Appendix A: Informed Consent Form

**DETAILED CONSENT TO PARTICIPATE IN A RESEARCH STUDY**

You are being invited to take part in the following research study:

**Joystick-Accessible Keyboard**

**Researchers:**

The persons conducting this study are:

**Dr. Christabel Wayllace Franscisco M. Mares Solano**Advisor and Principal Investigator Co-PI

New Mexico State University New Mexico State University cwayllac@nmsu.edu arajen97@nmsu.edu

**What is the purpose and procedure of this study?**

This study evaluates the requirements for a joystick-controlled keyboard that is accessible for non-verbal individuals with muscular disabilities. The result will be a tailored solution that will serve as an alternative to the traditional QWERTY keyboard, and the grid-based Augmentative/Alternative Communication (AAC) programs. The requirement-evaluation is achieved by observing the movement patterns that the participant is comfortable performing with a joystick. From that analysis, we will construct an AAC that matches more closely those movements that are comfortable and natural for the participant. To evaluate the effectiveness of the custom solution, we will observe the performance of the participant while copying few texts within the context and extend of what their day-to-day communication tasks require. The evaluation criteria are the number of decisions and movements the participant has to perform throughout the activity. The experiment will be performed twice: once for the participant’s regular AAC, and once for the custom AAC.

With this research, we aim to gain insights into the design requirements for AAC tools for people with muscular disabilities. We will also provide the participant with a tailored AAC system that can potentially ease their communication tasks on a daily basis

**Why are we asking you to participate in this study?**

We are asking you to participate in this study to gain insights of your valuable experience regarding AAC programs and accessible input technologies. Your participation will contribute to our understanding on the impacts that AAC and accessible joysticks designs have on people dependent on these technologies. At the same time, your collaboration will allow us to design a tool that addresses potential design issues on AAC tools, and help advance our knowledge in this field

**Are there reasons why you would not qualify for this study?**

Yes. You must be 18+ years of age to participate in this study. Additionally, you must be physically able to perform the experiment by controlling a joystick in circular motion, press down up to two buttons within the joystick, and to read the feedback from the screen the joystick is connected to (i.e. a tablet) in order to complete the experimental task being utilized by the research design. The participant must have an AAC system and be able to communicate with it.

**What is the duration?**

Your participation in this research will require 8 sessions of approximately 30 minutes each. There will be four types of sessions: one introductory session, four test sessions (divided in two groups), two pattern-recognition sessions, and a closing session. All sessions will be held in-person at NMSU installations where accommodation will be provided on demand at any point of the experiment. The accommodation includes, but is not limited to, written or verbal questions, AAC systems, keyboards, joysticks, chairs, tables, and rooms with wheelchair access.

The communication will be through verbal and written questions unless requested different. The participant will write down their answers with aid of their personal AAC system as they would do in their regular day. When mapping the participant’s movement, a joystick matching the one in their AAC system will be provided, and it will be connected to one of the lab’s computers to register the path of their movements.

The sessions list include a tentative schedule that can be updated by request of the participant. The sessions may require reading information, providing opinions or preferences.

Introductory session:

*Description:* This session has the goal of making the participant familiar with the researchers, the experiment, and logistics. The consent form will be signed, and any further question that might arise will be answered.

*Date:* August 27, 2024

*Consent Form:* 10 minutes

*Logistics acknowledgment*: 10 minutes

*Debrief:* 10 minutes

*Estimated time:* Approximately 30 minutes

Test sessions (4):

*Description:* These sessions have the goal of measuring the work necessary to write down paragraphs by the participant using different AAC. In each session, one paragraph will be copied in a single AAC.

*Dates:* September 3, 2024

September 5, 2024

October 22, 2024

October 24, 2024

*Accommodation assessment:*5 minutes

*Task:* 20 minutes

*Debrief:* 5 minutes

*Estimated time:* Approximately 30 minutes

Pattern Recognition sessions (2):

*Description:* These sessions have the goal of recognizing the joystick patterns that are more natural to the participant.

*Dates:* September 10, 2024

September 12, 2024

*Accommodation assessment:*5 minutes

*Task:* 20 minutes

*Debrief:* 5 minutes

*Estimated time:* Approximately 30 minutes

Closing session:

*Description:* This session has the goal of collecting the participant’s feedback on the experience of the custom AAC, discussing ideas and insights on the overall experiment.

*Date:* October 29, 2024

*Accommodation assessment:*5 minutes

*Interview:* 20 minutes

*Debrief:* 5 minutes

*Estimated time:* Approximately 30 minutes

**Where is the study going to take place?**

At NMSU Breeland Hall. The location might be updated upon the request of the participant. New consent forms might be requested, as well as new accommodation assessments

**What if new information is learned during the study that might affect your decision to participate?**

You will be informed if the Researcher(s) learns new information that could change your mind about staying in the study. You may be asked to sign a new informed consent form if the information is provided to you after you have joined the study.

**What are the benefits, risks, costs, and compensations of participation?**

**Benefits**

Beyond the first-hand experience and increased understanding of science and research gleaned through participation in this study, no individual benefit is predicted. The benefit to society is unknowable beyond the increased understanding of human-device interaction.

**Risks**

It must be noted that while we do not anticipate any risks associated with participating in this study, risks can never be entirely eliminated, even if they are minimal. Please take into account the following potential risks:

*Emotional Discomfort:* Engaging in discussions or answering questions during the study may elicit unexpected negative emotions such as sadness, anxiety, or discomfort. Participants should be aware that these emotions can arise during the research process. While every effort will be made to establish a safe and supportive environment, participants will be informed about the potential for experiencing discomfort.

*Distressing Memories:* Participation in the study may evoke distressing memories or experiences, which could potentially cause emotional distress. Researchers are committed to creating a supportive environment, but participants should be aware of the possibility of encountering such memories. Efforts will be made to provide appropriate support and resources to participants who may require assistance.

If you believe you are hurt, or distressed, or if you get sick because of something that is due to the study, you should immediately contact the Researcher(s) and/or the Office of Research Integrity and Compliance at New Mexico State University (575) 646-7177 or at ric\_admin@nmsu.edu.

**Costs**

There are no costs associated with taking part in this study.

**Compensations**

Participants in this study will receive compensation of $15 as a token of appreciation for their time and contribution to the research. The compensation will be provided in the form of an Amazon gift card, which will be delivered to participants in person at the time of the study. It is important to note that participants will receive compensation, regardless of whether they complete the entire study or not. This is done to recognize the value of their time and effort in participating in the research.

**Will you be given individual results from the study?**

For this study, you will not be given individual results.

**Confidentiality**

The Researcher(s) will keep your name and other identifying information private to the extent that we can. The Researcher(s) will make every effort to prevent anyone who is not on the research team from knowing that you gave us information, or what that information is. You should know that there are some circumstances in which the Researcher(s) may have to show your information to other people.

**The findings and results of the study may appear publicly as** data for/in dissertations, books, journals, creative or digital work, news articles, presentations, conferences, or other places. The Researcher(s) will take careful steps to keep your information confidential (or anonymous). All

personal identity data will be kept separate from the corresponding experimental data. No personal identifiers beyond this consent form will be collected.

During the survey, you will be assigned a unique participant ID at the beginning of the study. This participant ID will be provided to each participant, and they will be asked to fill it in the survey form field. The purpose of assigning a unique participant ID is to enable researchers to link multiple survey forms completed by the same participant while maintaining the anonymity of their identity. By using participant IDs instead of personal identifying information, the researchers can analyze the data while keeping the participants' identities confidential. This approach ensures that the data remains anonymous and protects the privacy of the participants throughout the study.

**Where will the information be stored and for how long?**

The information will be stored as password-protected data, in password-protected computers, behind locked doors within the Ciberseguros Lab, Science Hall rm 159, New Mexico State University for a duration of no less than three years.

**If you have questions or concerns or want to withdraw:**

Participation in this study is strictly voluntary. You may withdraw from the study at any time without penalty.

If you choose to leave the study, you have the right to decide whether data collected up to that point that can be linked to your identity will remain in the study database or should be removed.

The Researcher(s) conducting the study may need to remove you from the study. This may occur for a number of reasons. You may be removed from the study if you are not able to follow the directions, they find that your participation in the study is more risk than benefit to you, or the agency paying for the study chooses to stop the study early for a number of scientific reasons.

The Researcher(s) at New Mexico State University, Department of Computer Science in charge of this study is (are) Anamika Rajendran who may be reached at arajen97@nmsu.edu.

\*The Researcher is a student, and their faculty advisor/supervisor is Dr. Joshua Reynolds, who can be reached at jr1@nmsu.edu.

If you experience negative consequences (including mental/emotional distress) as a result of this study, please contact:

Aggie Health and Wellness Center

3080 Breland Dr, Las Cruces, NM 88003

Walk-ins available Monday – Friday, from 8-11:30am and 1-5pm

575-646-1512

campus\_health@nmsu.edu

If you have any questions, suggestions, or concerns about your rights as a participant in this research study, contact:

The Office of Research Integrity and Compliance at New Mexico State University

575-646-7177

ric\_admin@nmsu.edu.

A copy of this form is available for you to keep upon request.

**INFORMED CONSENT SIGNATURE PAGE**

**You are a participant or are authorized to act on behalf of the participant. This consent includes the following:**

* + **Key Information Page**
  + **Detailed Consent**

**You will receive a copy of this consent form after it has been signed.**

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