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Course: COMP2213

Interaction Design

Group 5

Hand-In #1: Literature Review and Interview Protocol

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1.0 Introduction

We opted for the Smart Home Automation System over the STEM Learning System primarily because the development of smart home technology aligns with current technological trends, offering a broader user base. While STEM education is essential, the immediate relevance might not be as universally applicable as smart home technology. We also took into account the recognition that there exists areas for enhancement in the domains of elder care, child care and pet care, particularly for individuals who are only children or those living on their own. It can be quite inconvenient for these individuals to provide adequate care for their dependents. Therefore, we contemplated the introduction of comprehensive care systems designed to look after the elderly, children or pets when their primary caregivers are away at work. To address their safety and well-being, we envisioned the incorporation of robust security features within these systems. In addition to security measures, we considered integrating various functions into smart home systems that would assist these individuals and their dependents in their daily routines. These functions could encompass reminders for medication schedules and automated feeding systems for pets, creating a more supportive and secure environment for both caregivers and dependents. These factors made it a compelling choice for our research focus.

With the improvement of technology over the recent decade, basic interactive tools are becoming “smart” which is the involvement of the Internet of Things (IoT) in various aspects of life. Internet of Things is the involvement of multiple objects, such as sensors, controllers and smartphones, connected through a network [1].

The aforementioned technological growth created a market for smart devices embedded into homes to increase the quality of life, such as smart televisions, smart lights, and more. With the increase in demand for better smart homes, the researched project will study various implementations of smart devices in homes, and improvements to current systems to create a prototype of a smart home application.

The focus of the smart home in development is usability and care for the elderly, youth, and pets, as there is an area for improvement in previous developments. This

literature review will include information on the general features of a smart system, existing research on usability and care for elderly, youth, and pets, along with possible system improvements.

Keywords: Internet of Things (IoT), Smart Devices, Smart Home, Usability, Elderly, Infants, Pets

2.0 Literature Review

2.1 Features Of System

Ideal System Design

The plan of a smart home is discussed to include 3 separate attributes; sensors, actuators, and controllers. Sensors are microdevices used to detect different environmental features of an area; temperature, humidity, contact, and others. The usage of sensors is to improve the living environment through various methods, one of which is “Temperature Modulation” which will be discussed in a later section. A discussed application is monitoring and maintaining indoor plants. An actuator is the device which acts on the various household devices, whether through automation or manual control, and performs its respective task. Automation is performed through the coordination of sensors, a microprocessor, then the actuator itself. The controllers are devices which can be used to control the various sensors and actuators in an environment [2]. For an example illustration, find appendix 1 which depicts a diagram of essentials in a smart home. It is essential that the developed prototype for the smart home system utilizes effective sensors, actuators and controllers to create a connected and operative smart home to offer maximum usability and satisfaction to the users.

Connectivity

The various devices can be connected through multiple different means; wiring, bluetooth, Wi-Fi to allow for communication between the devices. Through a study conducted, the ideal connectivity methods would be through the usage of bluetooth and Wi-Fi.

A central computer would be essential, which controls the various devices in a home. The study discusses that the local vicinity be connected through bluetooth, allowing for data connection, processing and transmission between devices and central computer. It is also mentioned that the central computer can utilize various algorithms to analyze environmental anomalies to make self decisions, such as algorithms and systems discussed in section 2.3 Possible System Improvements. Users will be able to access the bluetooth local system through Wi-Fi, allowing control from outside the

home. This will also allow users to receive warnings and updates, which will be further discussed in section 2.2 Usability and Caretaking for child, elderly, and pet care [3].

The system being produced is being targeted to different types of households, including larger ones, hence an entire home covered by bluetooth will not be possible. According to a research on the performance of Bluetooth 5, 300m will be the maximum possible range with no interferences [4], hence may not be suitable for all houses. A proposed solution would be groups of smaller bluetooth meshes linked together to the central computer through Wi-Fi. This would allow for a stronger signal between the locale devices (1 or 2 rooms), whilst also allowing efficient connectivity with the central system and external controllers.

Security Measures

It is essential for any system to have security measures to prevent unwanted traffic. This is a major necessity for a smart home system as it contains data about personal privacy of one or more individuals.

A security measure that has been discussed is the Efficient and Private Traffic Blockage (EPIC) framework is a system created to protect against traffic analysis attacks [2]. This framework provides a method to filter incoming traffic into smart homes to prevent cyber-attacks, through the analysis of resident's information and patterns. The framework includes a (1) utility aware differentially private proxy gateway section, (2) secure multi-hop routing, and (3) performance evaluation, which protects any unwanted traffic from entering the smart home. This method is also built such that it reduces network energy consumption and utility cost. This will allow the user to still connect wirelessly with known devices and control the system, however foreign devices attempting to connect will be denied, unless authorized.

The EPIC system will be implemented into our smart home system where only registered and authorized users will be able to access and control the system. New accounts may only be added by the parent user to increase security measures and prevent any possible breaches.

2.2 Usability and Caretaking

The main focus of the smart home application in development is the usability and caretaking for elderly, infants, and pets. The smart home application aims to provide a method to monitor, automate tasks, and provide warnings to the caregiver or adult incharge. Various research suggests features that can be included for all parties, with additional focused features catered to the aforementioned target audience.

General Features

The below sections will discuss the various possible features for elderly, children, and pets, however some basic features will be shared between them. Motion sensors and facial recognition will be used between all audiences to allow the application to work for the intended person, and/or animal. The usage of automation for feeding, heating, and temperature control will also be standardized, allowing for similar features to benefit all audiences.

The system will also allow for the monitoring of movements between the different rooms, and even leaving the house, taking necessary actions through warning the required person(s). On the contrary, the system may also protect those in the house by issuing warnings if intruders are approaching, or have entered the home to protect those inside.

Features for Children

A comprehensive smart home system should consider child safety as an important concern as smart homes are equipped with various devices which can present physical and digital safety risks for children. According to KaiwenSun [5], children may come into contact with said devices and unintentionally get injured. A suggested solution is built-in warning features that are designed to remind children to avoid harmful objects. While parental supervision and controls are essential, unforeseen accidents can still occur, highlighting the importance of warning mechanisms in smart home systems. Moreover, a child-proof lock is provided as it restricts the children from accessing certain areas that may contain dangerous objects such as sharp items.

Facial recognition can be implemented to control access of children to devices or rooms as highlighted in another study [6]. The application will be able to recognize the children's face and act according to set restrictions. Furthermore, timely notifications and alerts should be sent by the smart home system to the parent when certain events occur such as doors being opened, temperature changes or home emergencies. Additionally, the smart home system can help parents keep track of their child's whereabouts within the home with wearable locator devices, providing an additional layer of safety and peace of mind for parents.

Features for Elderly

A smart home system can be developed to cater for the needs of an elderly when unsupervised. Linos N. discusses that the smart home system can have multiple features, including 'notification and alert services' and 'device actuation and services execution' to take care and improve the quality of life of the elderly. The mentioned notification and alert services include discussions about medication reminders, intruder systems, and monitoring the elderly through AI methods. The highlight of the research is the monitoring of elderly, where the system can detect sharp changes in body temperature, prolonged sleep in an unusual sleeping space, or toileting activities. The AI will make decisions to warn caretakers, or the elderly directly, should there be any detected issues [3].

Smart devices may also be linked to devices which will aid the elderly by reducing manual labor through automation. Room temperature, cooking devices, and water heating can be automated such that it is controlled by the AI incharge of the house. This utilizes learning technologies where the AI will also have predictive actions based on prior collected data [3].

Features for Pets

Smart home automation systems could include advanced pet-oriented features operating autonomously, independent of owner presence. These features include an automatic pet feeder to assist with pet nutrition by automatically dispensing a fixed amount of food and water to the respective bowls. The scheduled food dispensation

comes to a stop when the feeder's ultrasonic sensor, integrated within the unit, detects that the bowl has reached its maximum food storage capacity. Jayaram Kumar Kondapalli and his team aimed to provide proper diet management for pets and minimize the wastage of food and water as possible [7].

Another possible feature is the implementation of smart litter boxes. Yixing, C. and Maher, E. observed that numerous smart litter boxes on the market do not possess the capability to track pets' defecation habits, thereby overlooking an opportunity to monitor their health status. Motion sensors incorporated in the designed prototype captured instances where pets enter and exit the litter box, recording information to calculate pet health. Through Wi-Fi connection, pet owners could access information about the timing of their pets' most recent defecation and the total number of defecations over a specific timeframe [8].

Both features discussed will offer a better quality of care for pets by owners. This will also allow for caretaking from outside of the local vicinity, especially when owners go on extended personal or business trips.

2.3 Possible System Improvements

The study of some possible additional features that would enhance the performance of the smart home is discussed below. Although not necessary, the implementation of precise temperature modulation and improved energy sustainability would improve the performance of the smart home application in development. The details of which are discussed below.

Temperature Modulation Methods

A neural network (RNN)-based model is suggested to be used for smart control of heating ventilation and air conditioning by utilizing cloud computing and IOT [2]. The model utilizes several microprocessors, sensors and actuators to maintain the set temperature of a room based on live data from sensors and stored data. The system heats up or cools down the room accordingly to match the set temperature. There were 3 tests conducted with different intelligent controllers, to which test 3 yielded the best

results of a control decision delay of 7 ms and accuracy of 92.5%. Utilizing the neural network of (RNN)-based model will offer the best results whilst also ensuring decent energy usage, being 4.4% lower than other 2 test cases.

The implementation of such algorithms in the smart home will allow for accurate temperature modulation for the best user experiences. The drawback of implementing such a model would be the extensive electricity usage, which can be combat through improved energy sustainability.

Energy Sustainability

The smart home could implement solar panels to improve the energy usage and save on electricity by using sustainable energy. The usage of solar panels to create energy-efficient smart home systems was utilized in Japan in 2003. This allowed for a decrease of $\frac{1}{3}$ energy consumption in comparison to a normal home. Samad et. al. [2], 2020 states that the decrease of energy consumption also leads to a 30% reduction in the amount of heat energy and greenhouse gas emission.

This would be applicable to the country of Malaysia, which is the target country for the application. According to 'WorldBank' [9], a website for live geographical information, it states that Malaysia receives 6 hours of direct sunlight a day, whilst also having indirect sunlight due to cloud coverage. As Malaysia is also a country on the equator, this will apply for 365 days a year meaning the implementation of solar panels would be very efficient due to the ample daily sunlight. This would allow for the users to save electricity whilst still using the various features offered by the smart home.

2.4 Summaries and Conclusion

The literature review displayed many factors to consider during the development of a smart home application, along with some possible features that could enhance the application and guide it towards its target audience (caretaking & supervision).

There are many important factors to consider when developing a smart home which have been reviewed through literature, however, the product will be targeted to the public hence opinions are required.

The areas to be covered through additional research will include care for pets, youth, and elderly, along with temperature & security related questions. This will allow for a better understanding of the public's opinions and requirements from the system. Further research will be conducted through a short answer survey consisting of yes or no questions, and rating questions, along with several interviews conducted which will be transcribed and analyzed for patterns.

3.0 Interview Protocol

3.1 Consent Form

Project/ Theme:

Date:

Time:

Location:

Interviewer:

Interviewee:

Consent:

Thank you for your participation. We believe that your input will be valuable to our research and would help in our development of the prototype.

Confidentiality of the responses is guaranteed.

To facilitate our note-taking, we would like to audio tape our conversations today. Please sign the consent form before the start of the interview. For your information, only researchers and lecturers on the project will be given access to the tapes which will eventually be destroyed after they are transcribed. In addition, you must sign a form devised to meet our subject requirements. Essentially, this document states that: (1) all information will be held confidential, (2) your participation is voluntary and you may stop at any time if you feel uncomfortable, and (3) we do not intend to inflict any harm.

We have planned this interview to last no longer than 15 minutes. During this time, we have several questions that we would like to cover. If time begins to run short, it may be necessary to interrupt you in order to push ahead and complete this line of questioning.

Signature of participant:

3.2 Interview Introduction

We are a group of students from University of Southampton Malaysia and we are facilitating this focus group interview to research more about the smart home systems from the user's perspective. The goal of this interview is to gain some valuable insights from the potential users of this system to enhance the usability and user experience of the aged care system. You have been selected as one of the interviewees as you have been identified as a potential user that might provide unique opinions on the smart home area. Our research project as a whole focuses on the interaction design of smart home technology, with particular interest in the area of automated pet care and aged care systems. Prior to the interview you will be briefly introduced to the topic of the interview and you will be required to sign two consent forms (one to sign and return and one to keep). The interview will take approximately 15 minutes and it is semi-structured.

Purpose of research (research questions):

Do you understand what a smart home system is?

If the answer is no: a smart home is a home embedded with different electronic devices to allow you to control the lights, air conditioner, fan, and so on, by using voice command, or through a phone application to make it easier for you. The following questions will be about this, do you understand or would you like further explanation?

If the answer is no again: stop the interview and show a simple video. This is the video (1 minute)

https://www.youtube.com/watch?v=IC0mkHh7MaA&ab_channel=EyeonTech

3.3 Subjective Questions

Aged care related questions:

- 1) Can smart home technology significantly improve the quality of care system?
 - For youth: Would you use it for your grandparents and why?
 - For adults: Would you use it for your parents and why?
- 2) Is customization a key feature in smart home systems for personalized aged care?
 - What would you like to customize and why?
- 3) What do you think should be a priority when designing a smart home system for old people? Why?
- 4) Could you name a few challenges that could be addressed by smart home technology in aged care? Do you have any suggestions to overcome it?
- 5) What are the features that you would find useful or would be interested in for an aged care system? Why?
- 6) What is the most effective notification system that you could think of for elderly users? Why?

Pet related questions:

- 1) Imagine a futuristic pet care system for smart homes. What sci-fi feature or capability would you love to see integrated into this system for your pets?
- 2) If automated pet care systems were designed to be sustainable and eco-friendly, what features do you think it could incorporate to maximize energy efficiency or reduce their environmental impact?

- 3) Do you believe that the use of automated systems would throw off the balance of you and the system providing personal attention and care to your pets? (Are there ways to improve this balance?)
- 4) Are there any concerns you have regarding the safety and well-being of your pets when relying on automated systems in a smart home?
- 5) Can you suggest any specific enhancements or new features that would make automated pet care systems more valuable to you as a pet owner?

Temperature and security related questions:

- 1) What type of biometric authentication do you prefer (Fingerprint, face recognition, password, access card, key)? Why?
- 2) Are you comfortable sharing your personal data with the smart home system? If yes, then will you allow it to record your daily activities? If not, then why?
- 3) Do you prefer your smart home system to have a children-friendly mode? Why? (PS: children may lead strangers to their home without parents' permission)
- 4) What do you think a smart home system security feature should include? Why?
- 5) How much control do you want your smart home system to have?
- 6) In your experience, what are some effective design patterns that could enhance the security of smart home systems? (answer some specific questions, setting primary user,...)

Thank you for your time and valuable input. Is there anything you would like to add that we haven't mentioned?

4.0 Short Survey Questions

Aged care related questions:

- 1) On a scale from 1 to 10, how effective is predictive analytics in early health issue detection?
- 2) On a scale from 1 to 10, how useful are fall detection systems in smart homes for aged care?
- 3) On a scale from 1 to 10, how likely is it that smart home technology will become a standard in the near future?
- 4) On a scale from 1 to 10, how well do you think current aged care system interfaces accommodate the needs of the users?
- 5) On a scale from 1 to 10, how important is the consideration of font size, contrast and readability in the design process for elderly users?
- 6) Does smart home technology reduce the needs for senior citizens to move to care facilities?
- 7) Do you think that the aged care system in smart houses could manage the safety of senior citizens?
- 8) Do remote monitoring devices play a role in enhancing the safety of senior citizens?
- 9) Is voice-activated technology, like smart speakers (Alexa, Google Assistant), capable of aiding senior citizens with daily tasks and communications?
- 10) Does your house apply any smart home technology and does your elders have any exposure to these types of technology?

Pet-related Questions:

- 1) Do you currently own any pets at home or have any previous pet caregiving background? (Yes/No)
- 2) Do you feel tired at taking care of your pets without the help of current technology? (Yes/No)
- 3) On a scale of 1 to 10, is it a good idea to integrate automated pet care systems into a smart home environment?

- 4) Automated pet care system is capable of checking whether your pet is staying at home, and if not, it would notify you immediately. Do you consider this as a good feature? (Yes/No)
- 5) If automated pet care systems had the ability to analyze your pet's emotions and allow you to have a better understanding of what your pet is trying to express, without considering the cost, would you integrate this system into your smart home? (Yes/No)

Temperature and security related questions:

- 1) On a scale from 1 to 10, how effective is the air conditioner scheduled by the smart home system to switch on and off?
- 2) On a scale from 1 to 10, do you think that smart home systems should automatically switch on the air conditioner when it detects people?
- 3) On a scale from 1 to 10, do you think that smart home systems should automatically control air conditioning based on the weather data every day?
- 4) On a scale from 1 to 10, how well do smart home system security interfaces accommodate the needs of the users?
- 5) On a scale from 1 to 10, how important is the consideration of security settings in the design process?
- 6) Do you prefer a smart home system to manage your air conditioner's usage to avoid energy overconsumption? (Yes/No)
- 7) Do you like the function of smart home system to help you to detect the strangers/suspicious activity surrounding your home? (Yes/No)
- 8) Do you prefer to receive notifications constantly from your smart home system? (Yes/No)

5.0 References

- [1] Manuel Silverio, Suresh Renukappa and Subashini Suresh. 2018. What is a smart device? - a conceptualisation within the paradigm of the internet of things. *Visualization in Engineering* 6, 1 (May. 2018), 1. DOI: <https://doi.org/10.1186/s40327-018-0063-8>
- [2] Samad Sepasgozar, Reyhaneh Karimi, Leila Farahzadi, Farimah Moezzi, Sara Shirowzhan, Sane M. Ebrahimzadeh, Felix Hui and Lu Aye. 2020. A Systematic Content Review of Artificial Intelligence and the Internet of Things Applications in Smart Home. *Appl. Sci.* 10, 9 (April. 2020), 1. DOI: <https://doi.org/10.3390/app10093074>
- [3] Linos Nchena. 2022. Smart House Assistive Technologies for Senior Citizens. In *2022 12th International Conference on Advanced Computer Information Technologies (ACIT)*, September 26-28, 2022, Ruzomberok, Slovakia, 448-453. DOI: <https://doi.org/10.1109/ACIT54803.2022.9913158>
- [4] Andrea Aza, David Melendi, Roberto García, Xabiel G. Pañeda, Laura Pozueco and Víctor Corcoba. 2021. Bluetooth 5 performance analysis for inter-vehicular communications. *Wireless Networks* 28 (November. 2021), 137-159. DOI: <https://doi.org/10.1007/s11276-021-02830-9>
- [5] Kaiwen Sun, Yixin Zou, Jenny Radesky, Christopher Brooks and Florian Schaub. 2021. Child Safety in the Smart Home: Parents' Perceptions, Needs, and Mitigation Strategies. *Proceedings of the ACM on Human-Computer Interaction* 5, CSCW2, Article 471 (October. 2021), 1-41. DOI: <https://doi.org/10.1145/3479858>
- [6] Timo Ahonen, Abdenour Hadid and Matti Pietikäinen. 2006. Face Description with Local Binary Patterns: Application to Face Recognition. *IEEE Transactions on Pattern Analysis and Machine Intelligence* 28, 12 (December. 2006), 2037-2041. DOI: <https://doi.org/10.1109/TPAMI.2006.244>

[7] Jayaram Kumar Kondapalli, Venkata Ramana Sanepu, Balakrishna Satyam Kothapalli, Shankar Patabhi Ram Peketi and Venkata Dattu Naveen Kukatla. 2019. Automatic Pet Feeder Using Internet of Things. *International Journal of Emerging Technologies and Innovative Research* 6, 4 (April. 2019), 360-367. Retrieved from: <https://www.jetir.org/view?paper=JETIR1904I61>

[8] Yixing Chen and Maher Elshakankiri. 2020. Implementation of an IoT based Pet Care System. In *2020 Fifth International Conference on Fog and Mobile Edge Computing (FMEC)*, April 20-23, 2020, Paris, France, 256-262. DOI: <https://doi.org/10.1109/FMEC49853.2020.9144910>

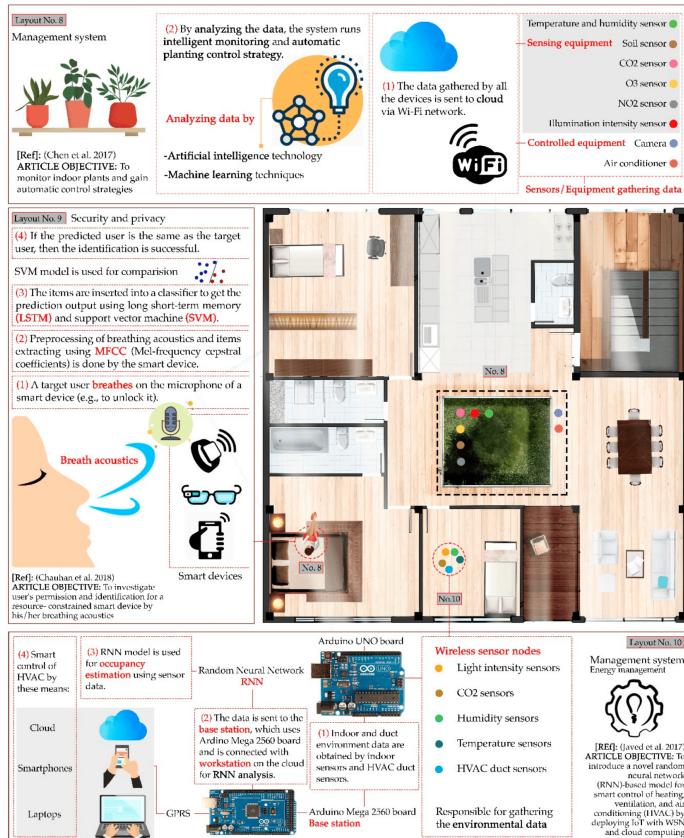
[9] World Bank Group. 2021. Current Climate. Retrieved from <https://climateknowledgeportal.worldbank.org/country/malaysia/climate-data-historical>

ICL. Imperial College London: Interview Protocol Design. Retrieved from: <https://www.imperial.ac.uk/education-research/evaluation/tools-and-resources-for-evaluation/interviews/interview-protocol-design/>

6.0 Appendices

Appendix 1:

The below appendix depicts a basic smart home design, using basic sensors, actuators, and controllers.



Appendix 2:

The below appendix shows the participant information.

Participant Information

Ethics reference number: 24744.A4	Version: 1.0	Date: 23 Oct 2023
Study Title: Student interviews for COMP2213		

Investigator: ***STUDENTS TO INSERT THEIR NAME(S) HERE***

Please read this information carefully before deciding to take part in this research. If you are happy to participate you will be asked to provide your verbal consent to take part. Your participation is completely voluntary.

What is the research about? This research project is part of the COMP2213 group project. The research will be on related to: Smart House System

Why have I been chosen? You have been approached because you are known to the student(s) or because you have been identified by the students as being appropriate for an interview on one of the topics listed above.

What will happen to me if I take part? You will take part in a short interview (~15-20 minutes). The interview will involve non-personal questions about your opinions one of the topics listed above. Interviews may be audio-recorded.

Are there any benefits in my taking part? The study will add to the current knowledge on each topic, as well as being a valuable practical learning tool for the student(s) who are learning qualitative research techniques.

Are there any risks involved? None beyond everyday life.

Will my data be confidential? Please do not give any identifiable information during your interview. Your interviewer (student) will ask for your verbal consent to participate in the research. Because no identifiable information will be gathered in the interview, the students will retain anonymous interview transcripts and notes until the end of the semester.

What happens if I change my mind? You may withdraw at any time and for any reason. You may decline to give your verbal consent and not take part in the interview without penalty.

What happens if something goes wrong? If you have any concern or complaint, contact the COMP2213 teaching staff (m.n.zamri@soton.ac.uk / z.bhatti@soton.ac.uk), otherwise please contact Research Governance Office (02380 595686, Rgoinfo@soton.ac.uk).

Appendix 3:

The below appendix shows the consent form.

Consent Form

Ethics reference number: 24744.A4	Version: 1.0	Date: 23 Oct 2022
Study Title: Student interviews for COMP2213		
Investigator:*** STUDENTS TO INSERT THEIR NAME(S) HERE ***		

Please read the following and indicate to the researcher verbally (i.e. yes/no) if you agree with the following statements:

Data Protection

I understand that information collected during my participation in this study is completely anonymous / will be stored on a password protected computer/secure University server and that this information will only be used in accordance with the Data Protection Act (1998). The DPA (1998) requires data to be processed fairly and lawfully in accordance with the rights of participants and protected by appropriate security.

:

I have read and understood the Participant Information (dated 23 Oct 2022) and have had the opportunity to ask questions about the study.

I agree to take part in this study.

I understand my participation is voluntary and I may withdraw at any time and for any reason.

If the participant has verbally agreed to the above, and consented to take part in the research, the study may commence.

7.0 Rubric

Group Hand-In 1 (10% of module total)			
	1 – 2 marks	3 – 4 marks	5 – 6 marks
Literature review (6 marks)	Identifies challenge area. Some appropriate literature described.	Identifies challenge area. A sound discussion of several pieces of related literature, and some discussion of gaps.	Identifies challenge area. A good discussion of several pieces of related literature. A good articulation of current gaps.
Interview Protocol (6 marks)	A suitable format, with questions that relate to the topic area.	A good format, which references ethics, identifies target participants, with questions that explore identified research gaps.	A good format, which justifies target participants, with insightful questions that are clearly linked to identified research gaps.
	1 mark	2 marks	3 marks
Clarity, Referencing and Presentation (3 marks)	Meets most of the presentation and referencing guidelines.	Meets all of the presentation and referencing guidelines.	Meets all of the presentation and referencing guidelines. Very well presented and easy to follow.
15 marks total			