FACULTY OF INFORMATICS

COURSEWORK COVERSHEET

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C. Group Topic   :

   Augmented Reality viewer and pathfinder for Hospitality Industry.

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1.0 – Executive Summary

Over the past few years, there is a resurgence of interest, innovation and investment in augmented reality (AR) and virtual reality (VR) with research result from sources such as Market Watch showing that the AR market is projected to increase from USD 2.6 billion in 2016 to 80.8 billion by 2022. With such an increasing demand for the application of augmented reality and virtual reality , it is no surprised that many business industry have begun to embrace and incorporate augmented reality into their respective business.

The Hospitality industry is no exception with many hospitality establishments are aware of the innovation opportunities and potentially valuable usage scenarios for the application of immersive technology such as augmented reality, virtual reality and etc into their business model. In other words, hospitality companies today are committing vast resources and redesigning their business model in effort to provide a more unique experience to their guest. Thus, as a result of these radical changes, it is expected that the concept on augmented reality (AR) as well as virtual reality (VR) be the leading technological edge that is set to propel the evolution and differentiation of the plethora of hospitality brands across the industry.

Hence, this report was commissioned to examine the interest of millennial and generation X regarding the use of augmented reality in general and in the hospitality industry as well as identifying augmented reality features that they would be interested in. Our research draw attention to the fact that majority of our respondent show that they are interested in the use of augmented reality in the hospitality industry. This result coincides with the result of our data analysis of our human expert interview as well which shows that there is a demand for the use of augmented reality in the hospitality industry from the public. Moreover, our results also show that the about the top augmented reality features that both group of users would be interested in having is an augmented reality feature which provide the food visualization, and an augmented reality GPS system to help guide its user to the hospitality establishment. However, our result also shows a mixed response in term of the amount of money that the customer is willing to spend for such augmented reality features. In terms of the millennials, our result show that only a slight majority of our respondent that are willing to pay an amount of money to have an app that provides such features while 58% of our generation X respondent are willing to spend the average price of an app to have such augmented reality features and also about 14% of the generation X respondent are willing to pay a premium to have such augmented reality features in an app.

Overall the use of augmented reality in hospitality industry is welcome by millennials and generation X. Therefore, our report concludes that with an evolving technological landscape and the multitude of opportunities that are available to the hospitality industry, it is important for all hospitality establishment to leverage the use of augmented reality in order to provide a truly unique experience to all of its guest.

2.0 – Introduction

If you were given a choice right now, would you like to find out how augmented reality is able to enhance your experience as a customer in the hospitality establishment? In this new era, technology is constantly evolving and improving our daily life. For example, everyone has their own smartphone with them anytime and anywhere. Hence, augmented reality (AR) is just another form of tool to improve our daily life.

But what is exactly is augmented reality? Augmented reality is an interactive experience of a real-world environment where object that reside in the real world are enhanced by computer generated perceptual information, sometimes across multiple sensory modalities, including visual, auditory, haptic, somatosensory, and olfactory.

Other than that, AR can also be implemented as a supplementary training tool for staff training. What does that mean? For example, if I'm a hospitality student, this application can help in speeding my learning curve by giving me an augmented reality experience in facing potential problems that may occur in my future career. Take for instance, through this augmented reality's application, I can learn and experience various scenarios regarding the hospitality industry which I will be part of . This can help me to improve my overall skill in handling these situations.

In addition to that, AR can be used to integrate print and video marketing. It can be designed with certain triggered image that, when scanned by an AR enabled device using image recognition, and it will activate a video version of promotional material. This can help in enhancing product previews such as allowing customer to view how the restaurant staff prepare the food in the kitchen or the progress that are going on in the kitchen. For example, through augmented reality, we can create a feature which allow the customer to preview the dishes before the ordering them off the menu. Thus, this allow customer to get a better insight of the dishes offered by the restaurant and help the customers in visualizing their expected food order.

Furthermore, through augmented reality, we can create a feature whereby a customer can have a preview on the interior design of the restaurant and the services offered by the restaurant before making a reservation. This feature would greatly benefit the customers as customers can not only view the interior design of the restaurant before making a reservation but they can also make demand regarding

the design theme of their reserved table which can help hospitality establishment provides an personalized and unique experience for their beloved customers.

Lastly, by implementing augmented reality, hospitality industry can provide a smart virtual assistant to guide and entertain its customer's demand. Hence, improving the overall customer experience by providing an interaction augmented reality platform for customer to voice their demand and needs.

3.0 – Literature Review

In this era where technology changes always happen, technology innovations have come in many forms, some doesn't even physical property anymore. When Tim Berners-Lee wrote the World Wide Web (WWW) in early 1990s, a whole new revolution began. Then in 1994, Netscape created Navigator browser, later introducing Secure Sockets Layer (SSL) encryption for secure transaction. Pizza Hut then took the opportunity to incorporate online ordering on their website. A year later, Amazon.com was created and so did eBay with their online auctions. Times has redefined what we thought was impossible.

3.1 – What is Augmented Reality?

Augmented Reality (AR) has rapidly gain much public interest ever since the successful launch of the smartphone AR game "Pokémon GO" in July 2016. Augmented reality is a technology that add extra layers of digital/fictional information that are interactive onto our physical world. Tim Cook, CEO of Apple, once mentioned that "AR is going to take a while, because there are some really hard technology challenges there. But it will happen, it will happen in a big way, and we will wonder when it does, how we ever lived without it. Like we wonder how we lived without our phone today."

Augmented Reality was an idea that initially started from the 1960s, but there is not any literature available for it, nor is it yet being accepted by the community back then. The main difference between AR and VR are,

- AR is *based* on the environment we currently at
- VR *create* a new environment.

Augmented Reality is often defined in many ways. While that being said, it always come with the following characteristics:

- Runs in real time
- Highly Interactive
- Synchronize the real-world object and virtual object with each other

The Augmented reality applications has come to a long way now, it can be as complicated as Amikasa (Application to help you in styling a room and figure out desired layout for the room before buying any furniture) or it can be as simple as a text notification application. Despite of the complexity, both of them

do bring the same functions, which are highlight certain features, provide accessible and timely data, and enhance understandings.

The applications for AR are often controlled either by voice commands or physical touch on a device which have touch-screen pad. The touch pad are currently the most common approach in the market. They work by sensing the physical pressure when a user swipe or tap on the screen. Voice command work almost the same way as Alexa (An artificial intelligence developed by Amazon). The microphone on your devices will pick your voice and then the system in the AR will interpret the commands.

There are currently 4 types of AR technology exist in the world, each of them has a distinct difference in their objectives, as are below:

1.   Marker Based Augmented Reality

Marker based augmented reality can be also called as Image Recognition. It uses a camera and some type of visual marker, such as QR code, to generate a result when the visual marked is senses by the reader. They can be recognized easily and does not required enormous amount of processing power to read. It is most commonly used to generate image on the visual marker.

2.   Marker-less Augmented Reality

Marker-less augmented reality is one of the mostly used of augmented reality. Unlike marker based, it will auto produce an image on the screen. Thus, it is most commonly to provide data based on your location, such as GPS, finding nearby restaurant, and other location-centric applications.

3.   Projection Based Augmented Reality

It is an augmented reality that sending artificial light onto the real-world environment and then detecting a human interaction on that light. There is currently an interesting project for this AR which is a 3D interactive hologram, while it is yet to be a fully functional product.

4.   Superimposition Based Augmented Reality

Superimposition based AR is used to fully or partially replace the original view of an object with a new fictional look of the same object. Nonetheless, it required to determine what the object is to process its function. It is currently wide implemented in the beauty industry.

3.2 – Reasons to Pick Hospitality (Industry) as Our Domain

Today, hospitality industry is one of the largest and fastest growing industry in 21st century. Hospitality industry is a segment of the service industry that includes restaurant, hotels, entertainment and other activities that associated with tourism. It has been generating large amounts of money and offers tons of job opportunities to the people with different backgrounds. As such, it is not an industry that not only important to the societies but economies.

According to Malaysian Investment Development Authority (MIDA), Malaysia's hospitality industry is recognized as one of the largest contributors to the nation's coffer. Over the years, the industry has accomplished a lot of great achievement, for example, Malaysia hold a place among the top 10 tourist destination in the world on the report of MasterCard's Global Destination Cities Index. The hospitality industry in Malaysia has contributed RM73.3 billion to the nation's economy in 2017, said Deputy Minister of Tourism and Culture (2017), Datuk Mas Ermieyati Samsudin.

Besides, the hospitality roles are one the most demanded professions among the occupation groups for continuously 3 months in July 2018, as stated by the Monster Employment Index (MEI). To keep up with the demand, we have to create a solution to train the people in a more efficient and effective manner.

All the expertise in the industry has one goal, which is, creating high-quality environments and services and on hiring excellent employees who serve customers with professionalism. This is due to the fact that their success purely relies on positive and strong communications with their clients and target users. While there are various ways to retain the existing customers' base, a positive experience from customers is one of the most definitely cost-effective way to do so. It often reap in lot of benefits, for instances, higher customer retention rate, in compare with their counterparts who offer a less satisfying experience.

Thus, according to our group discussion, we are convinced that there are huge potential in the hospitality industry as it is also an enabler for Malaysia to become a high-income nation. While bringing new technology to the table, we believed that it can bring edges to the Malaysia's hospitality industry and lead us to a greater success.

3.3 – Reasons to Use Augmented Reality (AR)

1. AR is highly accessible.

The users need to only download the application in their smart devices to fully experience the augmented reality features. Furthermore, most people in this era have access to smart tablet and smartphone which make it super convenient for the users to be able to download such app that provides augmented reality features. Besides that, there are also far more people walking around with a smartphone than there are people with a VR head-set. Thus, making augmented reality a more attractive option than virtual reality.

2. AR is easy to experience.

Augmented Reality experiences are intuitive and easy. The experience they obtained from AR can be shared with the others. For example, in a art museum setting, users can simply take out their smart devices and open the app to scan the code on sculpture, decorative arts, and the paintings to see how it looks/ sounds originally.

Furthermore, AR remains accessible to the naked eye at all day and night, without using any external devices to view it.

3. **The Communal Approach.**

People of all age have been very actively expressed their love for communities in today's digital world. The technology consumer wants a platform that allows them to share their experiences. AR also have the community aspect to it because it can be shared amongst a group, as what we said previously, highly accessible and easy to experience. The crucial reason of "Pokémon GO" becoming a big hit was because it is a game that user can play it together with their friend or family while being interactive as it encouraged people to go outside. For VR, in comparison, it limits user to a fixed location.

4.0 – Users

4.1 – Target user

In 1968 when augmented reality (AR) made its first debut, a famous developer who called Ivan Sutherland invented AR Head Mounted Display (HMD) system to show some wireframe drawings. However, at that time the technology was still a novel idea.

As augmented reality is still under development, the areas for implementation of AR in Hospitality and Tourism industry is getting more mainstream and common. More and more people are slowly getting involved into these areas through work as well as through being consumers of the industry. Based on our application of Hospitality, there are two types of targeted users which will be directly involved in using our application. One of the groups who will be involved are the public customers, whom will be using our application to visualize and experience the functional area of the hospitality establishment in an augmented reality setting before making a reservation. Furthermore, this application can also navigate customer to a restaurant that meets their demands and specification. Moreover, another group of users is the employee/staff from the restaurant. As In one of our domains, we plan to use AR technology to provide supplementary training to the staff. This is because based on the results that we have gathered, traditional text and video approaches are not as effective and efficient than having a highly visual and interactive ways. For example, through the use of augmented reality an employee or staff can be trained to handle customers of different personalities in the augmented reality setting. Therefore, with this supplementary training the staff would be more prepared and experience to handle difficult customer and their demanding needs. Moreover, the setting of this augmented reality's feature can be set from easy to hard which can help the staff to train at their own pace of learning.

As AR technology getting more advanced, we can carry out more features and domains. We can use it to check the environment of a location, global positioning system (GPS), restaurant room design and filter. In our targeted user, the public customer can be separated into two individual group as well. One of the groups which can be identified as millennials are individual whom grew up in this 21st century and more involved in the use of technologies. While the other group of the targeted user are identified as generation X, which are commonly described as individualistic but also technologically adept as well. These people are normally independent resourceful and self-efficient but also comfortable with technology devices such as smartphones, laptops, tables and other technology employed in the

workplace. Unlike millennials who are easily influenced by the latest trend, the generation X are more tolerant to the alternative lifestyles, that are not heavily emphasized on the usage of technology.

Furthermore, these group of people/users are divided into three groups which is primary users, secondary users and tertiary users. Primary users are those who directly use or actually use the feature of the system. Secondary users are those who use it indirectly or occasionally use it. Tertiary users are those who still be affected using the system even though he/she didn't directly involve into it. Public user is the primary user of our proposed augmented reality system because they directly use our system. For instance, our system can directly affect them while navigating them to our restaurant. Furthermore, the restaurant employee/staff is also part of our primary user as the use of the augmented reality training system by the restaurant employee/staff could also speed up on their learning curve. The secondary user of our system are restaurant manager and cashier. This is due to the fact that both of these user does not heavily dependent on this system as it is only an intermediary system for them to provide supplementary training to staff and elevate the customer experience. Finally, the tertiary user is the restaurant owner as they are not involved in the development of the augmented reality features for the application but they still would have to finance the development of the system and ensure its the augmented reality system performance meets the user satisfaction.

4.2 – Non-target user

One of the non-target users is a group of people that do not own any electronic devices such as smartphones, tablets and etc. These group of people would commonly not own any electronic device because they do not believe such electronic devices are a necessity in their life and believes that the usage of electronic devices would bring more harm than benefits to their lives. In addition to that, this group of people also believes that spending time on electronic devices is also a waste of time and would very much rather prefer to spend their time with family members and doing outdoor activity such as futsal, climbing and so on. Thus, our system will not affect them since they don't use electronic devices.

Another group of non-users are people with disabilities such as deafness, blindness, intellectual disability, colour blindness and etc. This is because their disability would prevent them from experiencing the features provided by the augmented reality technology. For example, people whom are blind would not be able to view and experience the augmented reality features. Furthermore, people whom have intellectual disability would not be able to appreciate the augmented reality features due to the difficulty

of understanding how does the application work. Therefore, these group of people is also one of our non-target users.

Moreover, toddler and pre-schooler are also part of our non-target user as This group of users are in the age of 1-3 and 3-5 years old which is the stage of their lives whereby they only had just started to have contact with technology. Hence, unlike teenagers and adults, these group of users would not have the sufficient know how to operate such high-tech features provided by augmented reality. In other words, this group people are not self-independent enough to use such advance augmented reality functionality. Thus, the lack of understanding the use of our application and its functionality will makes them become one of our non-target users.

5.0 – Mental Model

Mental models. What are they? How are they useful for a project such as ours? Why do we need to use them? These are some of the questions we will be looking at as we engage our project in this particular way of interaction.

For starters, mental models are the means of which we understand the world. To be precise:

5.1 – Nielsen

(Nielson,2010)

"A mental model is based on belief, not facts: that is, it's a model of what users know (or think they know) about a system such as your website. Hopefully, users' thinking is closely related to reality because they base their predictions about the system on their mental models and thus plan their future actions based on how that model predicts the appropriate course. It's a prime goal for designers to make the user interface communicate the system's basic nature well enough that users form reasonably accurate (and thus useful) mental models.

Individual users each have their own mental model. A mental model is internal to each user's brain, and different users might construct different mental models of the same user interface. Furthermore, one of usability big dilemmas is the common gap between designers' and users' mental models. Because designers know too much, they form wonderful mental models of their own creations, leading them to believe that each feature is easy to understand. Users' mental models of the UI are likely to be somewhat more deficient, making it more likely for people to make mistakes and find the design much more difficult to use.

Finally, mental models are in flux exactly because they're embedded in a brain rather than fixed in an external medium. Additional experience with the system can obviously change the model, but users might also update their mental models based on stimuli from elsewhere, such as talking to other users or even applying lessons from other systems…"

Application of Nielsen's view:

Nielsen, which apply the understanding of mental model in its place as a belief system, is right to categorise it as a matter of natural motion or action, rather than a factual informed belief which governs our actions. As a result, while making the mental model, we need to assimilate the understanding of which the users are familiar with, rather than simply designing based on logic and convenience. A layout that might seem less tedious with high visibility, may instead disrupt the user's mental model. The flip side, of which the system has lower visibility with more features cramped into it, may also result in the users disliking it. Hence, there has to be a need to gather requirements from the users as to what is user-friendly.

5.2 – Norman

Norman (1983)

"…. [Norman] distinguishes between mental models and conceptual models: "Conceptual models are devised as tools for the understanding or teaching of physical systems. Mental models are what people really have in their heads and what guides their use of things." In other words, the designer designs a conceptual model into the system in order for it to appear graspable and coherent to the user. If he/she manages to get the conceptual model right, the correct mental model (in the mind of the user) will follow…"

Application of Norman's view:

In carrying out our project, we need to sharply distinguish between the conceptual and mental model. This is for several reasons:

1. The conceptual model and mental model distinction acts as a restraint of sorts for the designers, in that while designing conceptual models, the mental models act as a guideline of sorts.
2. The distinction enables the customers' needs to be fulfilled in that the designers end product will ultimately be tailored to the customer's needs.

5.3 – James Clear

"A mental mode is an explanation of how something works. The phrase "mental model" is an overarching term for any sort of concept, framework, or worldview that we carry around in our minds". (James Clear. (n.d.). Mental Models: Learn How to Think Better and Gain a Mental Edge. Retrieved from https://jamesclear.com/mental-models)

Application of James Clear view

Simply put, a mental model is a conceived perception or idea that we generate in our minds regarding the usage of an object, or in our case, the usage of an app. The app requires "mental models" which are analogies that correspond to objects in the real world, which enables users to conceive the usage of the app without much of a hassle.

5.4 – Summary of the usage of mental models:

Hence, now we will deal with how mental models may benefit an augmented reality project such as ours. By using mental models in our augmented reality, which deals with the presentation of food in a restaurant, we utilise certain characteristics and models of the real world that represent the food being served, to give an understanding to the client about how the system works, namely metaphors. Example: the recycle bin – the recycle bin in the computer. We can put in things into it, delete it as how a regular rubbish bin would work.

Here is now the prime question: why do we need to use them? Aside from the plethora of benefits they bring to the table with our app, a mental model is also acknowledged as

"broadly useful in daily life" (James Clear. (n.d.). Mental Models: Learn How to Think Better and Gain a Mental Edge. Retrieved from https://jamesclear.com/mental-models)

The mental models bring a range of functions that enable customers to predict the behaviour of the app which directly are related to applications in life. Now, we will deal with the specifics of how mental models are used within *our* application as to the client's benefit:

5.5 – The application of mental models in the system

1. The usage of metaphors

Metaphors important to users because they need to understand complex things about the system. We take the tasks and map it to ideas that they already comprehend and are familiar with, as proven in the example above; the rubbish bin -> recycle bin.

However, in our application, we place an image of a serving tray and cover, which the client automatically identifies as a metaphor of food being served. Hence, by clicking on it, they would expect to see food appearing in front of them. This helps to guide their understanding and the way they interact with the map of the restaurant, which is the layout. and they can be identified as thinking tools to further gain knowledge, make better choices, and get solutions. The expectations are set as per the users and allows them to gauge the rough usage of the system. This increases in the satisfaction of the users as the system follows their framework of how things work.

2. Through conceptual models

The designer needs to understand the user's conceptual model, which may or may not be different and must provide consistency, wherein the user understands perfectly how it works without the usage of any comments of any help. Hence, the experience of the UI/UX becomes heightened and the clients are able to accept the ideas right away. As said above, the distinction, once made clearly, is able to be fed into the mental model of the users which ultimately results in the acceptance of the system.

Therefore, for the system, the way that we implement the conceptual model, is to take through the interview of the users, which we feed into the designers, thereby ensuring that the user and the designers match up. Hence, designing the interface and system in such a way, includes not putting icons that the users do not understand.

6.0 – FURPS+

6.1 – List of Functional Requirements

Functional Requirements

- **The system must be able to navigate user to a certain location.**

  User will be guided to the exact location they want of with the assistance of the navigation system.

- **The system must be able to visualize the food in the menu list.**

  User get a glimpse on the augmented reality view of the food.

- **The system must be able to train the staff in hospitality industry.**

  User can be trained under different setting which can be set from easy to hard at their own pace.

- **The system must have observation system to check the interior design of a restaurant before making reservation.**

  User can have an augmented reality look on the interior design of a restaurant to see if it fit his/her likes.

- **The system must verify the user payment method before making reservation.**

  User must verify payment details on their selected payment method before making reservation.

- **The personal details of users must be kept confidential.**

  Any leakage on user's detail will result in the reputation of the system being tarnished.

- **The system must track user's requirements.**

  System can display the augmented reality views based on user's requirements and setting.

6.2 – List of Non-functional Requirements

Usability Requirement

- **The system must guide users through a friendly user interface.**

  A clean and simple user interface can contribute to a positive experience for users.

- **The system must be easy to learn.**

  The user can effortlessly be familiar with system, which allows users to have an easier time to recall of how the system works on his/her subsequent visit.

- **The system must be easy to correct accidental mistakes.**
  User do not have to spend massive amount of time to rectify mistakes.

Reliability Requirements

- **The system must be tolerant to user errors.**

  System must be able to continue to function despite of user faults, such as misclick button.

- **The system must provide augmented reality features that meet customer satisfaction.**

  Customer demand for a cost effective and energy efficient app to assist them.

Performance Requirements

- **The system must be made to allow user to use it anytime or anywhere.**

  User can access the system without any restriction on time or place.

- **The system must be allowed for multitasking.**

  User can perform foreground tasks while the system's background is updating.

Interface Requirement

- **The algorithms in the system must be based on existing techniques.**

Developers can improve or update the system with the current existing techniques based on the industry standard.

Supportability Requirements

- **The system must be able to support all type of mobile devices' operating system.**

All mobile devices' operating system such as android, iOS, can use the system to perform the functions we mentioned above.

- **The system must be easy to maintain and extensible.**

Extension and maintenance can be implemented easily without complicated function involved.

- **The system must be designed in the way of it can be migrated to new operating system easily.**

Technology is always improving. Hence, the system must be easy to make shift to a new operating system.

Design Requirements

- **The system must be designed with the expectation that it will be operating for many years to come.**

The system must be consistently update to keep in track with the current technology threats and trends.

- **Administrator of the system must be able to organize its data without constraint on operating system.**

A separate database is built to support the augmented reality system to ensure that performance of the system is not affected by data-processing.

Implementation Requirements

-

Physical Requirement

-

Ranking of Importance

The ranking of the importance of the requirement is listed as below,

No.	Task	Rank
1.	The system must be able to navigate user to a certain location.	1
2.	The system must be able to visualize the food in the menu list.	2
3.	The system must be able to train the staff in hospitality industry.	3
4.	The system must have observation system to check the interior design of a restaurant before making reservation.	4
5.	The system must verify the user payment method before making reservation.	5
6.	The personal details of users must be kept confidential.	6
7.	The system must track user's requirements.	15
8.	The system must guide users through a friendly user interface.	7
9.	The system must be easy to learn.	10
10.	The system must be easy to correct accidental mistakes.	16
11.	The system must be tolerant to user errors.	18
12.	The system must provide augmented reality features that meet customer satisfaction.	8

13.	The system must be made to allow user to use it anytime or anywhere.	9
14.	The system must be allowed for multitasking.	17
15.	The algorithms in the system must be based on existing techniques.	19
16.	The system must be able to support all type of mobile devices' operating system.	11
17.	The system must be easy to maintain and extensible.	12
18.	The system must be designed in the way of it can be migrated to new operating system easily.	20
19.	The system must be designed with the expectation that it will be operating for many years to come.	13
20.	Administrator of the system must be able to organize its data without constraint on operating system.	14
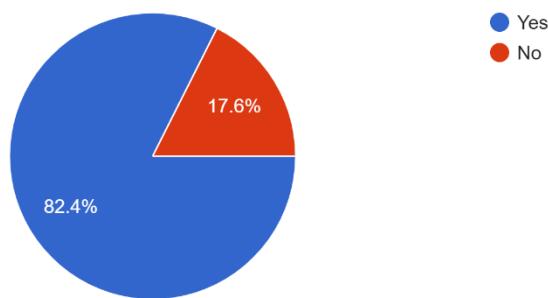
7.0 – Requirement Gathering

7.1 – Questionnaire

7.1.1 – Questionnaire Feedback (Students)
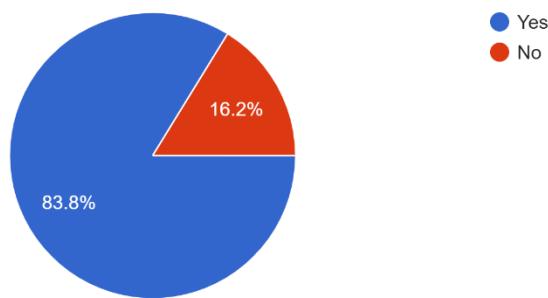
Have you ever heard about augmented reality?
74 responses

The chart above is the responses that we had collected. From our survey result it shows that 82.4% of the respondent had heard about the concept of augmented reality before. With only 17.6 % of the respondent that have not heard about the concept of augmented reality before.

Are you interested to know about augmented reality?
74 responses
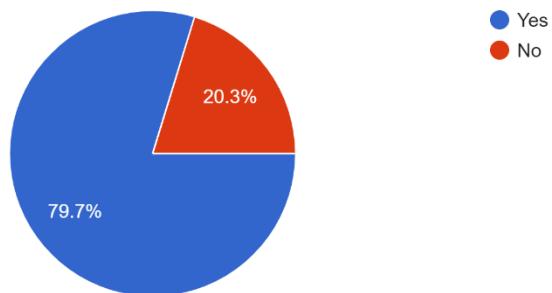
From the chart above, we can see that majority of our response are interested to know about augmented reality with only 16.2% of our respondent have no interest in augmented reality.
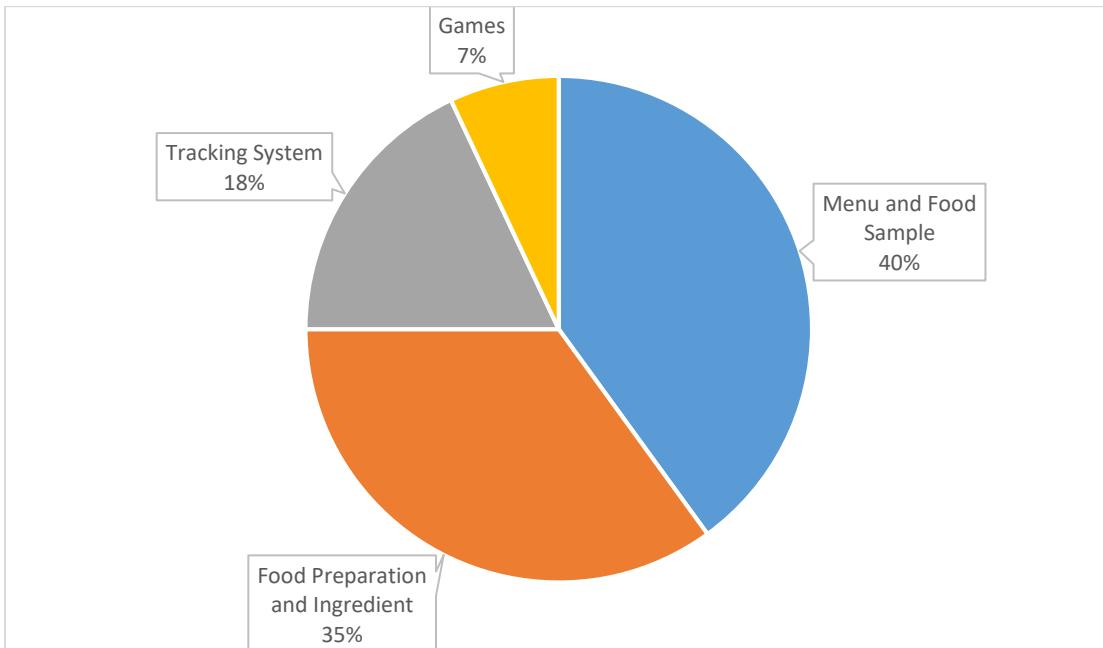
Would you be interested in augmented reality where the setting is inside a
restaurant?

74 responses

The chart above shows the percentage of students that are interested and not interested in augmented reality setting which is inside a restaurant. We can see that 79.7% of our respondent are interested in the application of augmented reality in a restaurant setting. We assumed the reason behind this majority could be due to demand of student in seeking for a unique augmented reality experience that is not widely available yet.

What features do you like to see inside the augmented reality app in a restaurant?
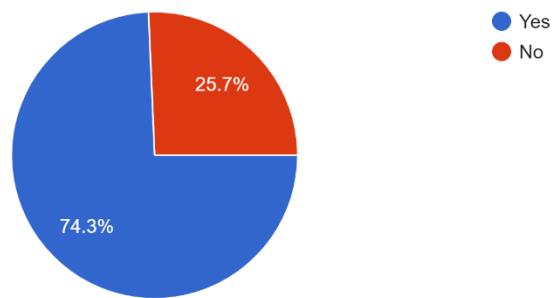
From the response that we had collected, 40% of the responses state that they would like to see the menu/food sample of the restaurant. Some also state that they would like to see the food preparation process and the ingredient of the food in the augmented reality app.

Majority of our response choose these features because it allows the users to select and view the food and its ingredient before they order and also entertain the user while they are waiting for their food and drinks to be served.

Would you like to see the training of staff in augmented reality?
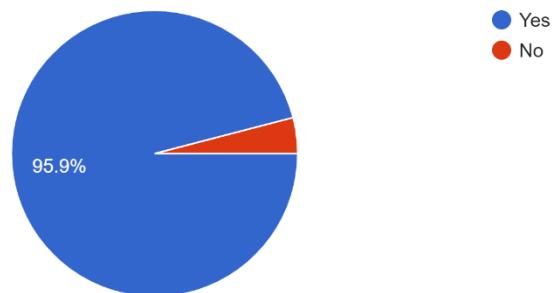
74 responses

From the chart above, we can see 74.3% of our respondent would welcome a feature which allow staff to train in an augmented reality setting.

The Majority of our response would like to see the training of staff in an augmented reality setting because Augmented reality technology nowadays are getting more and more advances. Hence by adding this kind of features in augmented reality, it allows company to trains their staff in a more efficient way. For example, we can have multiple staff trained at once without needing to add on any machines or facilities because every staff will have their own smart phone that have access to the augmented reality training system.

Would you like to see the environment of the restaurant before you make a reservation?
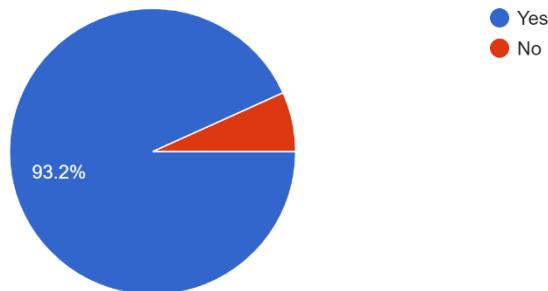
74 responses

The chart above shows the response that we had collected and we can see that 95.9% of our respondent claim that they would like to see the environment of the restaurant before they make a reservation.

The majority of our respondent would like to see the environment of the restaurant before they make a reservation because we assumed by adding this feature in an augmented reality app, it can allow user to have a view of the interior design of the restaurant before they make a reservation.

Would you like to see the restaurant's menus and the food visualization before you make a reservation?
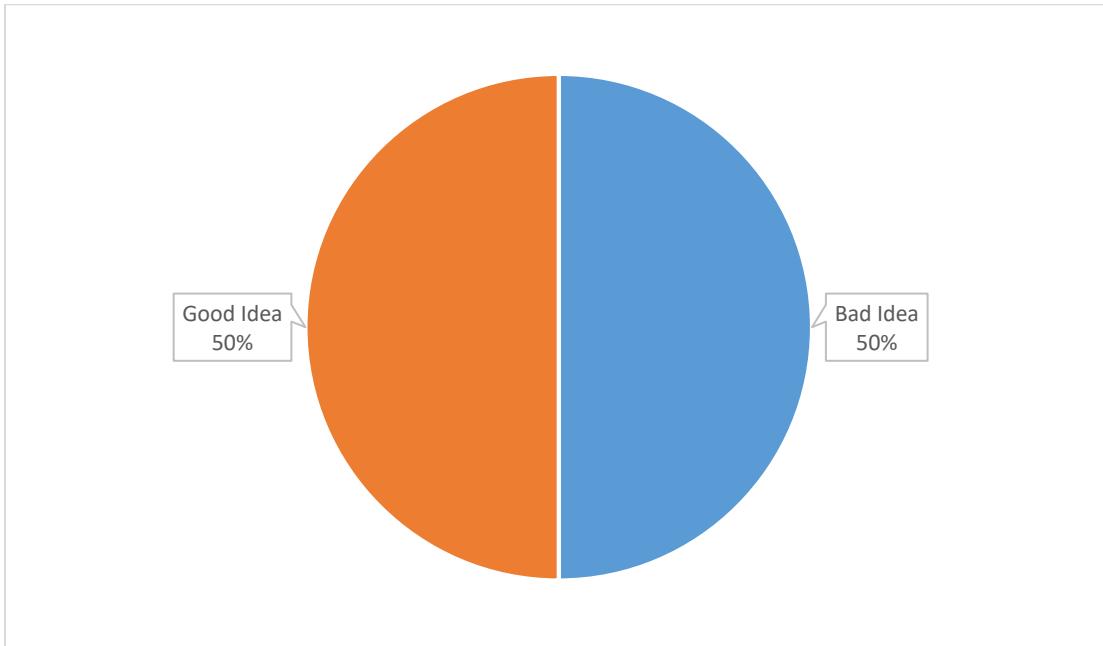
74 responses

From the chart above, we can see that 93.2% of our respondent had voted yes for this question, whereby most of them would like to see the restaurant's menus and the food visualization before they make a reservation.

We assumed the majority of our responder voted yes because this feature will allow the user to determine if the food on the restaurant menu would match their personal taste and preference by having a first-hand augmented reality view of the food in the restaurant menu.
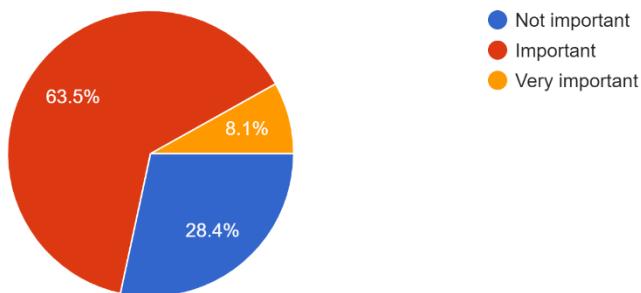
What you think about an augmented reality GPS features that will guide you to the restaurant?

From all of the responses that we had collected, we received a mixed result whereby only half of our respondents believe that an augmented reality global positioning system features which can further guide them to a restaurant would be a good idea. We assumed the reason behind this result could be the fact that most of the users feel that the current global positioning mobile app system such as Waze and google maps is more than sufficient enough to help guide them to the restaurant.

How important is for you that the room of the restaurant is decorated according to your specification before you make a reservation?
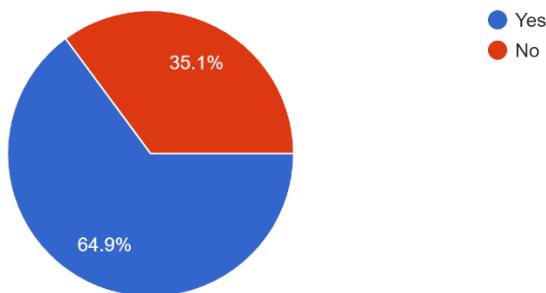
74 responses

From the 74 responses that we had collected, we can conclude that 63.5% of our respondent believe that it is important that the room of the restaurant is decorated according to their specification before they make a reservation.

In this case, we assumed that the reason behind this result would most likely be because most of our respondent would want a more personalized interior design of the restaurant room before committing to make a reservation in a particular restaurant for a special occasion or function.

If you are a restaurant owner or a customer, would you be interested to purchase this kind of app?

74 responses
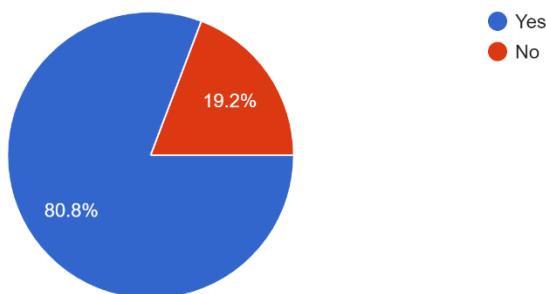
According to the chart above, we can see that majority of our responder would be interested to purchase an app which provides the above mention augmented reality features. Only about 35.1% our respondent was not interested to purchase this kind of app.

We assumed the reason behind this majority is because, on the perspective of a restaurant owner, by purchasing this kind of app it will bring in more customer by attracting them to try the innovative augmented reality features offer by the restaurant.

If no, would you still use this app if it was made free?
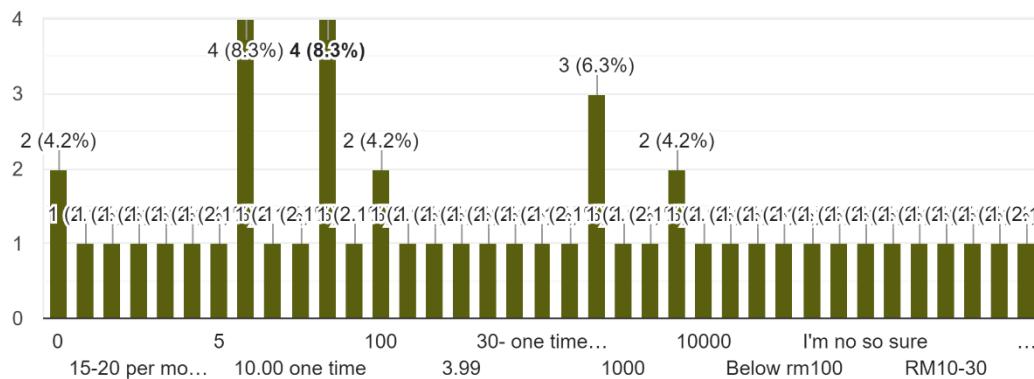
26 responses

This question is related to the previous question and is designed only for the respondent who voted that they do not want to purchase the app. Through our survey, we can see that majority of our respondent would still use the app if it was made free with only 19.2% of our respondent still would not use such an app even if it was made free as they assumed that despite being free the app would have a lot of advertisements.

If yes, how much would you like to pay for this app? (RM)

48 responses
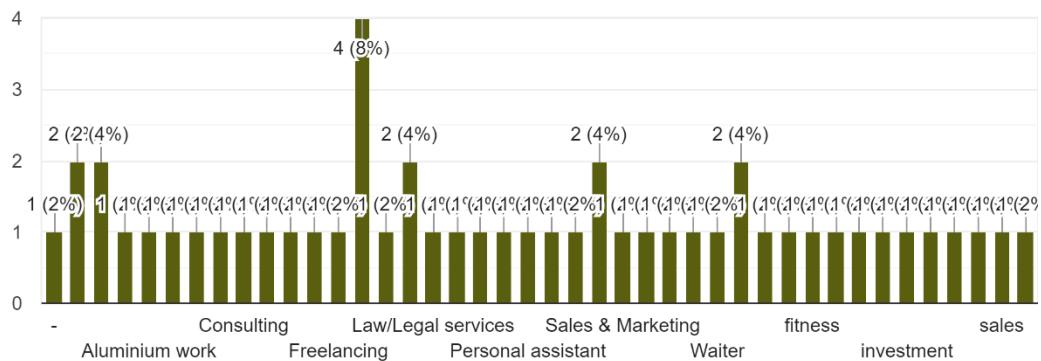
Lastly, this question is designed for the respondent who had vote yes saying that they are interested in purchasing the app. We can see that there are two core existing majority in the chart above. The two-core majority of our respondent state that they would be willing to pay RM10 and RM20 for this app.

In this case we assumed that The two majority of our respondent are willing to pay for such an app in the price range from RM 10 to RM 20 app because they find the features that are in the app are useful to them and it also allows them to make their reservation in a much easier and efficient way.

7.1.2 – Questionnaire Feedback (Adults)
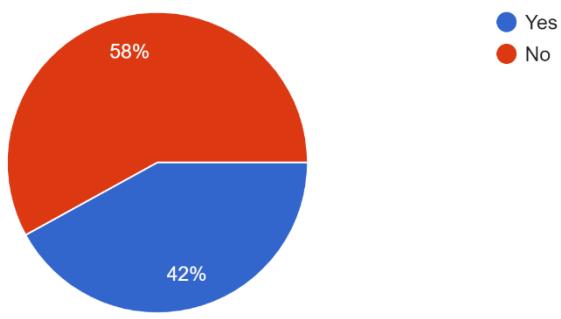
What industry do you work in?
50 responses

From the result of our survey, we can see that majority of our respondent are from IT department.

Have you ever used an augmented reality mobile app technology?
50 responses

- 🔵 Yes
- 🔴 No

58%
42%

From our survey results, we can see that 58% of our respondent had never used an augmented reality mobile app technology before. We found this result to be surprising as we expected a higher percentage of our respondent to have experience in using an augmented reality mobile app technology due to the wide variety of augmented reality mobile app technology is available in the market today such as Pokémon GO.

If yes, what example of augmented reality app have you used before?

Pokemon Go
pokemon go
pogo
sketchAR
PoGO
Ink Hunter
google translate ar
amikasa
Google Maps
Augmented Reality Dentistry demo
Pokemon GO
Pokemon Go

Furthermore, from all of the responses that we had collected, we can conclude that majority of the augmented reality app that that our respondent have experience in are Pokémon GO and Google Maps. This result was quite expected due to huge popularity following that Pokémon GO has globally.
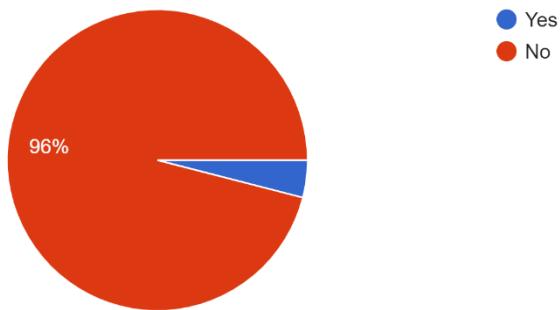
If no, why?

not interested
-
Never heard of IT
Not required in my job scope
I am not really into new tech
Never heard before
Dont feel to learn more
Don't use smartphone that frequently
Never found one
Never encounter an app that have this feature
Never heard of it before
Never found one

While in terms of the reason why our respondent has not used any augmented reality mobile app technology before. It is noted that, the majority of our respondent have never used this type of technology before because of lack of interest and insight on the features provided by augmented reality.

Have you ever used any augmented reality app in a restaurant setting?
50 responses

- Yes
- No

96%
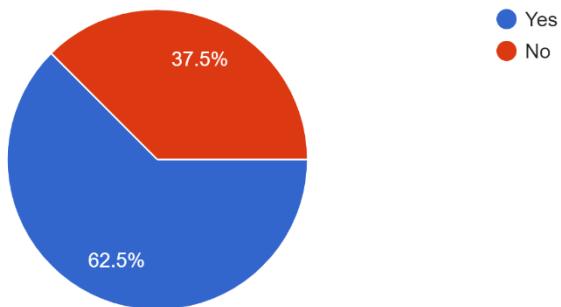
The chart above show that 96% of our responses had never used an augmented reality app in a restaurant setting before. We assumed the cause of this result is due to the fact that this kind of augmented reality app is still relatively new in a restaurant setting and is not widely offered.

## If no, would you be interested in using augmented reality app in restaurant setting?

48 responses

- Yes
- No

37.5%

62.5%
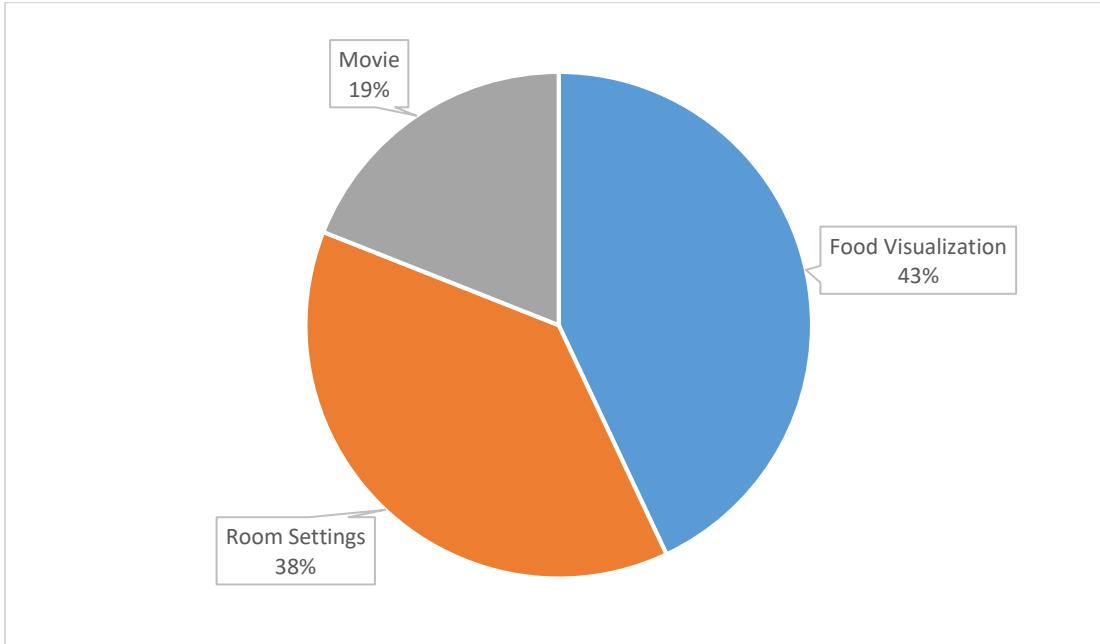
From the previous question, for the respondent who had state they had not used any augmented reality app in a restaurant setting before. We can see that the chart above shows 62.5% of our respondent are interested in using an augmented reality app in a restaurant setting.

In this case, we assumed the majority is because through the use of the augmented reality app in a restaurant setting it will help enhance the customer experience in a restaurant by offering unique features for the customer to use. While, it is also reported that about 37.5% of our respondent would not be interested in using an augmented reality app in a restaurant setting as we assumed the reason behind this could be the fact that the augmented reality app might become more of a distraction than a tool to help enhance their dining experience.

What idea/feature would you like to see in the restaurant setting for an augmented reality app?
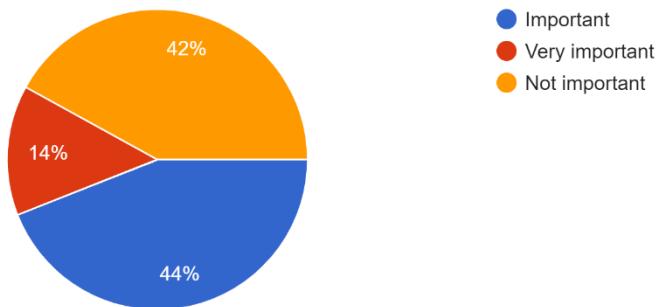

From all the responses that we collected, we can conclude that 43% of the responses stated that they would like to see the food visualization and the restaurant room setting before they make a reservation in the augmented reality app.

In this response, we can see that the customer would like to see these features in the app because it allows them to have a first-hand augmented reality view of the restaurant's food before they make their order and it also help the customer identify whether the restaurant menu matches their food preferences. On the other hand, our result also shows that only 19% of our respondent would like to see an augmented reality movie features in a restaurant setting. We assumed the reason behind this poor response could be that this feature might be a distraction for the customer from their dining experience.

How important it is for you to review the restaurant setting before you book a table?

50 responses

Legend:
- Important
- Very important
- Not important

Pie chart values: 42%, 14%, 44%
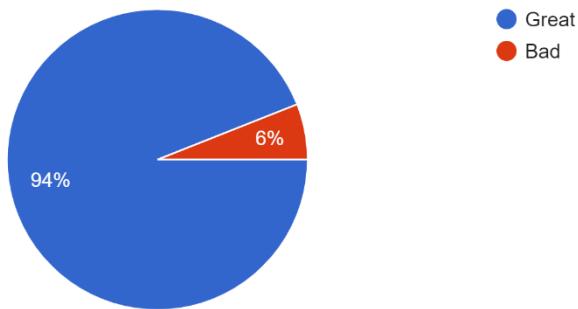
From our survey, we received a mixed response whereby only 14% of our respondent believe that it very important for them to review the restaurant setting before booking a table. While it also noted that about 42 % of our respondent also does not believe that is important to review the restaurant setting before booking a table. We believed that the disparity of between the two-opposing end of the result could be due to the fact that not every customer has a preference for the interior design of the restaurant setting before making a table reservation. However, our result still show that overall most of our respondent believe it is important to review the restaurant setting before making a table reservation as we assume that it could be due to the fact that for most of our respondent the restaurant design theme is important for them to consider before making a table reservation for a special or planned occasion.

What do you think about an augmented reality app which allowed you to see the interior design of the restaurant?
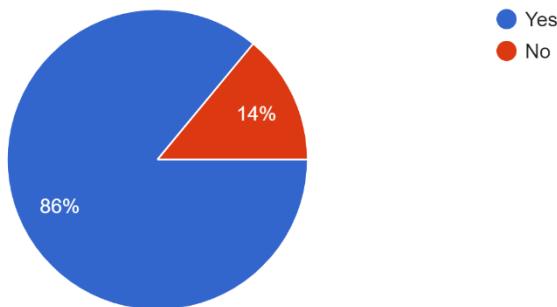
50 responses

For this follow up question, we can see that majority of our respondent think that it's a great idea that we have an augmented reality app that allow the user to see the interior design of the restaurant. The reason behind this majority we assumed is because it allows the user to have a first-hand look at the restaurant environment before making a visit or a reservation at the restaurant. This is important as it shown from our previous aforementioned result that about 44 % of our respondent would want to review the restaurant interior design setting before making a table reservation for a special or planned occasion.

Would you like to see the restaurant's menus and the food visualization before you make a reservation?
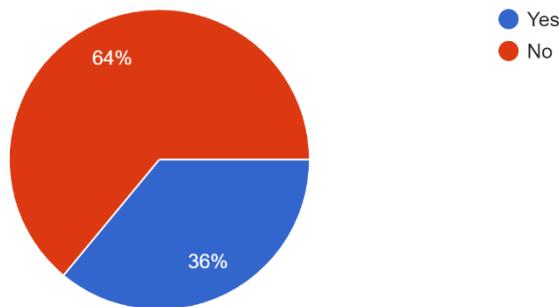
50 responses

From the chart above, we can see that 86% of our respondent would like to see the restaurant's menus and the food visualization before they make a reservation. We assumed this is because through this feature it allows the user to ensure the restaurant menu and its food match their personal demand and specification as well as ensuring the user is able to ensure the food at that particular restaurant would be suitable for their planned special occasion or meeting.

Have you experience difficulty finding a restaurant despite having use a GPS system such as Waze, Google Maps?

50 responses

- Yes
- No

64%

36%
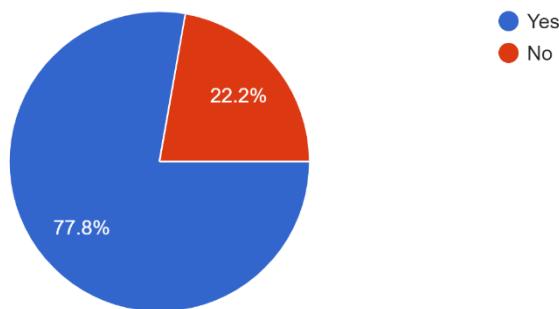
From all data that we had collected, we can conclude that 64% of our respondent do not have difficulties finding a restaurant with the use a global positioning system such as Waze, Google Maps and etc. We assumed this is because most of our respondent are familiar with the present mobile app global positioning system such as Waze and google maps. It is noted that only 36 % of our respondent still have trouble finding a restaurant despite the availability of global positioning system such as Waze, google maps and etc.

If yes, would you will be interested in an augmented reality GPS app to guide u to the restaurant

18 responses
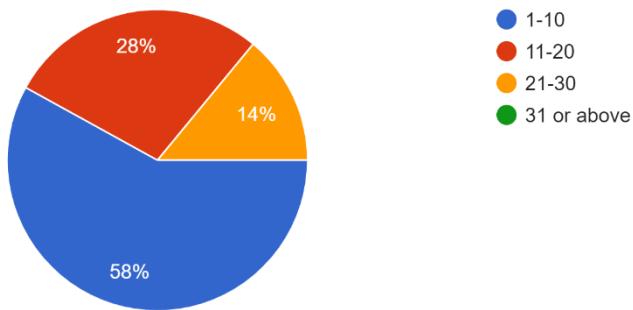
In line with our previous question, this question is design only for the responder who have state that they have difficulties finding a restaurant despite using a global positioning system. We can see that majority of our respondent are interested in an augmented reality global positioning system app which can help provide further assistance in guiding its user to the restaurant.

We assumed the majority of the respondent are interested in an augmented reality Global Positioning System (GPS) app because augmented reality-based GPS will enhance the user global positioning system experience system by providing an augmented reality guide to help leading the user to the restaurant.

How much are you willing to pay to have such features in an app? (RM)

50 responses

- ● 1-10
- ● 11-20
- ● 21-30
- ● 31 or above

28%

14%

58%
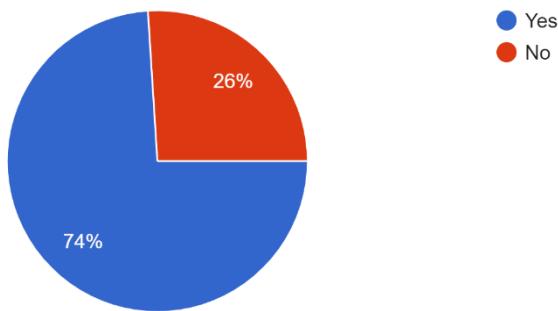
From the chart above, we can see that 58% of our respondent are willing to pay in terms of a price range from RM 1 to RM 10 to have an app which provides such augmented reality features in a restaurant setting. Furthermore, our results also show that only 14 % of our respondent is willing to pay a premium price from the range of RM 21- RM30 in order to have such an app which we assumed is because these group of respondent believes that such an app would greatly improves their restaurant dining experience.

Would recommend this augmented reality app to your colleagues?

50 responses

- ● Yes
- ● No

26%

74%

And lastly from this chart, we can see that majority of our respondent would recommend this augmented reality app to their colleagues, because we assumed that our respondent find these augmented reality app to be convenient to use and are also impressed with the multitude of its unique features.

7.3 – Analysis (Interview) – Mr. Khairul (Lecturer from School of Hospitality, INTI International College Subang)

The interview is done on 19/4/2019 in School of Hospitality, INTI International College Subang. The recorded video link is as below,

https://www.youtube.com/watch?v=AZsu0ZtG8hg&feature=youtu.be
https://www.youtube.com/watch?v=gQSBSeLOh6U&feature=youtu.be

1. **Have you ever heard of the term of augmented reality?**

   From our interview, we know that Mr. Khairul is familiar with augmented reality as he claims that he has experience with immersive system technology that includes the use of augmented reality and virtual reality.

2. **How have your experience with augmented reality been like?**

   From our interview with Mr Khairul we learn that augmented reality could be a great tool to enhance the guest experience if it is used in the right application and it could also be a distraction if the application is not well thought out. As it is very important for each guest to be able to enjoy the augmented reality features without hampering the other guest experience

3. **What do you think of the advantages and disadvantages of augmented reality?**

   From our interview, we learn that through the use of augmented reality it allows hospitality establishment to market and promote their innovative features to tourist and traveller alike. However, the disadvantages of augmented reality are that if the application of the features is not well planned out, the service quality could be seriously dampened due to overloading of guest whom are all trying to test out the features at the same time.

4. **How do you see the use of augmented reality in the hospitality industry?**

Mr Khairul suggest that the use augmented reality is best suited in the concierge services whereby instead of having a fixed number of counter to help assist customer in making service request or room reservation, hospitality establishment can leverage the power of augmented reality technology to create an augmented reality concierge service whereby customer would no longer have to wait to in line at the counter to be service

5. **What is your opinion of augmented reality in training of staff?**

From our interview, Mr. Khairul mention that the use of augmented reality in the training of staff can only be used as a supplementary training material as there is still a necessity for a proper training program to be put in placed in order to ensure that the staff fully understood their roles and limitations.

6. **Do you think it is important to provide a customer an overall view of the restaurant before making a reservation?**

From our interview, we know that it is important to provide a customer with an overall view of the restaurant as nowadays customer would like a first-hand augmented reality view of the interior design of the restaurant before they make a table reservation in order to ensure the restaurant setting meet is suitable for their planned special meeting or occasion.

7. **You would like the customer to see the menu in a food visualization in a sit-down position in the restaurant setting but not in a buffet setting?**

From our interview with Mr Khairul, we learn that the augmented reality feature of providing an augmented reality view of the food in the restaurant menu is only suitable in an ala carte restaurant as it would ensure that each customer experience would not be affected in any overloading request of trying to use the features all at the same time.

8. **Since we are speaking about the app about augmented reality do you think the app should be complex or simple to fit the customer requirement?**

   From our interview, we conclude that having a list of function or features for the customer is not a bad idea but the best idea is to have a package of function in the app for the customer so if the customer wants to add on base on their need they can add on.

9. **We understand there are GPS app such as Waze, Google Maps which can help guide customer the way to the restaurant, what do you think about an augmented reality GPS system that have a virtual character to guide the customer to the restaurant?**

   Based on the interview we had, we know that Mr. Khairul think that augmented reality GPS system would not work as it would only have limited amount of response and it may not be able to cater to all of customer request. Furthermore, another problem is that this feature requires the customer to constantly look at their phone which could be hazardous to road safety if users are to engrossed in that feature till, they do not realise the real-life traffic situation.

10. **Now we have a new generation, which refer as generation z, do you think an augmented reality feature can attract this type of customer into a restaurant?**

    Based on the interview with Mr Khairul, we learn through the use of augmented reality hospitality establishment can help attract new group of customers to their restaurant but this would not last unless the hospitality establishment augmented reality feature is constantly updated.

11. **What do you think about an augmented reality feature which allow the customer to choose the restaurant room setting before booking?**

    Based on the interview, we can conclude that it is okay to allow the customer to choose the restaurant room setting before their booking. The app could have the features of the restaurant for the customer to choose from which could help customer to choose the right restaurant to host their special occasion or meeting.

12. **Do you think augmented reality can help solve problems for the hospitality industry?**

From our interview, we learn that most problem in the hospitality industry cannot be solve alone by augmented reality as it still need a human touch.

13. **Do you think that the hospitality sector would be comfortable in allocating this type of augmented reality app?**

From our interview, we learn that the hospitality industry would have no problem in allocating funds to finance this type of augmented reality app but with the condition that the augmented reality app be constantly updated in order to ensure that it meet customer satisfaction.

14. **If this app is provided for free, would investor be interested in this augmented reality app?**

Based on the interview, we learn that when it comes to cost, it would be an issue for small restaurants which does not have large financial backing and if the augmented reality app won't be much of an upgrade to the existing system. Most small hospitality establishment would not consider it. Another issue is that even when the app is free, it will include a lot of advertisements and no companies like advertisements that are from other companies in their program. On the other hand, Investor from big companies would be interested in this augmented reality app if the app can help improve their business with the caveat that, the app would be constantly updated by the system developer

15. **Have you found any similar or different software that can be compete with augmented reality in the hospitality industry?**

From our interview, we learn that there are some draft of implementation, mostly on the restaurant table where the customer can see the order they had made. Other than that, there are also a number of hotels that are currently incorporating other immersive technology into their existing service.

7.4 – Comparison Between Interview and Questionnaire

1. **What is your opinion of augmented reality in training of staff?**

   From all the survey and interview that we had collected, we can conclude that on the survey for the students, they would like to see the training of staff in augmented reality but from the analysis we did on the interview, we notice that the training of staff can be used as an assistant material only, it can't be fully replaced because the staff need to have a proper training in order to be fully prepared to face a real customer. Additionally, hospitality industry is a close first-person industry.

2. **Do you think it is important to provide a customer an overall view of the restaurant before making a reservation?**

   Based on the question that we had asked on all of the survey and interview, we can see that the students and adults would like to see the environment of the restaurant settings before they make a reservation and our human expert also stated that it is important to provide the customer with an overall view of the restaurant before they make a reservation. The system could be like a 360-3D mapping system.

3. **What do you think about an augmented reality GPS system that have a virtual character to guide the customer to the restaurant?**

   From all the surveys and interview, we can see that that are there different situation. On the student side, they think that it is either a good idea or a bad idea. For the adults, they are interested in having an augmented reality app to guide them to the restaurant. But for the human expert, he concluded that this kind of features is a bad idea, because by using the app to guide customer to the restaurant, it required the customer to look at their phone while walking which may cause accident. There by, guiding customer in an augmented reality app is not a good idea.

8.0 – Conclusion

Overall, augmented reality (AR) has evolved from a pipe dream (dreams of tech enthusiasts) to a substantial reality within just a century. Aron Ezra, CEO of content management developer OfferCraft, says "These things (Augmented Reality) happen with starts and steps.". Hence, with an evolving technological landscape on the rise. The hospitality industry should leverage the power and potential of augmented reality to provides a more unique experience to its guest.

In other words, since augmented reality is now fairly popular among traveler and tourist alike, the hospitality industry should make full use of this opportunity to be the leading innovative industry in the application of augmented reality technology

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10.0 – Appendices

10.1 – Group Contribution

	Student Number	Name	Contribution to Group Project	Marks
Group Members	5982169	Kelvin Chee Khai Loon	Executive Summary Literature Review Interview (Video) References	
	6207777	Wong Wai Hong	Introduction Interview (Requirement Gathering) Video (Edit) References	
	6166386	Choo Yan How	Questionnaire (Requirement Gathering) Conclusion References	
	6165916	Woon Seet Kent	Users Appendices References	
	6203103	Calan Moy Ka-Shing	Mental Model Appendices References	
	6203139	Lim Sheng Xian	Literature Review FURPS Appendices References	
Group Name	Group HaramBae			
Topic	Augmented Reality viewer and pathfinder for Hospitality Industry.			
Lecturer	Ms. Pawani A/P T.Rasaratnam			

10.2 – Ground Rules

1. Cannot be late for meeting, unless got emergency and provide explanation to the whole group.
2. Task delegated must finished on time, if task is struggling to meet deadline must inform team members for help.
3. Every form of research must be referenced before writing into the report.
4. Group meeting is set weekly and the date, time and setting must be agreed by all team members.
5. Not allowed to do other assignment during group meeting.
6. Team members have to communicate with the rest of the team once completing his assigned task.
7. Each team member has to post their topic task on google doc.
8. Weekly group minute report is updated by team member.
9. No form of plagiarism from other group is allowed.
10. No fabrication of data is allowed during the requirement gathering.

10.3 – Minute Meetings

1) https://youtu.be/T08PXTb74-c

MINUTES OF THE <u>CSIT226 – Human Computer Interaction</u> MEETING (1)

Date: 5th April 2019

Time: 1340 PM

Venue: Skype Phone Call

Present	:	Kelvin Chee Khai Loon, Calan Moy Ka-Shing, Choo Yan How, Woon Seet Kent, Lim Sheng Xian, Wong Wai Hong
Absent with apologies	:	-
Absent without notice	:	-

Item No.	Particulars	To take note
1.	Review of agenda	- Group member, Calan Moy Ka-Shing, read-out the agenda for today's meeting.
2.	Discussion on options for project management platform	- Group leader suggested to use Taiga.io. - All members agreed to use Taiga.io as the application to manage project.
3.	Discussion on field to study	- Group leader suggested 4 field: Medical, Hospitality, Automotive, and Culinary.

		- Group member, Lim Sheng Xian, advised to go for Hospitality Field with Culinary Field as backup option. - All members agreed with the decision.
4.	Review of marking rubric	- Group member, Calan Moy Ka-Shing, read-out the marking rubric for the project.
5.	Discussion on target market	- Group leader instructed members to do research on target market.

The meeting ended at 5th April 2019, 1350 PM.

Prepared by,

Lim Sheng Xian

2) https://youtu.be/nMgpeUYwfYo

MINUTES OF THE <u>CSIT226 – Human Computer Interaction</u> MEETING (2)

Date: 10th April 2019

Time: 1653 PM

Venue: Skype Phone Call

Present	:	Kelvin Chee Khai Loon, Calan Moy Ka-Shing, Choo Yan How, Woon Seet Kent, Lim Sheng Xian, Wong Wai Hong
Absent with apologies	:	-
Absent without notice	:	-

Item No.	Particulars	To take note
1.	Review of previous minutes	- Group member, Lim Sheng Xian, revised the details of previous minutes.
2.	Discussion on ideas for Hospitality and Culinary Field	- Total of 4 ideas is suggested and accepted by every group member.
3.	Review of progression	- Group leader reviewed the current and future progression for the project.
4.	Discussion on the approach for questionnaire	- Every group member agreed to do online survey.

5.	Discussion on the ideas for questionnaire	- Group leader instructed members to do research and write out their ideas for questionnaire on google doc.

The meeting ended at 10th April 2019, 1704 PM.

Prepared by,

Lim Sheng Xian

3) https://youtu.be/nDdFf7iAIT4

MINUTES OF THE <u>CSIT226 – Human Computer Interaction</u> MEETING (3)

Date: 15th April 2019

Time: 2031 PM

Venue: Skype Phone Call

Present :	Kelvin Chee Khai Loon, Calan Moy Ka-Shing, Choo Yan How, Woon Seet Kent, Lim Sheng Xian, Wong Wai Hong
Absent with apologies :	-
Absent without notice :	-

Item No.	Particulars	To take note
1.	Review of previous minutes	- Group member, Lim Sheng Xian, revised the details of previous minutes.
2.	Discussion on ideas for Questionnaire	- Total of 11 questions is chosen for the questionnaire.
3.	Discussion on details for Project Part A	- All group members agreed to have 5 major content for Project Part A.
4.	Distribution of tasks for Project Part A	- Tasks is distributed evenly to every group member.

		- 1. Group Details – Calan Moy
		2. Literature Review – Lim Sheng Xian & Kelvin Chee
		3. Background – Wong Wai Hong
		4. Users - Woon Seet Kent
		5. Requirement Elicitation – Choo Yan How

The meeting ended at 15th April 2019, 2137 PM.

Prepared by,

Lim Sheng Xian

4) https://youtu.be/K9V2d7QKuls

MINUTES OF THE <u>CSIT226 – Human Computer Interaction</u> MEETING (4)

Date: 22nd April 2019

Time: 2108 PM

Venue: Skype Phone Call

Present	:	Kelvin Chee Khai Loon, Calan Moy Ka-Shing, Choo Yan How, Woon Seet Kent, Lim Sheng Xian, Wong Wai Hong
Absent with apologies	:	-
Absent without notice	:	-

Item No.	Particulars	To take note
1.	Discussion on improvement for Questionnaire	——
2.	Allocation of tasks	- Task is allocated to - 1. Preparation for Google Form – Lim Sheng Xian - 2. Documentation – Woon Seet Kent

The meeting ended at 22nd April 2019, 2127 PM.

Prepared by,

Lim Sheng Xian

10.4 – Screenshots

1) Form for Millennials:

QUESTIONS   RESPONSES   74

Section 1 of 5

CSIT226 Group Assignment Research

Form description

Consent Form

You are invited to participate in a research project being conducted by a group of students from CSIT226 (Bachelor of Computer Science) where their name is listed below:
1. Kelvin Chee (Leader)
2. Wong Wai Hong
3. Choo Yan How
4. Seet Kent Woon
5. Calan Moy
6. Lim Sheng Xian

In order for us to be allowed to use any data you wish to provide, we must have your consent. In simplest term, we hope you will use any electronic devices to
- Share your opinion on our research
- Share ideas that you can help us to improve the design
- Most importantly, complete the form

However, you may also stop participating at any time.
*The research is prepared under the supervision of Ms.Pawani.

My signature indicates that I have decided to participate having read the information provided above.
- I agree to participate in the research study outlined above.
- My participation is voluntary, and I can withdraw at any time.

If you agree with T&C above, please press yes to proceed *

○ Yes

After section 1   Continue to next section

Feedback

Hallo, glad to see you around here! We are a group of students from CSIT226. Today we're asking the public about thoughts on implementing augmented reality into the hospitality field.

Giving us just three minutes of your time can really help. You could be providing us with the information we need to make this project a success.

All the responses we get will be totally anonymous. We kindly ask you to answer as honestly as possible. We're not here to judge anyone as we just want to know what you think.

*Responses will not be identified by individual. All responses will be compiled together and analyzed as a group.

Student Name *

Short-answer text

Student ID (UoW/INTI) *

Short-answer text

Have you ever heard about augmented reality? *

○ Yes

○ No

Are you interested to know about augmented reality? *

○ Yes

○ No

Would you be interested in augmented reality where the setting is inside a restaurant? *

○ Yes

○ No

What features do you like to see inside the augmented reality app in a restaurant?

Long-answer text

After section 2   Continue to next section ▼

Section 2

Description (optional)

Would you like to see the training of staff in augmented reality? *

○ Yes

○ No

Would you like to see the environment of the restaurant before you make a reservation? *

○ Yes

○ No

Would you like to see the restaurant's menus and the food visualization before you make a reservation? *

○ Yes

○ No

What you think about an augmented reality GPS features that will guide you to the restaurant? *

Long-answer text

How important is for you that the room of the restaurant is decorated according to your specification before you make a reservation? *

○ Not important

○ Important

○ Very important

If you are a restaurant owner or a customer, would you be interested to purchase this kind of app? *

○ Yes

○ No

After section 3   Continue to next section   ▼

Section 3

Description (optional)

If no, would you still use this app if it was made free? *

○ Yes

○ No

After section 4   Submit form

Section 3

Description (optional)

If yes, how much would you like to pay for this app? (RM) *

Short-answer text

2) Form for Adults:

Feedback

Hallo, glad to see you around here! We are a group of students from CSIT226. Today we're asking the public about thoughts on implementing augmented reality into the hospitality field.

Giving us just three minutes of your time can really help. You could be providing us with the information we need to make this project a success.

All the responses we get will be totally anonymous. We kindly ask you to answer as honestly as possible. We're not here to judge anyone as we just want to know what you think.

*Responses will not be identified by individual. All responses will be compiled together and analyzed as a group.

A little info about Augmented Reality

Augmented reality is an interactive experience of a real-world environment where the objects that reside in the real-world are enhanced by computer-generated perceptual information, sometimes across multiple sensory modalities, including visual, auditory, haptic, somatosensory, and olfactory.

View More At:
https://en.wikipedia.org/wiki/Augmented_reality

Name *

Short-answer text

What industry do you work in? *

Short-answer text

Have you ever used an augmented reality mobile app technology? *

◯ Yes

◯ No

After section 2   **Continue to next section**   ▼

Section 2.1

Description (optional)

If yes, what example of augmented reality app have you used before? *

Long-answer text

After section 3   **Go to section 5 (Section 2.2)**

Section 2.1

Description (optional)

If no, why? *

Long-answer text

After section 4   **Go to section 5 (Section 2.2)**

Section 2.2

Description (optional)

Have you ever used any augmented reality app in a restaurant setting? *

○ Yes

○ No

After section 5   **Go to section 7 (Section 2.4)**

Section 2.3

Description (optional)

If no, would you be interested in using augmented reality app in restaurant setting?   *

○ Yes

○ No

After section 6   **Continue to next section**

Section 2.4

Description (optional)

What idea/feature would you like to see in the restaurant setting for an augmented reality app?

Long-answer text

How important it is for you to review the restaurant setting before you book a *
table?

○ Important

○ Very important

○ Not important

What do you think about an augmented reality app which allowed you to see *
the interior design of the restaurant?

○ Great

○ Bad

Would you like to see the restaurant's menus and the food visualization before you make a reservation? *

○ Yes

○ No

Have you experience difficulty finding a restaurant despite having use a GPS system such as Waze, Google Maps? *

○ Yes

○ No

After section 7   Go to section 9 (Section 2.6)

Section 8 of 9

Section 2.5

Description (optional)

If yes, would you will be interested in an augmented reality GPS app to guide u to the restaurant *

○ Yes

○ No

After section 8   Continue to next section

Section 2.6

Description (optional)

How much are you willing to pay to have such features in an app? (RM) *

○ 1-10

○ 11-20

○ 21-30

○ 31 or above

Would recommend this augmented reality app to your colleagues? *

○ Yes

○ No

10.5 – Consent Form

1) Students:

You are invited to participate in a research project being conducted by a group of students from CSIT226 (Bachelor of Computer Science) where their name is listed below:

1. Kelvin Chee (Leader)
2. Wong Wai Hong
3. Choo Yan How
4. Woon Seet Kent
5. Calay Moy
6. Lim Sheng Xian

In order for us to be allowed to use any data you wish to provide, we must have your consent. In simplest term, we hope you will use any electronic devices to

- Share your opinion on our research
- Share ideas that you can help us to improve the design
- Most importantly, complete the form

However, you may also stop participating at any time.

*The research is prepared under the supervision of Ms.Pawani.

My signature indicates that I have decided to participate having read the information provided above.

☐   I agree to participate in the research study outlined above.

☐   My participation is voluntary, and I can withdraw at any time.

Name   : _____

Date   : _____

2) Adults:

INTI
International College Subang **UNIVERSITY OF WOLLONGONG AUSTRALIA**

You are invited to participate in a research project being conducted by a group of students from CSIT226 (Bachelor of Computer Science) where their name is listed below:

7. Kelvin Chee (Leader)
8. Wong Wai Hong
9. Choo Yan How
10. Woon Seet Kent
11. Calay Moy
12. Lim Sheng Xian

It should take approximately 3 minutes to complete. Your participation in this survey is voluntary. You may refuse to take part in the research or exit the survey at any time without penalty.

RISKS

- There is the risk that you may find some of the questions to be sensitive.
- There is the risk that some questions may cause emotional discomfort.
- Some of the survey questions may be distressing to you as you think about your experiences.

☐ You have read the above information.
☐ I agree to participate in the research study outlined above.

Name : _____
Date : _____

3) Mr. Khairul (Lecturer from School of Hospitality, INTI International College Subang)

INTI International College Subang | **UNIVERSITY OF WOLLONGONG AUSTRALIA**

You are invited to participate in a research project being conducted by a group of students from CSIT226 (Bachelor of Computer Science) where their name is listed below:

1. Kelvin Chee (Leader)
2. Wong Wai Hong
3. Choo Yan How
4. Woon Seet Kent
5. Calay Moy
6. Lim Sheng Xian

Thank you for reading the information sheet about the interview sub-study. If you are happy to participate then please complete and sign the form below. Please initial the boxes below to confirm that you agree with each statement:

☐ I confirm that I have read and understood the information sheet dated **[19/04/2019]** and have had the opportunity to ask questions.

☐ I understand that my participation is voluntary and that I am free to withdraw at any time without giving any reason and without there being any negative consequences. In addition, should I not wish to answer any particular question or questions, I am free to decline.

☐ I agree for this interview to be tape-recorded. I understand that the audio recording made of this interview will be used only for analysis and that extracts from the interview, from which I would not be personally identified, may be used in any conference presentation, report or journal article developed as a result of the research. I understand that no other use will be made of the recording without my written permission, and that no one outside the research team will be allowed access to the original recording.

☐ I agree to take part in this interview.

_____ _____ _____

Name of participant   Date   Signature