Australian National University

Participant Information Sheet

Researcher:
My name is Junjie Mu and I am a postgraduate student in the College of Engineering, Computing and Cybernetics at the Australian National University

Project Title: Evaluating the Brain-Computer Interface as a Viable Method for Interacting with Virtual Reality Games

General Outline of the Project:

- **Description and Methodology:** In this study, you will be asked to play a virtual reality (VR) game using a Brain-Computer Interface (BCI). The aim of the study is to determine whether BCI is a feasible and effective method for interacting with VR games. After playing the game, you will be asked to provide feedback on your experience.
- **Participants:** Ten participants who are over 18 years old are invited to participate in this study. Participants will be asked to play a game using a BCI and VR device and then complete an interview that assesses their gameplay experience.
- **Use of Data and Feedback:** The data collected from this research will be used to produce a thesis and a short presentation to other students and academics. Additionally, the research may be developed into a research paper for publication. The findings from the experiments will be presented in the 'Evaluation' and 'Discussion' sections of the thesis, presentation, and research paper. The information obtained from interview will be presented in aggregate form. This research project will not involve data collection using Oculus or BCI devices. The sole source of data will be the information you voluntarily share during your interview, which will be audio-recorded and transcribed. Direct quotes will only be used with your explicit consent, and if approved, a pseudonym or code will be assigned to protect your identity. You will receive the research findings via email once the results are published. Additionally, you will be given the opportunity to review a transcript of the audio recording after the interview and make any desired amendments.

Participant Involvement:

- **Voluntary Participation & Withdrawal:** Participation in this research is voluntary. You may withdraw at any time before or during the experiment in case if you are experiencing discomfort. You may also choose not to answer any question. If you withdraw during the study, your data (interview feedback) will be destroyed and not used.

- **What does participation in the research entail?** This is an unpaid voluntary experiment. To play the game during the study, you will use an Oculus Quest 2 VR headset and an BCI device from NextMind. These devices allow you to interact with the game. The VR device is a head-mounted device that provides you with a VR experience and the BCI device is a head-mounted device that will capture your brain signal to detect which object the player is focusing on. At the beginning of the experiment, the researcher will assist you in setting up the devices and provide an introduction on how to engage with the VR game using the VR and BCI devices. This process will take no more than 10 minutes. Following the setup, you will be invited to play the game for up to 20 minutes. After this time, you will participate in a short interview. During the interview the researcher will ask some questions about your overall experience playing the game using the technology provided, your perception of how immersed you felt and your sense of control using BCI, and this interview will not ask your demographic information such as age, gender, etc. The interview is expected to take between 10 and 20 minutes.

- **Location and Duration:** The research study is scheduled to be conducted in Room N240, located within the ANU Computer Science & Information Technology(CSIT) building, and has a maximum duration of no more than 50 minutes.

- **Risks:** Potential psychological harm, such as motion sickness and anxiety, may occur during gameplay, and there is also the possibility of physical collisions with the surrounding environment. To minimize these risks, an in-game boundary will be established before the gameplay begins, indicating a safe distance from obstacles and you will be asked to remain stationary during the game. If you experience any psychological discomfort, you have the option to pause or withdraw from the experiment, depending on the situation.

- **Benefits:** It is unlikely that you will personally benefit from participating in this research. You will receive course credit if you are recruited through the SONA system. Whether you are new to VR or have prior experience, participating in this study offers an opportunity to interact with a VR game that uses BCI technology. As a first-time player, you will gain your initial VR experience, whereas those with previous experience can explore BCI as a novel method for interacting with VR games. Your participation in this study has the potential to assist the game industry in discovering new tools for game accessibility.
- **Incentives-remuneration:** You will receive one course credit after the experiment through SONA system and no monetary remuneration is offered.
- **Implications of Participation:** Participation in the research is not an expectation of your employment professional relationship / association with the research team, and your choice will not affect your relationship with any party, including the university.

Confidentiality:

- **Confidentiality:** We will keep your identity confidential as far as allowed by law. Access to the data you provide will be restricted to the research team, and identifying details will be stored separately from the rest of the research data. Published results will only be reported in aggregate, and you will not be identifiable within published outputs.

Privacy Notice:

In collecting your personal information within this research, the ANU must comply with the Privacy Act 1988. The ANU Privacy Policy is available at https://policies.anu.edu.au/ppl/document/ANUP_010007 and it contains information about how a person can:

- Access or seek correction to their personal information;
- Complain about a breach of an Australian Privacy Principle by ANU, and how ANU will handle the complaint.

Data Storage:

- **Where:** All collected data will be stored securely on the password-protected ANU cloud drive. The data will not have any physical form and it will only be accessed by the researcher Junjie Mu.

- **How long:** All research data will be retained and securely stored for a period of five year following the publication of the research.

- **Handling of Data following the required storage period:** The data will be deleted after the end of the storage period.

Queries and Concerns:

- **Contact Details for More Information:** Any requests for information or queries regarding the study participants should be directed to Junjie.Mu@anu.edu.au (+61 412 964 681) or my supervisor Associate Professor Penny Kyburz (penny.kyburz@anu.edu.au, +61 2 6125 1607)

- **Contact Details if in Distress:** If you feel distressed by any aspect of the interview, you should contact the ANU Wellbeing and Support Line (1300 050 327) or Lifeline (13 11 14). In case of any accident that is life threatening, the researcher will call Triple Zero immediately.

Ethics Committee Clearance:

The ethical aspects of this research have been approved by the ANU Human Research Ethics Committee (Protocol 2023/101). If you have any concerns or complaints about how this research has been conducted, please contact:

Ethics Manager
The ANU Human Research Ethics Committee
The Australian National University
Telephone: +61 2 6125 3427
Email: Human.Ethics.Officer@anu.edu.au