APPLICATION FOR ETHICAL REVIEW OF RESEARCH INVOLVING HUMAN PARTICIPANTS

This application form should be completed by members of staff and PhD/ Prof Doc students undertaking research which involves human participants. Undergraduate and Masters level students are required to complete this application form where their project has been referred for review by a supervisor to a Faculty Research Ethics Committee (FREC) in accordance with the policy at **http://www1.uwe.ac.uk/research/researchethics**. For research using human tissue, please see separate policy, procedures and guidance linked from **http://www1.uwe.ac.uk/research/researchethics/policyandprocedures.aspx**

Please note that the process takes **up to six weeks** from receipt of a valid application. **The research should not commence until written approval has been received from the University Research Ethics Committee (UREC) or Faculty Research Ethics Committee (FREC).** You should bear this in mind when setting a start date for the project.

APPLICANT DETAILS

Name of Applicant*	Dito Eka Cahya		
Faculty	FET	Department	EDM
Status: Staff/PG Student/ MSc Student/ Undergraduate	PG Student	Email address	dito.cahya@bristol.ac.uk
Contact postal address	Bristol Robotics Laboratory, University of the West of England T Block, Frenchay Campus		
Name of co-researchers* (where applicable)	Manuel Giuliani		

*This form must include the name of the UWE Project Manager (normally the budget holder and PI)

FOR STUDENT APPLICANTS ONLY

Name of Supervisor/Director of Studies	Manuel Giuliani
Detail of course/degree for which research is being undertaken	PhD in Robotics and Autonomous System
Supervisor's/Director of Studies' email address	manuel.giuliani@brl.ac.uk
Supervisor's/ Director of Studies' comments	I confirm that the proposed research topic merits further research. The ability to recognise errors and react to them in a socially appropriate way is a central ability that's needed for any HRI system. Dito has the skills to carry out the research. I have seen the participant information sheet, it is appropriate. I also confirm that the procedures for recruitment of research participants and obtained informed consent are appropriate.
For student applications, supervisors should ensure that all of the following are satisfied before	

the study begins:

- The topic merits further research;
- The student has the skills to carry out the research;
- The participant information sheet is appropriate;
- The procedures for recruitment of research participants and obtained informed consent are appropriate.

PROJECT DETAILS

Project title	Error Situation Recognition in Human Robot Interaction Based on Multimodal Human Feedback		
Is this project externally funded?	No		
If externally funded please give PASS reference			
Proposed start date for the research	15/01/2019	Anticipated project end date	15/02/2019

Fieldwork should not begin until ethics approval has been given

DETAILS OF THE PROPOSED WORK

1. Aims, objectives of and background to the research

This should provide the reviewer of the application with sufficient detail to allow them to understand the nature of the project and its rationale, and the ethical context, in terms which are clear to a lay reader. Do not assume that the reader knows you or your area of work. You may provide a copy of your research proposal in addition to completing this section. Please try to keep within 500 words.

Error situations occasionally happen during human-robot interaction (HRI), due to imperfect robot sensors and cognitive systems. In order to make HRI better and more fluent, interactive robots should be able to detect error situations accurately and react appropriately to resolve those error situations.

Our aims in this experiment are:
1. Identify, analyse, and categorise multimodal social signals which consists of facial expression, head pose, eye gaze, and body posture that people use to react to different type of error situations.
2. Investigate whether the multimodal social signals that people make during error situation can be distinguished by gender, age, and personality traits.
3. Develop an automatic error detection module for HRI using the data which is gathered in this user study.

Further details are provided in the research proposal.

2. Research methodology to be used

You should explain how you plan to undertake your research. A copy of the interview schedule/ questionnaire/observation schedule/focus group topic guide should be attached where applicable.

The methods of the user study are as follow:

1. Before the user study begins, the participant will be asked to fill a demographic survey (gender and age) and a personality assessment.
2. The participant will be asked to interact with ABB Yumi collaborative robot which is operating in a semi-automatic mode.
3. The robot and the participant will work collaboratively on an assembly task using wooden blocks.
4. The participant will be notified that the experimenter will not interfere during the interaction.
5. The social signals that the participants can use are head gestures, eye gaze, facial expressions, hand gestures, and speech.
6. At the beginning of the interaction, the participants will be asked to attract the attention of the robot.
7. There will be 20 steps in the assembly task. The robot has access to the first ten steps (first session), and the participant has access to the last ten steps (second session).
8. In the first session, the robot will give the assembly instructions to the participant.
9. In the second session, the participant might occasionally need the robot's help to pick and pass some wooden blocks because they are out of reach of the participant.
10. During the collaboration, there will be eight intentionally programmed errors that the robot will do.
11. Audio-visual data and also multimodal sensory inputs data will be collected during the interactions.
12. A short, semi-structured interview will be conducted at the end of the user study to collect information about the participant's experience with the robot.

There will be no physical contact between the robot and the participant during the interaction. The robot that will be utilised in this user study is the ABB Yumi collaborative robot (Fig. 1), which is designed specifically for human-robot collaboration. ABB Yumi has a compact and lightweight body, sensitive force control feedback, soft external materials, built-in safety features, and all necessary conditions to conform with ISO/TS 15066:2016 standard regarding human-robot collaboration.

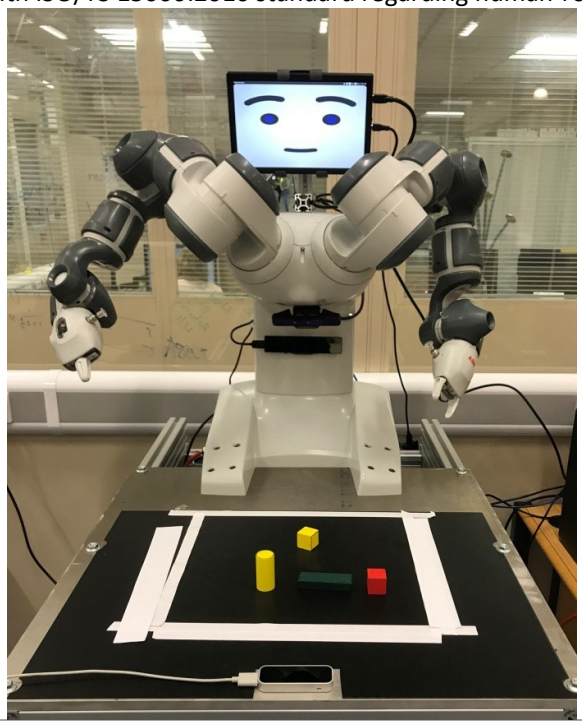

Fig 1. ABB Yumi Collaborative Robot

3. SELECTION OF PARTICIPANTS

You must indicate if any of the participants in your sample group are in the categories listed. Research involving adult participants who might not have the capacity to consent or who fall under the Mental Capacity Act must be reviewed either by an NHS Research Ethics Committee or the National Social Care Research Ethics Committee.
If your proposed research involves contact with children or vulnerable adults, or others of the specified categories below, you may need to hold a valid DBS check. Evidence of a DBS check should take the form of an email from the relevant counter signatory confirming the researcher has a valid DBS check for working with children and/or vulnerable adults. It is the responsibility of the applicant to provide this confirmation.
Members of staff requiring DBS checks should contact Human Resources hr@uwe.ac.uk. DBS checks for students are usually organised through the student's faculty, but students in faculties without a DBS counter signatory should contact ***Marisa Downham*** *(Marisa.Downham@uwe.ac.uk).*

Will the participants be from any of the following groups? *('x' as appropriate)*

☐ Children under 18*
☐ Adults who are unable to consent for themselves
☐ Adults who are unconscious, very severely ill or have a terminal illness
☐ Adults in emergency situations
☐ Adults with mental illness (particularly if detained under Mental Health Legislation)
☐ Prisoners
☐ Young Offenders
☐ Healthy Volunteers (where procedures may be adverse or invasive)
☐ Those who could be considered to have a particularly dependent relationship with the investigator, e.g. those in care homes, medical students
☐ Other vulnerable groups
☒ None of the above

** If you are researching with children please provide details of completed relevant safeguarding training.*

If any of the above applies, please justify their inclusion in this research.

4. Please explain how you will determine your sample size/recruitment strategy, and identify, approach and recruit your participants. Please explain arrangements made for participants who may not adequately understand verbal explanations or written information in English

In this section, you should explain the rationale for your sample size and describe how you will identify and approach potential participants and recruit them to your study.

We are aiming to have at least 40 participants for this user study, with age between 18 to 65 years. We aim to invite a preferably equal number of male and female participants. The plan is to send invitations to student email lists and advertise the experiment in the Faculty's newsletters (FET_Students, FET_Staff, internal.list@brl.ac.uk, FET newsletter).

5. What are your arrangements for obtaining informed consent whether written, verbal or other? (where applicable, copies of participant information sheets and consent forms should be provided)

Informed consent is an ethical requirement of most research. Applicants should demonstrate that they are conversant with and have given due consideration to the need for informed consent and that any consent forms prepared for the study ensure that potential research participants are given sufficient information about a study, in a format they understand, to enable them to exercise their right to make an informed decision whether or not to participate in a research study.

You should describe how you will obtain informed consent from the participants and, where this is written consent, include copies of participant information sheets and consent forms. Where other forms of consent are obtained (eg verbal, recorded) you should explain the processes you intend to use. If you do not intend to seek consent or are using covert methods, you need to explain and justify your approach. Please consider carefully whether or not you need to seek consent for archiving or re-use of data.

A written information sheet and consent form will be provided, see attachments for details. We aim to seek consent for re-use and publication of the dataset as part of the consent form.

6. What arrangements are in place for participants to withdraw from the study?

Consent must be freely given with sufficient detail to indicate what participating in the study will involve and how they may withdraw. There should be no penalty for withdrawing and the participant is not required to provide any reason.
Please note: allowing participants to withdraw at any time could prejudice your ability to complete your research. It may be appropriate to set a fixed final withdrawal date.

Explained in the information sheet.

Participants can withdraw from the experiment at any time during the experiment or ask for data to be removed from the dataset up until 5 days after taking part in the experiment.

7. If the research generates personal data, please describe the arrangements for maintaining anonymity and confidentiality (or the reasons for not doing so)

You should explain what measures you plan to take to ensure that the information provided by research participants is anonymised/pseudonymised (where appropriate) and how it will be kept confidential. In the event that the data are not to be anonymised/pseudonymised, please provide a justification.

Please refer to the UWE Data Protection Guide.

We aim to collect personal information such as age, gender, and personality profile. Data will be pseudonymised for internal usage in the research group such that involved researchers can get in touch with the respective participant should there be a later need to do so. The respective table relating the participant ID with the name of the participant will be kept in a printed form in a locked drawer only accessible to the researchers involved in this study. The dataset that we aim to publish, however, will be anonymized.

8. Please describe how you will store data collected in the course of your research and maintain data Security and protection.

Describe how you will store the data, who will have access to it, and what happens to it at the end of the project, including any arrangements for long-term storage of data and potential re-use. If your research is externally funded, the research sponsors may have specific requirements for retention of records. You should consult the terms and conditions of grant awards for details.

***It may be appropriate for the research data to be offered to a data archive for re-use. If this is the case, it is important that consent for this is included in the participant consent form**.*

UWE IT Services provides data protection and encryption facilities - see http://www.uwe.ac.uk/its-staff/corporate/ourpolicies/intranet/encryption_facilities_provided_by_uwe_itservices.shtml

We aim to collect personal information such as age, gender, and personality profile. Data will be pseudonymised for internal usage in the research group such that involved researchers can get in touch with the respective participant should there be a later need to do so. The respective table relating the participant ID with the name of the participant will be kept in a printed form in a locked drawer only accessible to the researchers involved in this study. The dataset that we aim to publish, however, will be anonymized. All non-personal data such as the audio-video data will be initially kept on a UWE network drive with only internal authorized access. After having clarified conditions of the license agreement in collaboration with the UWE legal department and viewing the various options of data archives the dataset is planned to be made publicly available via one of these data archives. Respective formulations have been included in the consent form and we would kindly ask the Ethics Committee to confirm that these formulations are sufficient for this purpose in the given formulation.

9. What risks (eg physical, psychological, social, legal or economic), if any, do the participants face in taking part in this research and how will you AddRESS these risks?

Describe ethical issues related to the physical, psychological and emotional wellbeing of the participants, and what you will do to protect their wellbeing. If you do not envisage there being any risks to the participants, please make it clear that you have considered the possibility and justify your approach.

No physical/ethical issue can be foreseen at this point.

10. Are there any potential risks to researchers and any other people impacted by this study as a consequence of undertaking this Research that are greater than those encountered in normal day to day life?

Describe any health and safety issues including risks and dangers for both the participants and yourself (if appropriate) and what you will do about them. This might include, for instance, arrangements to ensure that a supervisor or co-researcher has details of your whereabouts and a means of contacting you when you conduct interviews away from your base; or ensuring that a 'chaperone' is available if necessary for one-to-one interviews.
Please check to confirm you have carried out a risk assessment for your research ☒

The risks are not greater than in those encountered in normal day to day life.

11. How will the results of the research be reported and disseminated?

Please indicate in which forms and formats the results of the research will be communicated.

(Select all that apply)

☒ Peer reviewed journal ☒ Conference presentation ☒ Internal report ☒ Dissertation/Thesis ☒ Other publication ☐ Written feedback to research participants ☒ Presentation to participants or relevant community groups ☒ Digital Media ☐ Other (Please specify below)
12. WILL YOUR RESEARCH BE TAKING PLACE OVERSEAS?
If you intend to undertake research overseas, please provide details of additional issues which this may raise, and describe how you will address these. Eg language, culture, legal framework, insurance, data protection, political climate, health and safety. Please also clarify whether or not ethics approval will be sought locally in another country.
No.
13. Are there any other ethical issues that have not been addressed which you would wish to bring to the attention of the Faculty and/or University Research Ethics Committee?
This gives the researcher the opportunity to raise any other ethical issues considered in planning the research or which the researcher feels need raising with the Committee.
No.

CHECKLIST

Please complete before submitting the form
Please note: supporting documentation should include version numbers and dates

	Yes/No
Is a copy of the research proposal attached?	Yes
Have you explained how you will select the participants?	Yes
Is a participant information sheet attached?	Yes