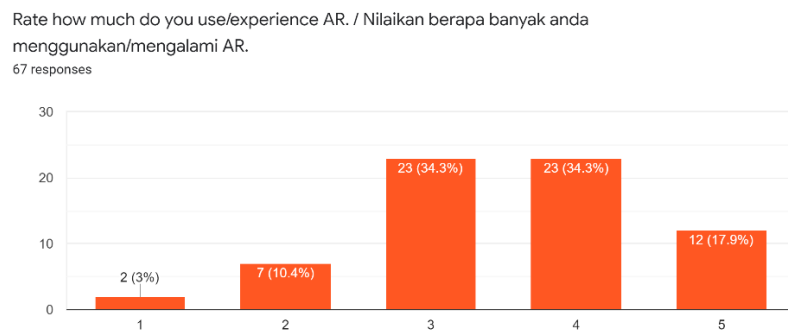


Chart 1: Bar Chart of Rate How Much Do You Use/Experience AR.

The highest rating is at 34.3% for both Rating 3 and 4. Followed by Rating 5 at 17.9%, Rating 2 at 10.4%, and Rating 1 at 3%. If we separate into three groups which is negative group, middle group, and positive group, the result leans toward the positive group which is at 52.2%, middle group at 34.3% and the negative group at 13.4%.

How often do you use AR? / Berapa kerap anda menggunakan AR?

67 responses

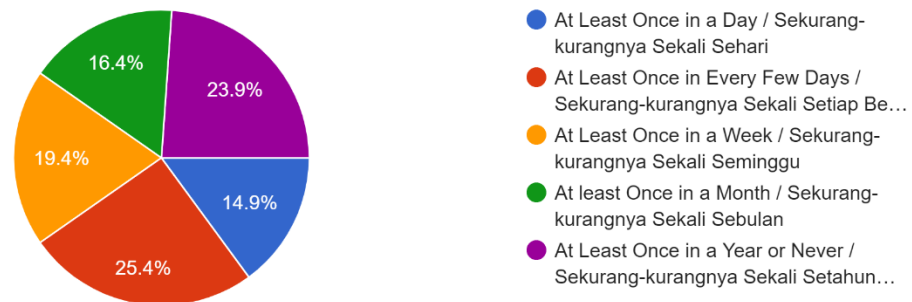


Chart 2: Pie Chart of How Often Do You Use AR

According to Chart 2 above, most people use the technology at least once in every few days (25.4%), but at the same time, the second highest group is the people that use the technology at least once in a year or never (23.9%). It is followed by 19.4% of the people who uses it at least once in a week, 16.4% at least once in a month, and 14.9% at least once in a day.

Are you interested in experiencing AR advertising? For example, you are able to scan products with your smartphone and watch interactive special eff...enonton kesan khas interaktif muncul pada skrin.

67 responses

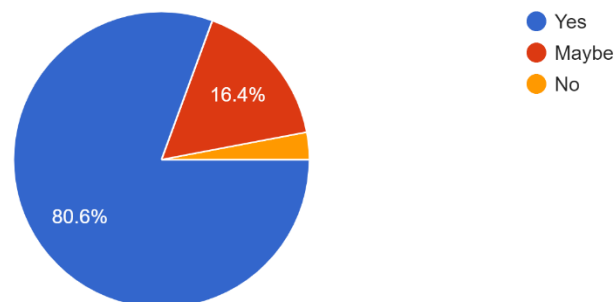


Chart 3: Pie Chart of Are You Interested in Experiencing AR Advertising

In the next question, ‘Are you interested in experiencing AR advertising? For example, you are able to scan products with your smartphone and watch interactive special effects appear on the screen’, the visual representation of the result is in the Chart 3 above. 80.6% of the respondents picked yes, 16.4% picked maybe, and 3% picked no.

Would you be more likely to pick a snack product that has AR feature among other similar products that do not have the feature? / Adakah anda lebih ... yang serupa tetapi tidak mempunyai ciri tersebut?
67 responses

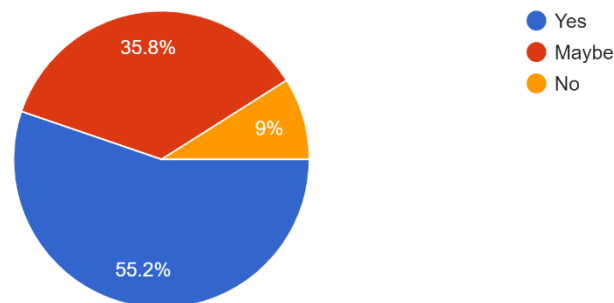


Chart 4: Pie Chart of Would You Be More Likely To Pick A Snack Product That Has AR Feature Among Other Similar Products That Do Not Have The Feature

The following with Chart 4, ‘Would you be more likely to pick a snack product that has AR feature among other similar products that do not have the feature?’, 55.2% answered yes, 35.8% answered maybe, and 9% answered no.

Qualitative Survey

Meanwhile, to understand the society’s view and opinions or preferences better, subjective questions were given to get the qualitative data. Two questions were asked which are ‘What is your view on using AR as a medium for advertising?’ and ‘Do think it is relevant to use AR as a medium of advertising? State why’.

As for the first question, ‘What is your view on using AR as a medium for advertising?’, it can be concluded that the respondents think it is unique, creative, appealing, futuristic, and interesting. Many find it as a creative approach for advertising which is what the project is visioned to be when the study is made.

For the second question, ‘Do you think it is relevant to use AR as a medium of advertising?’, many highlight and emphasize that it is relevant to use the advertising method proposed as we have reach to the point that smartphones are very accessible, and many can experience the augmented reality (AR) technology through their own devices. Many people also agree that it is a competitive method to advertise the products and it can open new doors in applying more of the technology in progressing towards the future. Mainly the answers are also justified by the answers of the previous question.

CHAPTER FIVE

CONCLUSION

5.1 Conclusion

Based on the survey, we can conclude that augmented reality (AR) is a technology that is familiar to the society. Despite that, regardless of whether the society has accepted to live with the technology or not, it is inevitable that more of the technology will be implemented sooner or later as Mark Zuckerberg has made it clear that the virtual reality (VR) and augmented reality (AR) are his company's main focus in this upcoming decade and it was justified by the action taken by Facebook company which was switching the company name to Meta to show that they are committing to their visions for real. Thus, changing the world of social media. Since the result of the survey is that most people of the society have accepted and is familiar with the technology, this study has proven that Ropis can proceed to execute the advertising strategy of creating an augmented reality (AR) experience for their snacks products as it has been approved by many people in the survey who support that the idea is a creative approach in advertising and not implemented by many other brands yet.

5.2 Recommendation

Although it has been said by many people in the survey who think that the idea is a creative approach in advertising and has not implemented by many other brands yet, but this method could also be too soon to be implemented as there is no promising positive outcome that can be guaranteed. The result of this survey also does not guarantee success for the method to be used but it is the nature of doing business to take risks. Since this research has also been justified with positive feedbacks, it is worth the attention to try and take the risk. May this research benefit those who need justification and supporting elements of understanding the society's view on this technology.

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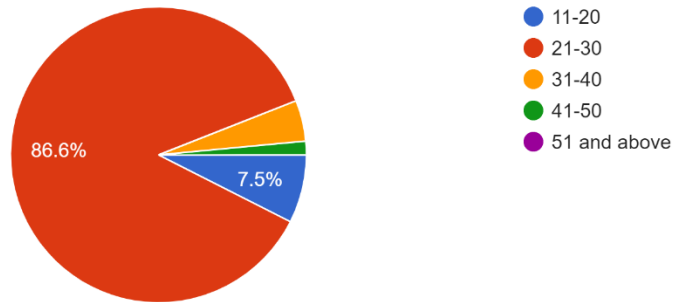
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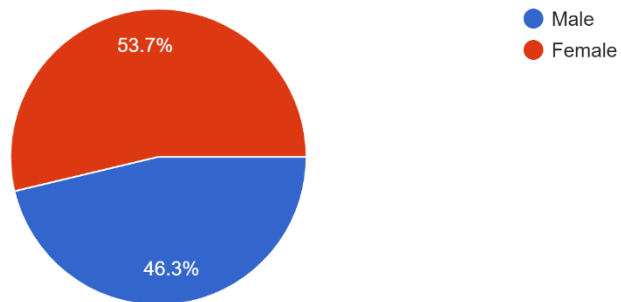
APPENDICES

Demographics Survey

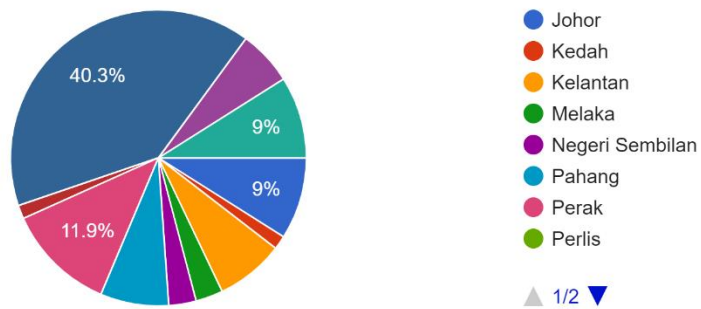
Age
67 responses



Gender
67 responses

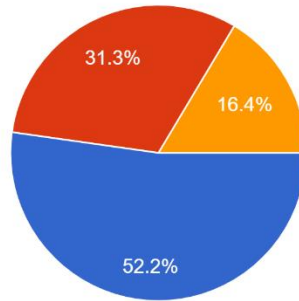


State / Negeri
67 responses



Residential / Tempat Kediaman

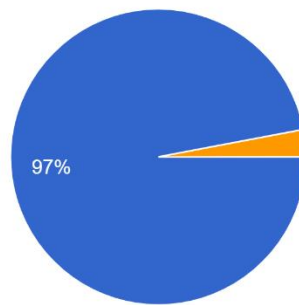
67 responses



- Urban Area / Bandar
- Suburban Area / Pinggir Bandar
- Rural Area / Luar Bandar

Race / Bangsa

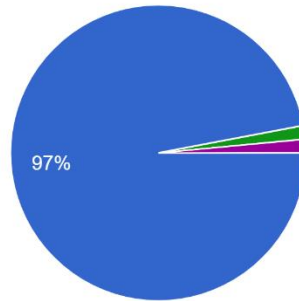
67 responses



- Malay
- Indian
- Chinese

Religion / Agama

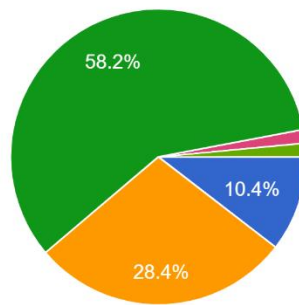
67 responses



- Islam
- Hindu
- Buddha
- Christian
- -

Education Level / Tahap Pendidikan

67 responses



- SPM
- STPM
- Diploma
- Degree
- Master
- PhD
- Matriks
- Acca