

Baylor University  
**Department of Computer Science**

Consent Form for Research

PROTOCOL TITLE:                   **Alternatives using the Leap Motion to Extend  
Mid-Air Word-Gesture Keyboards**

PRINCIPAL INVESTIGATOR:       Garrett Benoit

SUPPORTED BY:                   **Baylor University**

## **Introduction**

Please read this form carefully. The purpose of this form is to provide you with important information about taking part in a research study. If any of the statements or words in this form are unclear, please let us know. We would be happy to answer any questions. You have the right to discuss this study with another person who is not part of the research team before making your decision whether or not to be in the study.

Taking part in this research study is up to you. If you decide to take part in this research study we will ask you to sign this form. We will give you a copy of the signed form.

The person in charge of this study is Garrett Benoit, under the guidance of Dr. G. Michael Poor. We will refer to this person as the “researcher” throughout this form.

## **Why is this study being done?**

The purpose of this study is to gain insight on alternative methods for mid-air word-gesture keyboards to broaden the knowledge of Human Computer Interaction research. You will be asked to use 6 different methods of virtual keyboard input to assess usability and performance of each and compare them to other current alternatives. This study aims to find a mid-air word-gesture keyboard that can perform as well as or better than previous mid-air text-entry rates and to perform as well as touch-based word-gesture keyboards in terms of usability, error rates, and accuracy.

We are asking you to take part in this study because you can help contribute to the understanding of the problems and solutions required to further mid-air word-gesture keyboard technology. Your input and feedback is invaluable to this study.

About 18 subjects will take part in this research study at Baylor University.

## **How long will I take part in this research study?**

We expect that you will be in this research study for no longer than 60 minutes. During this time, we will ask you to make one study visit to the Human Computer Interaction lab in room 310 of the Rogers Engineering & Computer Science building located across from the Wiethorn Visitor's Center.

## **What will happen if I take part in this research study?**

If you agree to take part in this study, we will ask you to sign the consent form before we do any study procedures.

## Study Visit 1

For this study, you will only be asked to make 1 visit which will take no more than 60 minutes to complete. At this visit, we will ask you to do the following procedures:

- Ask you to complete sets of tasks on the computer for each of the 6 virtual keyboard inputs. These tasks, for all of the virtual keyboard inputs, are expected to take an upward bound of 53 minutes to complete. For each of the 6 virtual keyboard inputs, you will be going through the following steps:
  - We will give you a brief explanation of the current input. This explanation will take a total of about 30 seconds. The dialog will be similar to: “This is the **ABC** keyboard (e.g. touch screen, leap-air, leap-surface, etc.). It is a **JKL** keyboard (e.g. mid-air or touch-based) and you will use **XYZ** (e.g. stylus or hand) to interact with it.” You will then be given the interaction object and allowed to interact with the virtual keyboard input.
  - You will be given multiple opportunities to optionally recalibrate the keyboard interaction-space (if applicable to the current input) as many times as needed. Some inputs do not have an interaction-space and therefore do not require calibration of any kind. This task will take a total of about 10 seconds for each calibration and is expected to take no more than 6 calibrations (1 minute) for each applicable input.
  - You will then be given the opportunity to use each virtual keyboard input to type in a variety of practice words. Practice words are randomly selected from a large dictionary but filtered to remove swear words and words used in the experiments. You will be able to attempt as many practice words as needed until you feel comfortable with the current virtual keyboard input. At any time during this phase, you can opt to recalibrate the interaction-space if applicable. This task is expected to take a maximum time of 3 minutes.
  - Next, you will be going through the experiment. You will type in a total of 15 words for the current virtual keyboard input. These words are preselected words for each input before the experiment begins and have been filtered for swear words. This task is expected to take a maximum time of 4 minutes.
  - Finally, there will be a small survey section after using the current keyboard input to rate each one on the Likert scale relating to difficulty, discomfort, and fatigue experienced when using the devices. This task is expected to take a maximum time of 30 seconds.

- Ask you to fill out an exit survey. This exit survey will obtain basic data such as age, gender, major, and handedness as well as several questions about any prior experience or impairments that might relate to the study. Finally, the exit survey will have a section to rank each device on a numerical scale. This exit survey will take a total of about 5 minutes.

## **What are the risks of taking part in this research study?**

To the best of our knowledge, taking part in this study will not hurt you. We do not anticipate any risks to you other than those encountered in day-to-day life.

### **Risks of Completing Tasks**

You may get tired during the tasks. You can rest at any time.

### **Questionnaire/Survey Risks**

You may be uncomfortable with some of the questions and topics we will ask about. You do not have to answer any questions that make you feel uncomfortable.

### **Loss of Confidentiality**

A risk of taking part in this study is the possibility of a loss of confidentiality. Loss of confidentiality includes having your personal information shared with someone who is not on the study team and was not supposed to see or know about your information. The researcher plans to protect your confidentiality. Their plans for keeping your information private are described later in this consent form.

## **Are there any benefits from being in this research study?**

There are no benefits to you from taking part in this research.

Others may benefit in the future from the information that is learned in this study.

## **What alternatives are available?**

You may choose not to take part in this research study.

## **How Will You Keep My Study Records Confidential?**

We will keep the records of this study confidential by not collecting any personally identifiable information except through this consent form which will be stored under lock and key in the office of Dr. Poor and will only be accessible by himself. Performance metrics will be collected by the software and will be matched to an electronic exit survey via a random code.

Information from the exit survey is transcribed by the software and stored as an electronic copy on a secure Baylor server. No other documents associated with this survey are generated. The electronic data will be destroyed after the completion of the project and publication, in no more than 2 years. In any sort of report we make public, we will not include any information that will make it possible to identify you. We will make every effort to keep your records confidential. However, there are times when federal or state law requires the disclosure of your records.

The following people or groups may review your study records for purposes such as quality control or safety:

- The Researcher and any member of his research team

- Authorized members of Baylor University who may need to see your information, such as administrative staff members from the Office of the Vice Provost for Research and members of the Institutional Review Board (a committee which is responsible for the ethical oversight of the study)
- Federal and state agencies that oversee or review research (such as the HHS Office of Human Research Protection or the Food and Drug Administration)

The study data will be stored with password protected files on a secure Baylor server.

The results of this study may also be used for teaching, publications, or presentations at professional meetings. If your individual results are discussed, your identity will be protected by using a code number or pseudonym rather than your name or other identifying information.

## **Study Participation and Early Withdrawal**

Taking part in this study is your choice. You are free not to take part or to withdraw at any time for any reason. No matter what you decide, there will be no penalty or loss of benefit to which you are entitled. If you decide to withdraw from this study, the information that you have already provided will be kept confidential. You cannot withdraw information collected prior to your withdrawal.

**If you are a student at Baylor University:** You may choose not to be in the study or to stop being in the study before it is over at any time. This will not affect your class standing or your grades at Baylor University. You will not be offered or receive any special consideration if you take part in this research study.

You must be 18 years or older to participate in this study.

The researcher may take you out of this study without your permission. This may happen because:

- The researcher thinks it is in your best interest
- You can't make the required study visits
- Other administrative reasons

### **Will I get paid for taking part in this research study?**

As compensation for your participation, we will give you a meal coupon worth \$8.50 which you can redeem at the campus dining location at the Student Union Building here at Baylor.

**If you are recruited through a class announcement or your professor:** You will be awarded extra credit at the discretion of your professor for taking part in this study.

Compensation will be received after your visit to participate in the study.

### **What will it cost me to take part in this research study?**

There are no costs to you for taking part in this research study.

### **What if I have any questions or concerns about this research study?**

You can call us with any concerns or questions about the research. Our telephone numbers are listed below and feel free to call us at any time during standard business hours:

- Garrett Benoit (Masters Candidate at the Department of Computer Science) can be reached at (832) 754-6923.

- Dr. G. Michael Poor, Faculty Adviser, Department of Computer Science, Baylor University, One Bear Place #97356, Waco, TX, 76798-7358. Dr. Poor can also be reached at (254) 710-3037.

If you want to speak with someone **not** directly involved in this research study, you may contact the Baylor University IRB through the Office of the Vice Provost for Research at 254-710-1438. You can talk to them about:

- Your rights as a research subject
- Your concerns about the research
- A complaint about the research

### **Future Contact**

We may like to contact you in the future either to follow-up to this study or to see if you are interested in other studies taking place at Baylor University.

Do you agree to let us contact you in the future?

\_\_\_\_\_ YES

\_\_\_\_\_ NO

\_\_\_\_\_ INITIALS



## Statement of Consent

### SIGNATURE OF SUBJECT:

I have read the information in this consent form including risks and possible benefits. I have been given the chance to ask questions and my questions have been answered to my satisfaction. I am 18 years or older and I agree to participate in the study.

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Signature of Subject

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Date

### Signature of Person Obtaining Consent:

I have explained the research to the subject and answered all his/her questions. I will give a copy of the signed consent form to the subject.

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Signature of Person Obtaining Consent

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Date