School of Computer Science
Research Ethics Checklist

- This checklist must be completed for every research project that involves human participants, use of personal data and/or biological material, b*efore* potential participants are approached to take part in any research.
- Any significant change in the design or implementation of the research should be notified to cs-ethicsadmin@cs.nott.ac.uk and may require a new application for ethics approval.
- It is the applicant's responsibility to follow the University of Nottingham Code of Research Conduct and Research Ethics and any relevant academic or professional guidelines in the conduct of the study. **This includes providing appropriate information sheets, consent forms and recruitment materials, and ensuring confidentiality in the storage and use of personal data.**
- Completion of this form confirms that you have read and understood the guidelines at www.cs.nott.ac.uk/ethics regarding:
  - what is defined as *personal data;*
  - what is required for *valid consent;*
  - the key requirements of the Data Protection Act (2018), which includes GDPR
- The supervisor/principal investigator is responsible for exercising appropriate professional judgement when completing Section VI of this form.

- **Sections I to V should be completed by the student or researcher undertaking the study. Section VI should be completed by the supervisor/principal investigator.**
- The **supervisor/principal investigator** is responsible for emailing the completed form to cs-ethicsadmin@cs.nott.ac.uk, and for providing feedback to the student/researcher.

SECTION I: Applicant Details	
1. Applicant's name	Michelle Ruas
2. UoN Email address	psymr1@nottingham.ac.uk
3. Status	**UG Student**
4. Student ID	4249738
5. Supervisor/PI's name	Max Wilson
6. Supervisor/PI's email address	Max.Wilson@nottingham.ac.uk

SECTION II: Project Details	
1. Project title	**Investigation of how AI assistant Alexa can aid learning maths**
2. Proposed start date and latest end date of study	1/01/2019- 16-05-2019
3. Date and version of this submission	11/12/2018, Version 2
4. Type of submission?	**Second submission**
5. Application ID (if known[1])	

6. Description of Project, including aims/objectives and procedures.

The purpose of this study is for an undergraduate dissertation with the aim of understanding how people use personal assistant skills. My research will allow future developers to develop skills that are better tailored to help children learn and deal with the human computer interaction in a better way. The target number of participants is 30-60.

Study Design
This project will consist of use of an intelligent personal assistant as a device to aid learning mathematics for children. It builds on previous studies that uses intelligent personal assistants to aid with everyday life but focuses on the idea of it being used in education with the use of the skills provided by the assistant creator.

The assistant will be an Amazon Alexa Dot which is a virtual assistant developed by Amazon. It is capable of voice interaction, music playback, making to-do lists, setting alarms, streaming podcasts and many more activities similar to these. Users can extend Alexa capabilities by using 'skills' in which I will be using for this study which are functionality additions developed by third-party vendors.

This study is unique as the technology is very new and there has not previously been an investigation into how children interact with the device in a learning setting. The location of the study will be in their school in a quiet space in groups of 2-4 children at a time.This project will involve collecting data from school pupils aged 8-12.

Participant Recruitment
Participants will be recruited by contacting primary schools by email or phone and then further obtaining contact details from the parents in order to gain consent from all parties for the study to take place. Participants will take part in the study in an area known to them and that is easily accessible for example a classroom at their school.

Parents will be recruited and consent will be given for their child to take part in the study and the school will give consent for the environment to be used and the children's time to be used.

Remuneration / reimbursement will not be provided to participants.

Data Collection
Data collection will consist of of a questionnaire and audio recording of their interaction with Alexa. The questionnaire will consist of a series of non-identifiable and non-personal questions involving if they have used an Alexa before, if they like maths and what they think of Alexa. This will be on a paper form which I will later digitalise.

[1] Normally each ethics application will be allocated an ID by the University *after* its initial submission

The device will then run a series of games which will be recorded by the Amazon Alexa as a transcript which I can later obtain. These are Maths games that have already been approved by Amazon and are aligned with the curriculum and are mathematically correct, so will not cause any obstruction to the child's learning. The school will also be given details of the mathematical activities that the child will complete to confirm that this is aligned with the curriculum.

The games consist of questions checking their abilities in doing calculations involving addition, subtraction, multiplication, money, fractions and other mathematical calculations of this nature. I will only be recording data that is necessary for this study to analyse how the interaction occurs so will consist of five minutes of aided games by and five to ten minutes where the participant can choose which activities they want to do. This will use the skills such as 1-2-3- Maths.

All data will be stored on Microsoft Office 365 account and a password-protected computer. All data will be destroyed after graduation and will not be used for any other purpose other than stated on the consent form. It will only be seen by myself and my team for marking purposes. No participant will be referred to by name.

7a. What is the source of funding for the project?	None
7b. Does the funder expect research data to be made available to others? *See SHERPA/JULIET* *http://www.sherpa.ac.uk/juliet/index.php*	**NA**
7c. Will data from the project potentially support an academic publication? *(Not just a dissertation or assessment.)*	**No**

8. Will personal data (including photos, video or audio) or biological materials be collected, recorded or used?

Yes

Audio recorded. Data will be recorded and allocated by me to 'Participant ID'. Any audio recordings will only be used if participants consent is given.

What data *(or materials) will be collected or used*	*Audio recording of the activities.*
What if any ***constraints*** *apply to use of this data (or materials)*	*Consents given by human subjects, their schools and parents.*
How *will this data (or materials) be:*	
collected or obtained	*Recorded on my iphone which is password protected by me and will not be stored on the icloud.*
processed before analysis	*It will be anonymised and allocated to a participant ID.*
stored and secured	*On a password protected personal computer and secure digital environment provided by the University of Nottingham.*
analysed	*Materials will be analysed quantitatively.*
reported in publications	*Undergraduate Dissertation*
archived	*Kept until graduation*
How *and* ***when*** *(if ever) will this data (or materials) be:*	
reused	*Never*
published or made available to others	*Undergraduate Dissertation*
deleted or destroyed	*Destroyed after graduation*
If human subjects are involved then at what point(s) can they ***withdraw*** *and what will happen in each case?* *Up until the student can still reasonably collect alternative data so as not to risk the success of the dissertation. All personal data on the participant will be destroyed in that case.*	
What will happen to this data if/when you ***leave*** *the University?*	

It will be deleted after graduation.

SECTION III: Research Ethics Checklist (Part 1)	
Please answer all questions:	**Yes/No**
1. Does the study involve participants who are unable to give informed consent (e.g., children, people with learning disabilities or dementia[2], prisoners, your own students)?	Yes
2. Will the study involve participants who are particularly vulnerable[3]?	No
3. Will it be necessary for participants to take part in the study without their knowledge and consent at the time (e.g., covert observation of people in non-public places)?	No
4. Will it be necessary for participants to be kept in ignorance, misled or deceived at any point in the study (e.g., if revealing the full aims of the project during the consent process would undermine the research)?	No
5. Will the study involve the discussion of sensitive topics (e.g., sexual activity, drug use)?	No
6. Will participants be asked to discuss anything or partake in any activity that they may find embarrassing or traumatic?	No
7. Is it likely that the study will cause offence to participants for reasons of ethnicity, religion, gender, sexual orientation or culture?	No
8. Are drugs, placebos or other substances (e.g., food substances, vitamins) to be administered to the study participants or will the study involve invasive, intrusive or potentially harmful procedures of any kind?	No
9. Will body fluids or biological material samples be obtained from participants? (e.g., blood, tissue etc)	No
10. Is pain or more than mild discomfort likely to result from the study?	No
11. Could the study induce psychological stress or anxiety or cause harm or negative consequences beyond the risks encountered in normal life?	No
12. Will the study involve prolonged or repetitive testing for each participant?	No
13. Will financial inducement (other than reasonable expenses and compensation for time) be offered to participants?	No
14. Will the study involve the recruitment of patients, staff, tissue sample, records or other data through the NHS or involve NHS sites and other property?[4]	No

[2] If participants are adults who lack the mental capacity to give informed consent then you must obtain approval from an "appropriate body" approved by the Secretary of State (instead of this committee).

[3] "who is or may be in need of community care services by reason of mental or other disability, age or illness; and who is or may be unable to take care of him or herself, or unable to protect him or herself against significant harm or exploitation" (Department of Health (2000): *No Secrets: guidance on protecting vulnerable adults in care)*

[4] If Yes then you must obtain NHS REC and R&D approvals from the relevant Trusts (instead of this committee).

15. Will the study involve the use of animals?[5]	No

[5] For work with animals always seek advice from the University's Animal Welfare and Ethical Review Body (AWERB). If the animal(s) are vertebrates or cephalopods then you must obtain approval from AWERB (instead of this committee).

SECTION III: Research Ethics Checklist (Part 2)	
Please answer all questions:	**Yes/No/NA**
1. For research conducted in public, non-governmental and private organisations and institutions (such as schools, charities, companies and offices), will approval be gained in advance from the appropriate authorities?	Yes
2. If the research uses human participants, personal data or the use of biological material, will explicit consent be gained?	Yes
3. Will participants be informed of their right to withdraw from the study at any time, without giving explanation?	Yes
4. If data is being collected, will this data be anonymised before publication or sharing?	Yes
5. Will participants be assured of the confidentiality of any data?	Yes
6. Will all data be stored in accordance with the Data Protection Act?	Yes
7. Will participants be informed about who will have access to the data?	Yes
8. If quotations from participants will be used, will participants be asked for consent?	Yes
9. If audio-visual media (voice recording, video, photographs etc) will be used, will participants be asked for consent?	Yes
10. If digital media (e.g. computer records, http traffic, location logs etc) will be used, will participants be asked for consent?	NA
11. If the research involves contact with children, will appropriate safeguards be in place (e.g. supervision, DBS checks if required)?	Yes
12. If research data itself is to be published, shared or reused (e.g. alongside a publication or in an archive) will participants be asked for consent?	Yes

- If you have answered ‘No’ to all questions in SECTION III Part 1 and ‘Yes’ to all relevant questions in SECTION III Part 2 the project is deemed to involve **minimal risk** - go to the signature page.

- If you have answered ‘Yes’ to any of the questions in Part 1 or ‘No’ to any of the questions in Part 2 the project is deemed to involve **more than minimal risk**. Please explain in SECTION IV why this is necessary and how you plan to deal with the ethical issues raised.

SECTION IV: If the project involves more than minimal risk, please explain why this is necessary and how you plan to deal with the ethical issues raised

This study involves the involvement of children and collection of their data.
I plan to deal with this issue by getting the written consent of the parent and the organisation responsible of them at the time (their school).

I am DBS checked and have documentation for this. If the school requires supervision, this will be allowed. If a school is unable to provide such supervision, a second DBS checked person will be asked to sit in. This is another student at the University of Nottingham who will be given all relevant documents beforehand to understand the study but will not be asked to do anything and no data will be collected from him. DBS documents attached show that they are in date as they are three years from the date issued. My DBS check was issued on 13th July 2018 and the second person, Andrew Zant-Valentine's, was issued on 9th October 2018.

Every effort will be made to not collect data from those who have not given consent. The study will take place in an isolated room where there will not be audio from people not in the study. If data is collected from anyone outside of the study, their part in the audio file will be permanently edited out.

Two schools have already provisionally given consent to the study taken place pending ethics approval.

Approval will be gained by:

1. Forming a relationship with the school and getting consent for the study to take place in that school.
2. I will then go in to the school and tell the class about the study and give out all relevant documents to each child that provisionally wants to take part, for them to take home and get permission to take part in.

   My contact details will be on the project information sheet for the parent to use to contact me if any further questions are needed to be answered before consent is given.
3. I will then visit the school in the following week to observe lessons and collect any forms when they are given back.

   Responses should be given back within a week and form a list of pupils that can participate in the study.
4. Before the study takes place, I will say the verbal phrase to the child to get verbal consent from the child: "We are going to test some Maths games on Alexa to see how good they are. It doesn't matter at all if you get any questions wrong and if you want to stop at any time please say so. I am going to audio record it to help me design a better one, are you happy to start?"

RESEARCH ETHICS CHECKLIST – SIGNATURE PAGE

SECTION V: Applicant Declaration	
Please confirm each of the following statements:	**Yes/No**
The project is deemed to involve **minimal risk** as defined in SECTION III	No
I confirm that I have read the University of Nottingham Code of Research Conduct and Research Ethics	Yes
I confirm that I have read the guidance documents listed on page 1	Yes
I confirm that the information provided in this application is correct	Yes
Signature of applicant*	Michelle Ruas
Date	12/11/2018

SECTION VI: Supervisor/PI Declaration	
Please confirm each of the following statements:	**Yes/No**
The participant information sheet or leaflet is appropriate for this research project**	
The procedures for recruiting participants and obtaining informed consent are appropriate**	
The collection and handling of data is appropriate and in accordance with the Data Protection Act	
Signature of supervisor/PI*	
Date	

** For email submission, please type your name in place of a signature.*

***All applications for projects involving human participants (or their tissue) must be accompanied by an information sheet, consent form, privacy notice and recruitment materials (e.g. posters, flyers, text for emails) where relevant.*

- The **supervisor/principal investigator** is responsible for emailing the completed form, together with any information sheets and consent forms, to cs-ethicsadmin@cs.nott.ac.uk.

- The **supervisor/principal investigator** is also responsible for providing feedback to the student/researcher following Ethics Committee consideration.