UNIVERSITY of GREENWICH
Alliance with FPT Education

BTEC

ASSIGNMENT 1 FRONT SHEET

Qualification	**BTEC Level 5 HND Diploma in Computing**		
Unit number and title	Unit 13: Computing Research Project		
Submission date		**Date Received 1st submission**	
Re-submission Date		**Date Received 2nd submission**	
Student Name	Nguyen Khac Quoc Nhat	**Student ID**	GCH18579
Class	GCH0718	**Assessor name**	Do Quoc Binh
Student declaration I certify that the assignment submission is entirely my own work and I fully understand the consequences of plagiarism. I understand that making a false declaration is a form of malpractice.			
		Student's signature	

Grading grid

P1	P2	P3	P4	P5	M1	M2	M3	D1	D2

❒ Summative Feedback:	❒ Resubmission Feedback:

Grade:	Assessor Signature:	Date:

Internal Verifier's Comments:

Signature & Date:

Table of Contents

I. INTRODUCTION 5

II. LITERATURE REVIEW 5

1. RESEARCH METHODOLOGIES 5
2. PRIMARY RESEARCH 5
3. QUANTITATIVE RESEARCH AND QUALITATIVE RESEARCH 6
4. SCIENTIFIC METHOD 6
5. THE POPULAR AND SAMPLE 7
6. RESEARCH PROCESS AND TECHNIQUES 7
7. SECONDARY DATA RESEARCH 7
8. CONCLUSION 9
9. HYPOTHESIS 9

III. PRIMARY RESEARCH 10

1. INTERVIEW 10
2. SURVEY 13
3. OBSERVATION 16

IV. ANALYSIS PRIMARY RESEARCH 21

1. ANALYSIS THE RESULT 21
2. RECOMMENDATION 22

V. RESEARCH PROPOSAL FORM 24

VI. APPROVED PROJECT PLAN-APPENDIX 28

1. WBS 28
2. GANTT CHART 29

VII. ETHICAL FORM 30

BIBLIOGRAPHY ..... ERROR! BOOKMARK NOT DEFINED.

I. Introduction

Internet of thing(IOT) is the networking that connect the devices like sensor, that are programmed to work in a certain way, and connected together to get a result . Nowadays, The Internet of Thing is become a necessary part of human daily. The Internet of Things (IoT) expands internet access beyond conventional devices such as desktop and laptop computers, smartphones, and tablets to a wide variety of devices that can use embedded technology, including security systems, thermostats, vehicles, electronic appliances, lighting, and medical equipment. These devices, also known as "linked" devices,

Smart Home is the one of the most discussed application of IOT, so I choose that topic to research about the Smart Home in Viet Nam and the impact of Smart Home to the people live in Ha Noi. In the Research, i process a lot of research method: secondary research, primary research. From the research, I will analysis and made my conclusion

II. Literature review

1. Research Methodologies

At the first of processing the Research, I did a Secondary Research about the IOT, the relate information like devices, and the application of Smart Home. This especially about the Smart Home. Those information almost base on the Internet and some Book-file provided. This process bring me a lot of knowledge that necessary to my project. After getting secondary research, I decide to take a primary research to get the real data. At first, I come to a show room at HaNoi and take an interview. During the interview, I processed to record video and audio the information that I observed. After that for even more standard data, I surveyed to gather the user's opinions about the smart home. Finally, I take the data to evaluate, analyze and get the best result. That is the process I use Research Methodologies in my project.

2. Primary Research

According to (questionpro.com, n.d.), Primary research is collecting information and answering previously unresolved questions. Primary research is often used to solve certain problems and requires in-depth analysis of the problem.

For example, a brand is about to launch a new model of smart watch and wants to conduct a research about the looks and features smart watch they are soon going to introduce. Organizations can select a qualified sample of respondents that closely resembles population and conduct primary research with them, to know their opinions.

In my Research, I will take an interview with three people who are the smart home user or have a lot of knowledge about that.

3. Quantitative Research and Qualitative Research

➢ Qualitative:

According to (questionpro.com), An approach that aims to explore, describe and explain based on means of surveying experiences, perceptions, motivations, intentions, behaviors and attitudes. Qualitative research is a form of scientific research aimed at understanding answers to research questions. Use a systematic way to limit the research process. Collect evidence. Provide unclear findings in previous periods. Provide findings that extend beyond the research topic limits.

In my research on using qualitative research to gather insights and insights about smart home, we use qualitative methods including interviews, observations and document reviews exploring concepts and theory

➢ Quantitative:

Quantitative Research is used to quantify the problem by way of generating numerical data or data that can be transformed into usable statistics. It is used to quantify attitudes, opinions, behaviors, and other defined variables – and generalize results from a larger sample population

I will collect information from users in the form of metrics to give the best rating results. After learning about the newly collected number, I will make a prediction about the future of smart home with users.

4. Scientific Method

The scientific method is a way of conducting research, based on theory construction, the generation of testable hypotheses, their empirical testing, and the revision of theory if the hypothesis is rejected. It is associated with the positivist tradition

Basic step of scientific method:

- Observe a natural phenomenon and define a question about it
- Make a hypothesis
- Test the hypothesis
- Analyze Your Data and Draw a Conclusion

A researcher must first investigate natural phenomena in order to ask a significant question that can enhance our understanding of the universe. A researcher may identify a useful question by making observations. After determining a question to be answered, the researcher will make an educated guess (hypothesis) on what the answer would be. This prediction is generally a statement about how two or more variables interact. The researcher would then design an experiment to test his or her hypothesis and analyze the data obtained after making a hypothesis. These findings will either confirm or disprove the hypothesis.

In my project, I will go to the showroom to collect data. The data will be analysis base on the available documents.

5. The popular and sample

A population is the entire set of individuals of interest to a researcher. Although the entire population usually does not participate in a research study, the results from the study are generalized to the entire population (Bhandari, 2020).

In my project, I will base on a sample of Smart Home(Smart Home in Time City) to make comment in Smart Home Research.

6. Research Process and Techniques

After consulting and reviewing the various research techniques, I suggested the document analysis and interview method, I would consult on websites, statistics articles and meet , talk, search about people knowledgeable about the subject to interview. I use quantitative research, the research method is I use survey or interview.

7. Secondary Data Research

Secondary Data Research is a form of research that makes use of data that has already been collected. Existing data is compiled and summarized to improve the research's overall effectiveness.

a. Definition of IOT

The Internet of Things is the concept of connecting any device (so long as it has an on/off switch) to the Internet and to other connected devices. The IoT is a giant network of connected things and people – all of which collect and share data about the way they are used and about the environment around them. This can include anything and everything with an on/off switch: computers, printers, cell phones, headphones, coffee makers, televisions, washing machines, lamps, security systems, cars — the options and opportunities are virtually endless.

(Siu, 2019)

b. Application of IOT

According to (Kumar, 2019), there are some application of IOT:

IOT based Smart AC- Suppose you can control your AC from anywhere like you are about to reach home in summer and want that your room should be cold before you reach there. So here you can control the AC by using a simple App on phone through internet.

IOT based Smart Home- Just like the Air conditioner, you can control your entire home appliances using internet and check the conditions like temperature pressure and any fire alerts from far away via internet.

IOT based patient monitoring system- If Someone is unwell in your home and you are not able to be there all the time, due to work and other stuff then simply you will love this idea of monitoring the patient from anywhere in the world. Like there are a lot of health sensors using those you can track the temperature, blood pressure , heart beat and other parameters of body. Also you can set to get timely notification about their health.

Crops monitoring and automatic irrigation system- This is for the farmers they can track the moisture as well as weather conditions. And also include automatic irrigation system into fields so that the crops can be healthy and they can minimise the loss due to over irrigation or under irrigation.

c. Smart Home Device

- **Central Controller**: Initializes network and connects devices in the system into a complete system allowing you to manage and control remotely via phone, computer from anywhere.
- **Smart Camera**: automatically detect movement and direction of motion to record
- **Smart Heating and Cooling**: calculate the room temperature and adjust the air conditioner as needed
- **Led lighting control system**: With the ability to customize up to 16 million colors with many attractive effects, you can simply and instantly change the decoration and color of the house to match. suitable with preferences and circumstances.
- **Phone application**: An application are programmed to control all the system from the phone, tablet, or laptop more easily, conveniently, quickly, wherever you are.

d. Smart Home in Viet-Nam

The smart home concept has been in Vietnam for more than a decade ago. However, until the 4.0 industrial revolution is popularized, a smart home will become the trend. According to the development trend of technology, A smart home is expected to be a new breeze for families in Vietnam. However, during the first stage, people only see the smart home system in resorts, luxury hotels, and villas. There are three main reasons why the smart home has not to grow up.

According to (Dong, 2020), After more than ten years of penetration, the smart home has become popular, the market penetration rate of 1.2% in 2019, and will increase by 7.8% in the next four years. According to Statista, smart home's revenue in Vietnam reached 105.5 million USD until September 2019. Expected to reach 163 million USD by 2020.

e. Cost for a Smart Home in Viet Nam

Along with the growth of the market are a series of brands launched, belonging to many segments to meet diverse user needs. A pioneer for Vietnamese companies that own technology and produce smart devices must such as Acis Smarthome, Bkav.

Especially, ACIS smart home was built by the student of the University of Technology

HCM, creating a "revolution" in price when bringing the cost to only 1/4 compared to foreign products. From 30 - 150 million VND depending on the installation package, from apartments, dwelling-house, villas.
(Dong, 2020)

8. Conclusion

Due to the current situation of Viet Nam, there are more and more company that provide the Smart Home service, incorporating 4.0th Age of Technology. The market is quite diverse, the cost of Smart Home is more and more cheap. That make a bright future for people in Viet Name when the life are become busier and they have a lot of work to do.

9. Hypothesis

Nowadays, smart home bring so many benefits for people in Ha Noi. With the price improvement, there are more people can use and try to use Smart Home in Viet Nam.

In a few year, certainly I think that Smart Home will become popular in almost city in Viet Nam and specific in Ha Noi.

III. Primary Research

1. Interview

The choice of study subjects is critical when conducting studies since they have the potential to affect the outcome. I did the following to get the most research result:

The first is a sample of individuals drawn from groups, or individuals that embody a group of people. To do so, I spoke with three people. To obtain information, conduct an interview in which you engage in a deliberate conversation. For a variety of reasons, I like to interview. I can ask people with practical information questions and ask in-depth questions about the research problem during interviews, and I can also have their own view in research issues assist

Another method is to use a population from a group analysis that can be generalized. I conducted a survey of a group of people to obtain this information. Surveys use questionnaires to perform studies without a sense of urgency.

I choose survey for a number of reason. First, the interviewer can take longer to conduct because you will be interviewing the interviewee during both parties' spare time, and you will only conduct one or two interviews a day. As a result, using the survey would save time and effort since it is conducted online with pre-written questionnaires. As a result, I save time while still getting the results I want.Another explanation is that if I conduct a survey, I would be able to obtain the opinions of a larger number of people, resulting in more generalized outcomes.

➢ Plan for Interview:

I choose three people to interview, they will be have a knowledge about smart home or have experience of using smart home. I have created a list of question to ask them.

Name Interviewee	Time	Describer	Location	Career	Age	Gender	Purpose
Nguyen Van Bo	5/4/2021	Using 1 year Smart Home in Time City	Hai Ba Trung, Ha Noi	Developer	29	Male	Description of smart home devices and the benefits of smart home
Vuong Thi Nhung	5/4/2021	Have a lot of knowledge	Dong Quan,Cau Giay, Ha Noi	Teacher in University of Greenwich	30	Female	description of smart home devices

							and the benefits of smart home
Nguyen Tat Luc	5/4/2021	Have a lot of knowledge	Showrom Time City	Manage at Showroom	32	Male	description of smart home devices and the benefits of smart home

➢ Question for interview:

Interview	Question
Nguyen Van Bo	1. Can you introduce a little about yourself? 2. Do you know about Smart Home? 3. How long have you use Smart Home? 4. What is your feeling when using Smart Home? 5. What are some benefit that Smart Home bring to you? 6. What function do you want to improve in future?
Vuong Thi Nhung	1. Introduce yourself? 2. Do you know smart home? 3. What are smart devices in the home? How it works? IOT registration? 4. What does Smart Home application bring and help in life? 5. Do you want to further improve the function of your home in the future, what function?
Nguyen Tat Luc	1. Can you introduce a little about yourself? 2. Do you know about Smart Home? 3. How long have you work in Smart Home? 4. What are some Smart Device and how does it work? 5. What do you think about the security of Smart Home? 6.What function do you want to improve in future?

➢ Result of interview:

Question	Nguyen Van Bo
1	My name is Nguyen Van Bo, I'm a developer, I live at smart home
2	Yes, I have a lot of knowledge before choose to use Smart Home
3	I have been using smart home for about 1 year
4	When I use a smart home, I feel very safe because the electric devices turn on and off properly when I'm inside, and I can monitor the devices in the house with my phone when I'm outside.
5	I'll use my phone to switch off the TV in the house if I fail to turn it off when out. But I'm still concerned about security, because with camera devices used to track indoor activities that are linked to the internet, hackers can steal important information and commit fraud. I'm really concerned about this.In conclusion, they all help me to save time and Effort
6	Not about the function but I want they can work faster than now

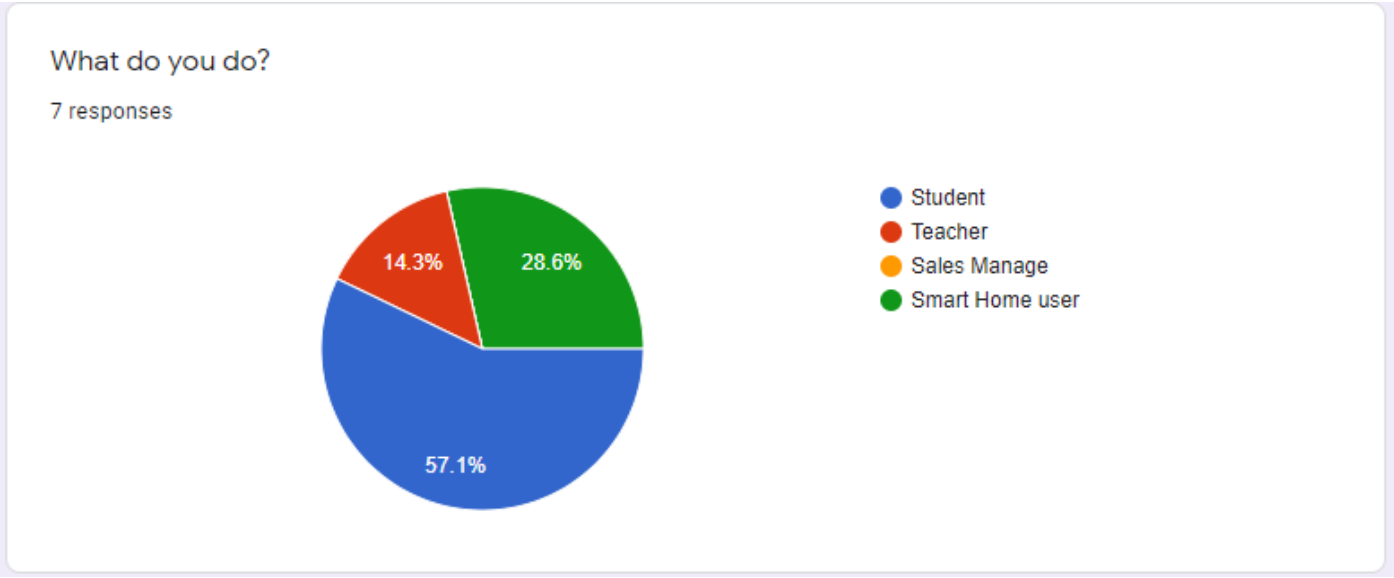
Question	Vuong Thi Nhung
1	I am Vuong Thi Hong Nhung, lecturer at University of Greenwich
2	I know, I know its features through observing and reading the documentation.
3	I know about some smart home devices such as air conditioner, sensor lights, especially wireless devices that can be controlled by wireless network. With the ability to remotely access and use control software such as iOS, Android, and data storage on Data server, these are the components she knows to deploy smart home.
4	In my opinion: The first is the water heater can automatically turn off when the water temperature is too high to save electricity, secondly, the indoor air conditioner can automatically control the temperature. In the room compared to the outdoor temperature, this will help people not affect their health when the temperature changes, the 3rd light in the house can automatically turn off when someone is in the house, it will also help save electricity when no one is in the house
5	Smart homes today are mostly focused on controlling devices, in the future she wants smart homes to improve the atmosphere in the room, because the current rate of oxygen in the room will be less when outside, I hopes that when the oxygen level in the room is low, the windows will automatically open, because many families now turn on the air conditioner, sometimes suffocating, which is very dangerous and affects people's health

Question	Nguyen Tat Luc
1	My name is Nguyen Tat Luc, I am sale manage at showroom of Smart Home
2	Yes, I have a lot of knowledge about Smart Home
3	About 5 Year

4	The devices in the house are all linked, and I use my smartphone to monitor them. For example, the Lumi life app can monitor door locks, televisions, air conditioners, audio-visual equipment, cameras, lamps, and even appliances like refrigerators.
5	I thinks the security of Smart Home is medium, for a long time, I receive some response of customer about security attack or risk. But don't worry, we are processing to improve about the security
6	Am a Sale manage so I want Smart Home can be develop more function, beside that, I want the cost will be low so a lot of people can use Smart Home

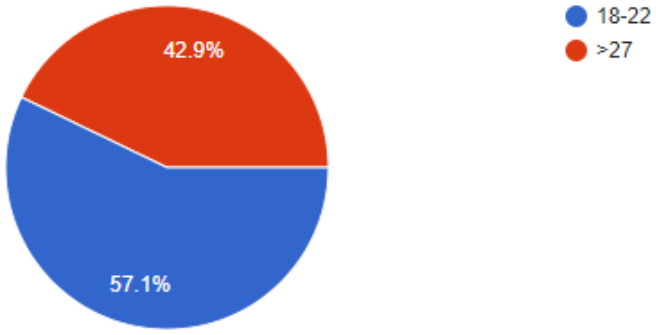
2. Survey

- Question of Survey:
  - What do you do?
  - How old are you?
  - Do you know about smart home?
  - How do you feel when Smart Home is become popular now?
  - Do you thinks that Smart Home is a good idea?
  - What are the the benefits of smart home helping people?
  - What are the disadvantages of smart home?
  - What device do you like most in smart home?
  - If you want to change or improve your smart home, what device would you like to change or add?
- Result:



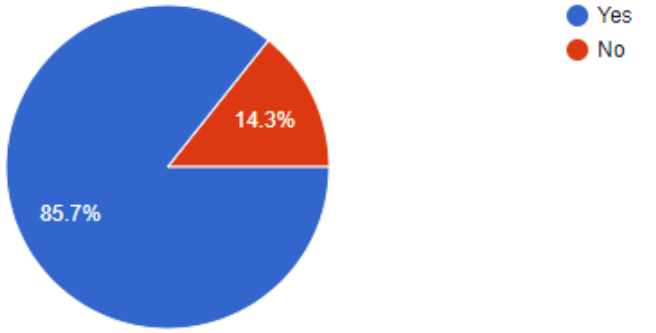
How old are you?

7 responses



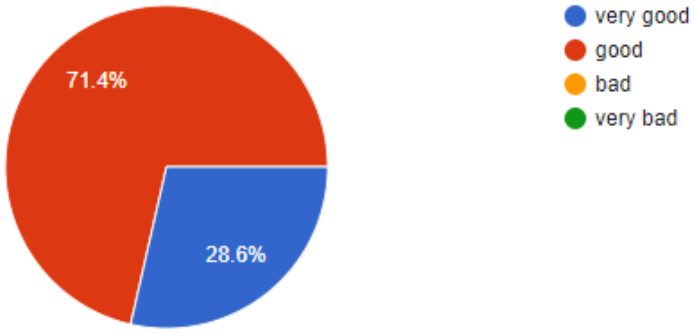
Do you know about smart home?

7 responses



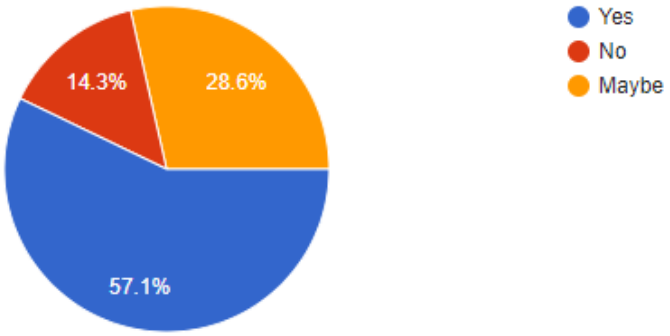
How do you feel when Smart Home is become popular now?

7 responses



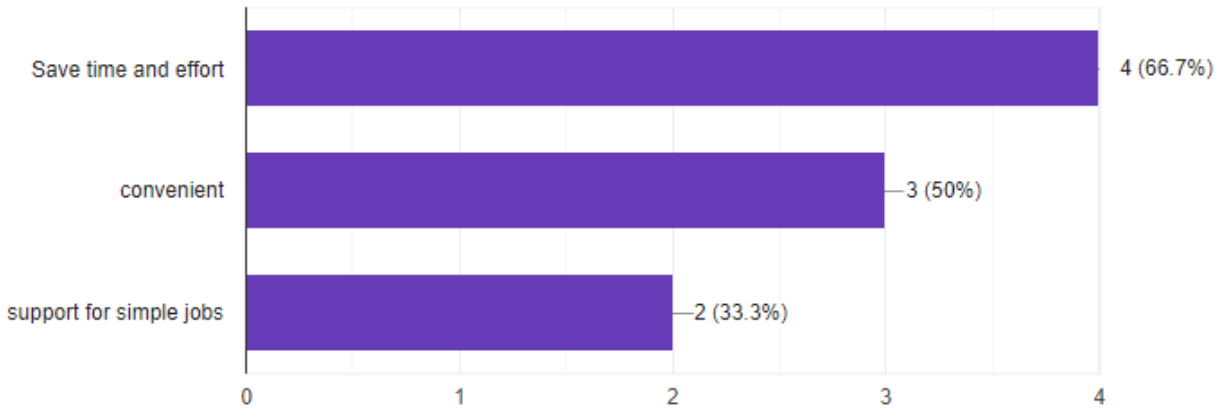
Do you thinks that Smart Home is a good idea?

7 responses



What are the the benefits of smart home helping people?

6 responses



What device do you like most in smart home?

7 responses

That is Light Sensor

That is a Heat and Cold Auto

the door automatic

AI Bot

Auto Close Windows Blinds

Auto Fan

That is AI Bot

If you want to change or improve your smart home, what device would you like to change or add?

7 responses

no

No

The cost

I want all the system will work faster than now

3. Observation

Observation is the way you come and get the data by viewing in real life, with the physical device and people.

I make observation in a show room of smart home in Ha Noi, that is VinHome, TimeCity Ha Noi. I came here and ask a manage to view the Smart Home and they agree me to do that.

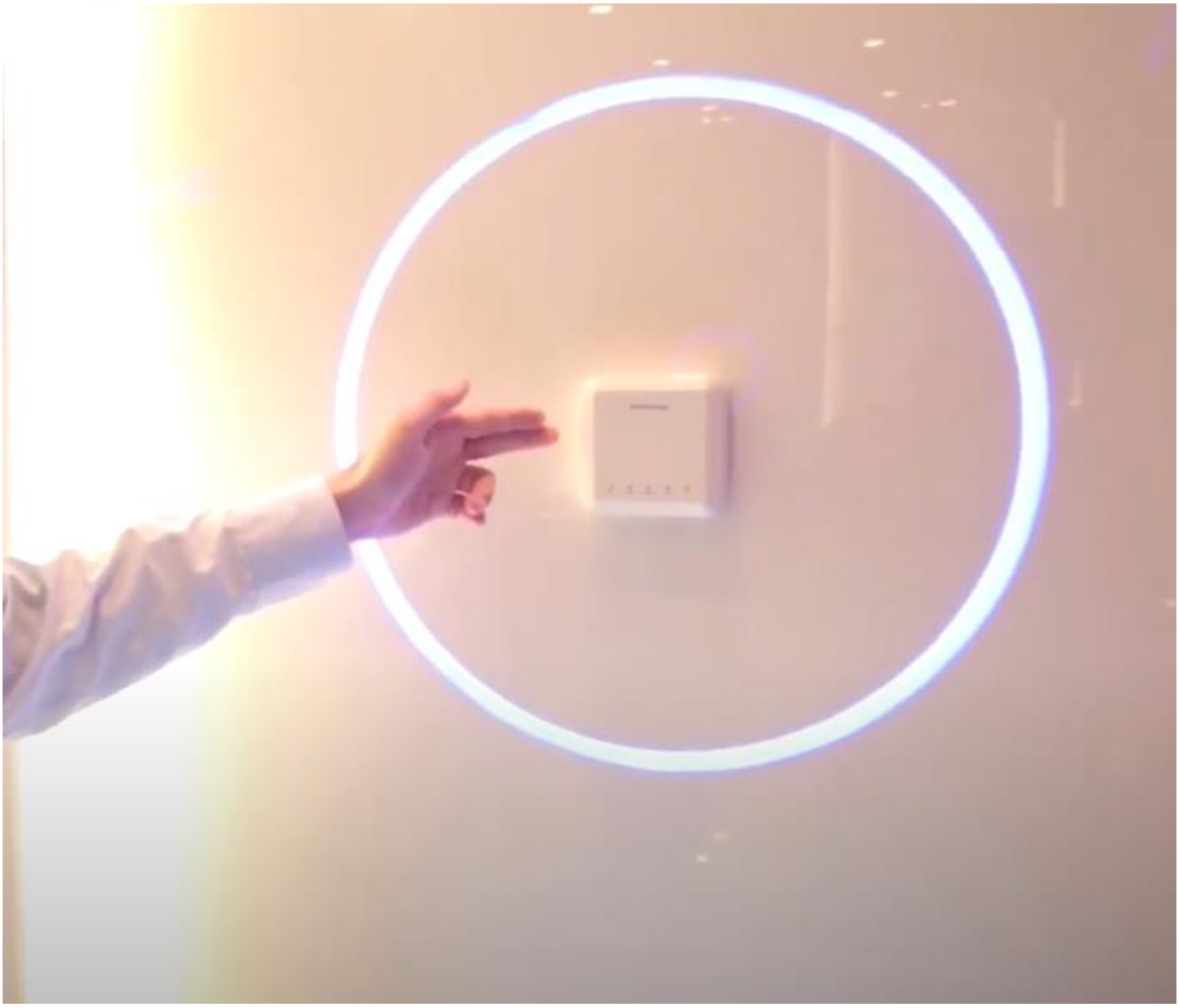
At first, the manage show me a tablet that have an application can connect to Smart Home. Then, he show me a lot of feature and I specific like the Movive Mode of the Smart House.

In that mode, the system will turn off all the light and just keep the television on, beside that, they also scroll down the windows blinds.

Here are the way the windows blind scroll down

Smart electric board used to integrate other smart devices

Smart Hand Dryer: Auto turn on when you put your hand under the machine and turn off when you go away.



A device that can receive security alert signals and send to tablet

Light Sensor that using in the Smart House. They will have two mode, day and night.

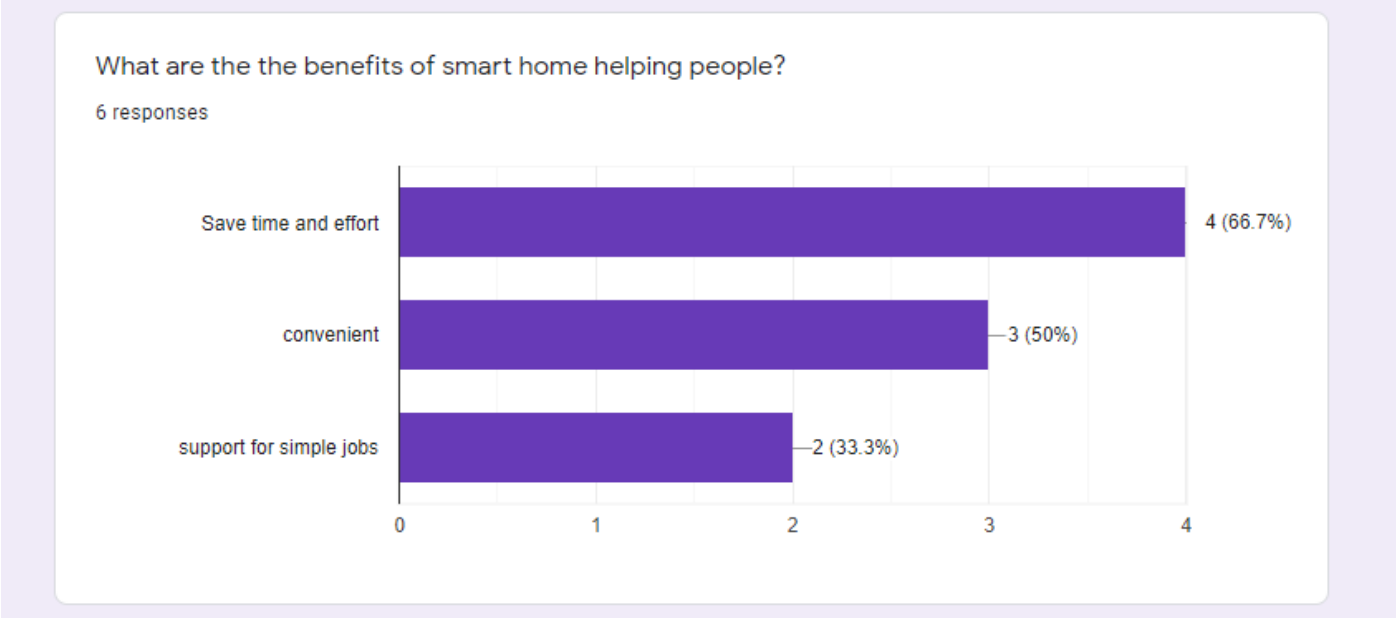
At day mode, that are simple turn on and off the light. At night mode, they will be intrusive motion detection security devices

IV. Analysis Primary Research

1. Analysis the Result

➢ Save time and Effort

In my survey form, I have a question about the benefits of Smart Home, so from the following chart, I can see that 66.7% people agree that Smart Home can save time and Effort. That is exactly what smart home can do, they can do all the work people have to do by the voice or just a click on smart device



Beside the survey, an answer of Nguyen Van Bo also make me too sure Smart Home can save Time:

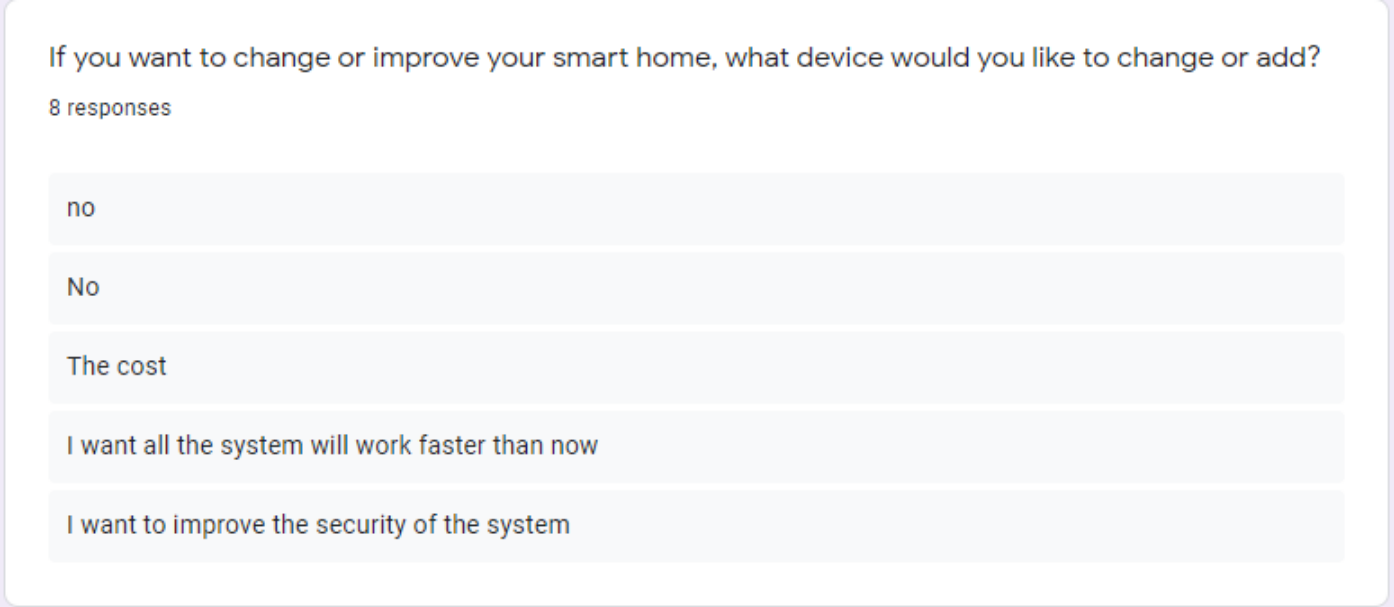
Nguyen Van Bo – Question 5	I'll use my phone to switch off the TV in the house if I fail to turn it off when out. But I'm still concerned about security, because with camera devices used to track indoor activities that are linked to the internet, hackers can steal important information and commit fraud. I'm really concerned about this.In conclusion, they all help me to save time and Effort

➢ The security of the system is not good enough

After the interview, I get a answer that the security is not hight. That is an answer of Nguyen Tat Luc, manage at showroom of Time City Smart Home. That can be happened when the 4th Age is coming when the hacker have a lot of tools to crack through the internet. So that is very bad to know that a lot of situation happened in real live.

5	I thinks the security of Smart Home is medium, for a long time, I receive some response of customer about security attack or risk. But don't worry, we are processing to improve about the security

I can see that there are one of user that recommend that the system have to improve the security in the future.



So to development in the future, all the Smart Home brand have to improve their security to attract customer

2. Recommendation

- BKAV – Smart Home is one of the first brand of Smart Home in Viet Nam. Since its launch at 2014, this brand has created a great reputation and attracted attention from the technology community and users. However, the cost is very expensive at that time
  - Cost: 30-70 Billion for a small apartment and up to 300 Billion for Luxury
- Characteristic:

- High Cost
- Provide a application with good interface and easy to use.
- High Security with camera
- Highly integrated, stable and expanding
- Unstable

- LUMI – Smart Home is the next brand. Launched in early 2012 and up to now, LUMI smart home belongs to the mid-end segment in the market.
  - Cost: 25-60 Billion for a small apartment and up to 300 Billion for Luxury
  - Characteristic

- A little bit cheaper than BKAV cost
- Medium Security without camera
- UNSTABLE

- ACIS – Smart Home: Acis smart home solution launched on the market quite early, in the period of 2012. The special thing about this system is 100% pure Vietnamese

products, technology researched and developed by Vietnamese engineers. Thanks to the advantage of technology, Acis quickly became a popular brand in the Southern market and trusted by consumers

- Cost: 20-30 Billion for a small apartment and up to 300 Billion for Luxury
- Characteristic:

- A little bit cheaper than LUMI cost
- High Security
- STABLE
- Provide a good application with friendly interface
- Not good at design

Conclusion: Base on three brand in Viet Nam, I recommend ACIS Smart Home for user in Ha Noi. At first, the cost of ACIS is the cheapest in three brand. That is because they use their technology, not base on Singapore technology like BKAV and LUMI

V. Research Proposal Form

Student Name: Nguyen Khac Quoc Nhat **Student Number**: GCH18579

Tutor: Do Quoc Binh **Date**: 30/1/2020

Unit 13: Computing Research Project

Propose title: Smart Home and that impact in nowaday

Section One: Title, objective, responsibilities

Research question:

How a Smart Home can help human in daily problem?

Objectives

I want to learn:

- What is Smart Home?
- What is IoT and this application?
- What is some daily problem of human in their house?
- What things does Smart Home can help people?
- What are the advantages and disadvantages of Smart Home?
- What is some example of Smart Home device(VN and the world)
- Does Smart House have more develop and become popular in future?
- The role of the Smart Home for users who are using it in Vietnam?
- Suggest recommended to user when they use Smart Home?

Section Two: Reasons for choosing this research project

Reasons for choosing the project

- At first, I have curious about Smart Home after study IoT Subject last Course.
- I want to get knowledge for my project to apply for a company.
- I thinks that Smart Home will be increase in future and that topic will become hot when they have low cost.
- At last, I want to have a Smart House in future so I want to research about that before use the true one.

(e.g. links to other subjects you are studying, personal interest, future plans, knowledge/skills you want to improve, why the topic is important):

Section Three: Literature sources searched

The initial sources which could help me to answer those questions:

1. What is IOT?

2. What is Smart Home?
3. What are some Advantages and Disadvantages
4. Case Study of Smart Home?
5. The future of Smart Home.

Ajayi, V. O., 2017. *Primary Sources of Data and Secondary Sources of Data.* s.l.:s.n.
Anon., 2016. *internet of things guide.* [Online]
Available at: https://www.i-scoop.eu/internet-of-things-guide/internet-of-things/
[Accessed 12 April 2016].
Anon., 2018. *smart houses role technology.* [Online]
Available at: https://www.littlegeckotech.com/smart-houses-role-technology
[Accessed 18 Jenuary 2018].
Anon., 2019. *advantages and disadvantages of a smart home.* [Online]
Available at: https://smarthomestarter.com/advantages-and-disadvantages-of-a-smart-home/
[Accessed 5 April 2019].
Choudhary, S., 2018. *iot for smart home case study.* [Online]
Available at: https://uxdesign.cc/iot-for-smart-home-case-study-1201dee3f71b
[Accessed 21 March 2018].
Dawson, C., 2005. *Projects in computing and information systems.* s.l.:s.n.
Dong, D. N. T., 2020. *how-has-vietnam-smart-home-changed-after-10-years.* [Online]
Available at: https://www.einpresswire.com/article/522251325/how-has-vietnam-smart-home-changed-after-10-years
[Accessed 22 July 2020].
Gravetter, F. a. F., 2018. *Research methods for the behavioral sciences.* s.l.:s.n.
Hassan H., E., 2016. *Comparing Qualitative and Quantitative Approaches.* s.l.:s.n.
Keyur K Patel1, Sunil M Patel2, 2016. [Online]
Available at:
https://ijesc.org/upload/8e9af2eca2e1119b895544fd60c3b857.Internet%20of%20Things-IOT%20Definition,%20Characteristics,%20Architecture,%20Enabling%20Technologies,%20Application%20&%20Future%20Challenges.pdf
Kothary, C., 1985. *ResearchMethodology: Methods andTechniques.* s.l.:s.n.
Kumar, R., 2019. *What are the applications of the IoT system?.* [Online]
Available at: https://www.quora.com/What-are-the-applications-of-the-IoT-system
[Accessed 30 March 2019].
McCrocklin, S., 2018. [Online]
Available at: https://www.geopoll.com/blog/primary-vs-secondary-research/ven-diagram/
Nayeem Showkat, H. P., 2017. *Non-Probability and Probability Sampling.* s.l.:e-PG Pathshala.
oracle, 2019. *oracle.* [Online]
Available at: https://www.oracle.com/internet-of-things/what-is-iot/
SHN Team, 2019. *the future of smart homes.* [Online]
Available at: https://www.smarthome.news/news/other-systems/the-future-of-smart-homes
[Accessed 20 December 2019].
Siu, E., 2019. *What is exactly IOT.* [Online]
Available at: https://www.quora.com/What-exactly-is-Internet-of-Things-IoT?_escaped_fragment_=n%3D12#:~:text=The%20Internet%20of%20Things%20is,is%20commonly%20abbreviated%20as%20IoT.&text=In%20a%20simple%20way%20to,by%20other%20%22things%22%20too.
[Accessed 27 december 2019].
Walliman, 2005. *Your research project.* s.l.:s.n.

Section Four: Activities and timescales

1. Collect materials relating to research's question and objectives
2. Complete research proposal

3. **Milestone 1[1-March]**: Get feedback from the Tutor about the research proposal
4. Produce project plan-WBS, Gantt Chart
5. Writing literature review and represent the findings in term of hypothesizes
6. Check project progress: research proposal, plan, literature review
7. Preparation for primary research(to confirm the findings in literature review or clarify the questions might arise after the literature review)
8. **Milestone 2[7-March]**: Get feedback from the Tutor about the plan of primary research.
9. **Milestone 3[22-March]** Get feedback from the Tutor about the result of literature review
10. Conducting the primary research
11. **Milestone 4[30-March]**: Represent the findings in primary research and get feedback from Tutor
12. Writing assignment 1 which contains LO1, LO2
13. **Milestone 5[7-Apirl]**: Submit assignment 1 -Draft
14. **Milestone 6[14-Apirl]:** Submit assignment 1- Final
15. Writing Assignment 2 which contain LO3, LO4
16. **Milestone 7[20-Apirl]:** Submit assignment 2 -Draft
17. **Milestone 8[]:** Presentation- put everything together.
18. **Milestone 9[27-Apirl]:** Submit assignment 2- Final

Activities to be carried out during the research project (e.g. research, development, analysis of ideas, writing, data collection, numerical analysis, tutor meetings, production of final outcome, evaluation, writing the report) and likely durations:

Milestone one:
Target Date(set by tutor)
Milestone two:
Target Date(set by tutor)

Section Five: Research approach and methodologies

- Research process: sequential
- Research classes: quantitative and qualitative
- Research methods: case study, survey, action research

ential

- Research classes: quantitative and qualitative
- Research methods: case study, survey, action research

Type of research approach and methodologies you are likely to use, and reasons for your choice:

What your areas of research will cover:

Comments and agreement from tutor

[This part not for student]

Comments (optional):

I confirm that the project is not work which has been or will be submitted for another qualification and is appropriate.

Agreed: ..... (Name) ..... (Date) .....

Comments and agreement from project proposal checker (if applicable)

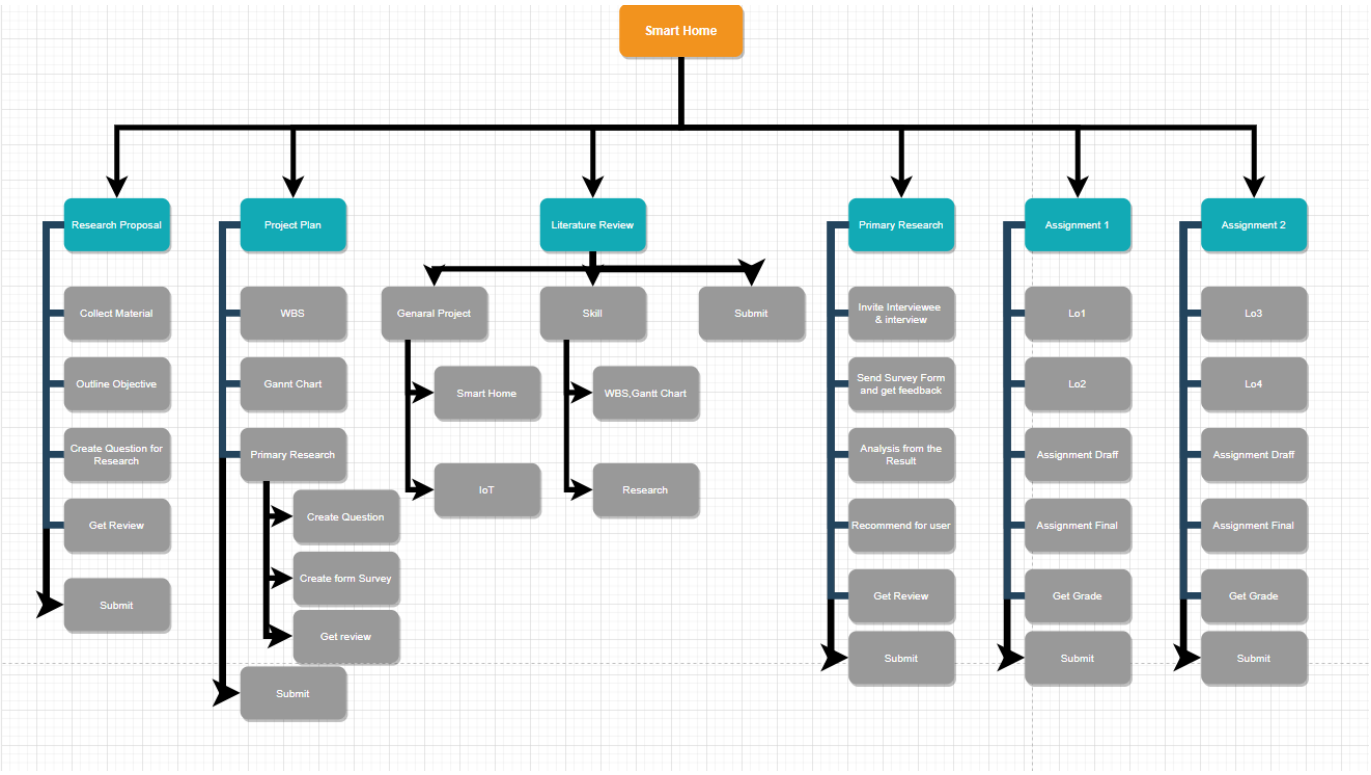
[This part not for student]

Comments (optional):

Agreed: ..... (Name) ..... (Date) .....

VI. Approved Project plan-appendix

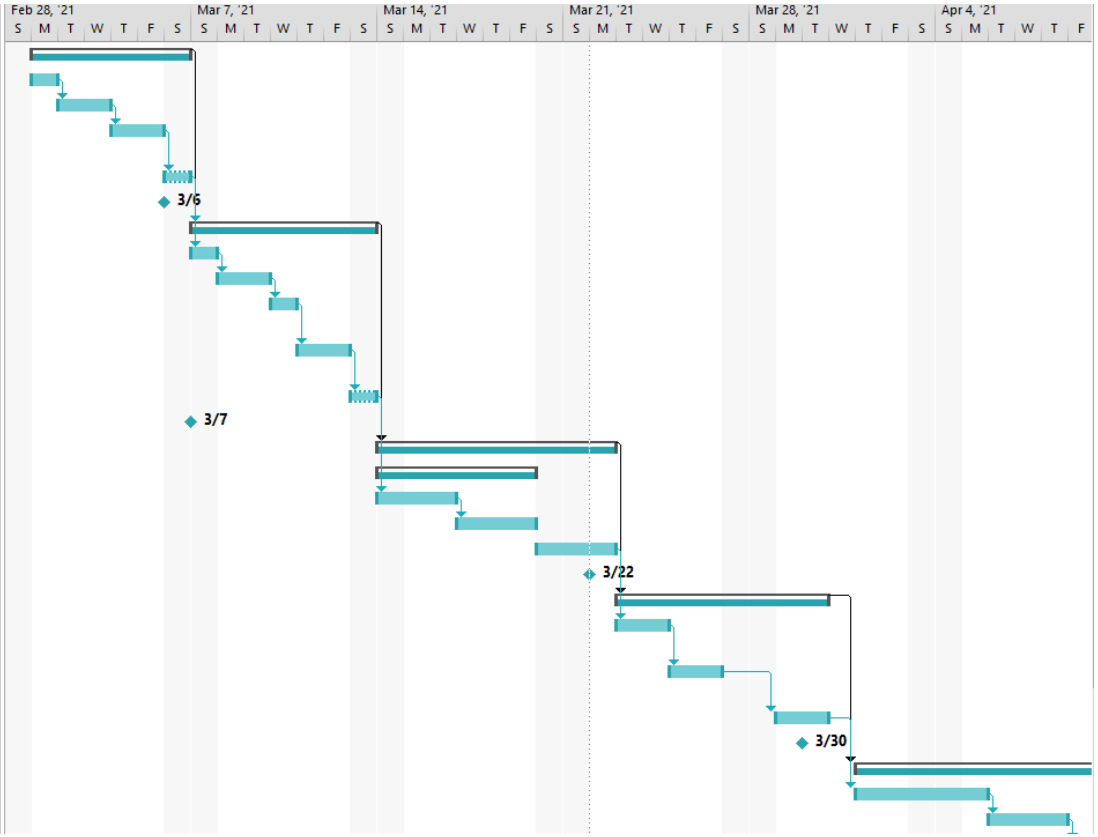
1. WBS



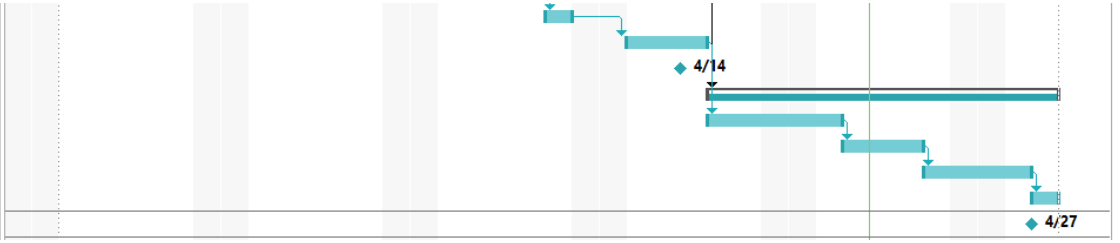
2. Gantt Chart

GANTT CHART

	Task Mode	Task Name	Duration	Start	Finish	Predecessors	Resource Names	Add New Column
1		**Research Proposal**	**6 days**	**Mon 3/1/21**	**Sat 3/6/21**			
2		Colect Material	1 day	Mon 3/1/21	Mon 3/1/21			
3		outLine Objective	2 days	Tue 3/2/21	Wed 3/3/21	2		
4		Create Question for Research	2 days	Thu 3/4/21	Fri 3/5/21	3		
5		Get Review	1 day	Sat 3/6/21	Sat 3/6/21	4		
6		Submit	0 days	Sat 3/6/21	Sat 3/6/21			
7		**Project Plan**	**7 days**	**Sun 3/7/21**	**Sat 3/13/21**	**5,1**		
8		WBS	1 day	Sun 3/7/21	Sun 3/7/21	5		
9		Gantt Chart	2 days	Mon 3/8/21	Tue 3/9/21	8		
10		Create Question for Interview	1 day	Wed 3/10/21	Wed 3/10/21	9		
11		Create Form Survey	2 days	Thu 3/11/21	Fri 3/12/21	10		
12		Get Review	1 day	Sat 3/13/21	Sat 3/13/21	11		
13		Submit	0 days	Sun 3/7/21	Sun 3/7/21			
14		**Literature Review**	**7 days**	**Sun 3/14/21**	**Mon 3/22/21**	**7**		
15		**Genaral Project**	**6 days**	**Sun 3/14/21**	**Fri 3/19/21**			
16		SmartHome	3 days	Sun 3/14/21	Tue 3/16/21	12		
17		IoT	3 days	Wed 3/17/21	Fri 3/19/21	16		
18		Skill	2 days	Sat 3/20/21	Mon 3/22/21			
19		Submit	0 days	Mon 3/22/21	Mon 3/22/21			
20		**Primary Research**	**6 days**	**Tue 3/23/21**	**Tue 3/30/21**	**14**		
21		Invite Interviewee and	2 days	Tue 3/23/21	Wed 3/24/21	18		
22		Send Survey Form and get response	2 days	Thu 3/25/21	Fri 3/26/21	21		
23		Analysis Result	2 days	Mon 3/29/21	Tue 3/30/21	22		
24		Submit	0 days	Tue 3/30/21	Tue 3/30/21			
25		**Assignment 1**	**10 days**	**Thu 4/1/21**	**Wed 4/14/21**	**20**		
26		Lo1	3 days	Thu 4/1/21	Mon 4/5/21	23		
27		Lo2	3 days	Tue 4/6/21	Thu 4/8/21	26		



28		Assignment 1 Draf	1 day	Fri 4/9/21	Fri 4/9/21	27
29		Assignment 1 Fina	3 days	Mon 4/12/21	Wed 4/14/21	28
30		Submit	0 days	Wed 4/14/21	Wed 4/14/21	
31		**Assignment 2**	**9 days**	**Thu 4/15/21**	**Tue 4/27/21**	**25**
32		Lo3	3 days	Thu 4/15/21	Mon 4/19/21	29
33		Lo4	3 days	Tue 4/20/21	Thu 4/22/21	32
34		Assignment 2 Draf	2 days	Fri 4/23/21	Mon 4/26/21	33
35		Assignment 2 Fina	1 day	Tue 4/27/21	Tue 4/27/21	34
36		Submit	0 days	Tue 4/27/21	Tue 4/27/21	



VII. Ethical Form

Section One: Basic details

Project title: Research about the popular of SmartHome in VietNam

Student name: Nguyen Khac Quoc Nhat

Student number: 0981307637

Programme: Computing Research Project

School: University of Greenwich

Intended research start date: 4/2/2021

Intended research end date: 5/2/2021

Section Two: Project summary

Please select all research methods that you plan to use as part of your project:

- Interviews [v]
- Questionnaires [v]
- Observations [v]
- Use of personal records [ ]
- Data analysis [ ]
- Action research [ ]
- Focus groups [ ]
- Other (please specify):

Section Three: Participants

Please answer the following questions, giving full details where necessary.

Will your research involve human participants? Yes

Who are the participants? Tick all that apply:

Children aged 12–16: ☐ Young people aged 17–18: ☐ Adults: ☐

How will participants be recruited (identified and approached)?

Describe the processes you will use to inform participants about what you are doing:

How will you obtain consent from participants? Will this be written? How will it be made clear to participants that they may withdraw consent to participate at any time?

Studies involving questionnaires:

Will participants be given the option of omitting questions they do not wish to answer?

Yes: ✓ No: ☐

If No please explain why below and ensure that you cover any ethical issues arising from this:

Studies involving observation:

Confirm whether participants will be asked for their informed consent to be observed.

Yes: ✓ No: ☐

Will you debrief participants at the end of their participation (i.e. give them a brief explanation of the study)?

Yes: ✓ No: ☐

Will participants be given information about the findings of your study? (This could be a brief summary of your findings in general.)

Yes: ✓ No: ☐

Section Four: Data storage and security

Confirm that all personal data will be stored and processed in compliance with the Data Protection Act (1998):

Yes: ✓ No: ☐

Who will have access to the data and personal information?

During the research:

Where will the data be stored?

Will mobile devices (such as USB storage and laptops) be used?

Yes: ✓ No: ☐

If yes, please provide further details:

After the research:

Where will the data be stored?

How long will the data and records be kept for and in what format?

Will data be kept for use by other researchers?

Yes: ✓ No: ☐

If yes, please provide further details:

Section Five: Ethical issues

Are there any particular features of your proposed work which may raise ethical concerns? If so, please outline how you will deal with these:

It is important that you demonstrate your awareness of potential risks that may arise as a result of your research. Please consider/address all issues that may apply. Ethical concerns may include, but are not limited to the following:

- Informed consent.
- Potentially vulnerable participants.
- Sensitive topics.
- Risks to participants and/or researchers.
- Confidentiality/anonymity.
- Disclosures/limits to confidentiality.
- Data storage and security, both during and after the research (including transfer, sharing, encryption, protection).
- Reporting.
- Dissemination and use of your findings.

References

Ajayi, V. O., 2017. *Primary Sources of Data and Secondary Sources of Data.* s.l.:s.n.

Anon., 2016. *internet of things guide.* [Online]
Available at: https://www.i-scoop.eu/internet-of-things-guide/internet-of-things/
[Accessed 12 April 2016].

Anon., 2018. *smart houses role technology.* [Online]
Available at: https://www.littlegeckotech.com/smart-houses-role-technology
[Accessed 18 Jenuary 2018].

Anon., 2019. *advantages and disadvantages of a smart home.* [Online]
Available at: https://smarthomestarter.com/advantages-and-disadvantages-of-a-smart-home/
[Accessed 5 April 2019].

Choudhary, S., 2018. *iot for smart home case study.* [Online]
Available at: https://uxdesign.cc/iot-for-smart-home-case-study-1201dee3f71b
[Accessed 21 March 2018].

Dawson, C., 2005. *Projects in computing and information systems.* s.l.:s.n.

Dong, D. N. T., 2020. *how-has-vietnam-smart-home-changed-after-10-years.* [Online]
Available at: https://www.einpresswire.com/article/522251325/how-has-vietnam-smart-home-changed-after-10-years
[Accessed 22 July 2020].

Gravetter, F. a. F., 2018. *Research methods for the behavioral sciences.* s.l.:s.n.

Hassan H., E., 2016. *Comparing Qualitative and Quantitative Approaches.* s.l.:s.n.

Keyur K Patel1, Sunil M Patel2, 2016. [Online]
Available at: https://ijesc.org/upload/8e9af2eca2e1119b895544fd60c3b857.Internet%20of%20Things-IOT%20Definition,%20Characteristics,%20Architecture,%20Enabling%20Technologies,%20Application%20&%20Future%20Challenges.pdf

Kothary, C., 1985. *ResearchMethodology: Methods andTechniques.* s.l.:s.n.

Kumar, R., 2019. *What are the applications of the IoT system?.* [Online]
Available at: https://www.quora.com/What-are-the-applications-of-the-IoT-system
[Accessed 30 March 2019].

McCrocklin, S., 2018. [Online]
Available at: https://www.geopoll.com/blog/primary-vs-secondary-research/ven-diagram/

Nayeem Showkat, H. P., 2017. *Non-Probability and Probability Sampling.* s.l.:e-PG Pathshala.

oracle, 2019. *oracle.* [Online]
Available at: https://www.oracle.com/internet-of-things/what-is-iot/

SHN Team, 2019. *the future of smart homes.* [Online]
Available at: https://www.smarthome.news/news/other-systems/the-future-of-smart-homes
[Accessed 20 December 2019].

Siu, E., 2019. *What is exactly IOT.* [Online]
Available at: https://www.quora.com/What-exactly-is-Internet-of-Things-IoT?_escaped_fragment_=n%3D12#:~:text=The%20Internet%20of%20Things%20is,is%20commonly%20abbreviated%20as%20IoT.&text=In%20a%20simple%20way%20to,by%20other%20%22things%22%20too.
[Accessed 27 december 2019].

Walliman, 2005. *Your research project.* s.l.:s.n.