Informed Consent to Participate in Research on Robotic Interfaces

Principal Investigator: Megan Zimmerman

Study Title: Analysis of Wearable Devices, 3D Tracked Controllers and Mobile Applications for Effective Human Robot Interaction and Control

Study Site(s): NIST Gaithersburg Bldg. 202 Rm. 209

Introduction

You are being asked to take part in a research study. Research studies include only people who choose to take part. This document is called an informed consent form. Please read this information carefully and take your time making your decision. Ask the researcher or study staff to discuss this consent form with you, please ask him/her to explain any words or information you do not clearly understand. The nature of the study, risks, inconveniences, discomforts, and other important information about the study are listed below.

The person who is in charge of this research study is Megan Zimmerman. This person is called the Principal Investigator. However, other research staff may be involved and can act on behalf of the person in charge.

Purpose of the study

The purpose of this study is to determine the effectiveness of a variety of robotic interfaces for human robot interaction in simple assembly tasks. We hope to discover the factors of interfaces that contribute to good human robot interaction and control.

Why are you being asked to take part?

We are asking you to take part in this research study because you belong to a group of individuals with varying levels of experience with robotics and computer programming. To emulate the experience of those working on factory floors alongside robots we need individuals like you, who may or may not have had experience with robotics or programming and procedural thinking.

Study Procedures:

If you take part in this study, you will be asked to:

- You will be asked to control a robot with two different robotic control interfaces to complete varying complexities of 6 assembly tasks using the robotic platform. Methods you may be asked to control the robot with include teach pendant, axis based controllers, 3D controllers used for virtual reality, tablets, and augmented reality devices. Each assembly task will be timed and is not to exceed 5 minutes per assembly. Upon completion of each individual assembly task, you will be asked to complete an opinion

survey, and an image will be taken of your final assembly. After all assemblies are completed you will be asked to complete a final opinion survey.

- Questions asked in this survey will include:
    - 5 point Likert scale, agree/disagree questions for each task.
        - E.g.: I found the task easy to complete.
    - 5 point Likert scale agree/disagree questions comparing both methods.
        - E.g.: The task was frustrating to complete with the Teach Pendant.
- The one-time session is expected to take between 30 and 45 minutes.
- The research will occur in bldg. 202, rm. 209 between the hours of 9 am and 7pm from January 30th to March 18th on appointments at the discretion of the participant.

Total Number of Participants

About 30 individuals will take part in this study at NIST.

Alternatives / Voluntary Participation / Withdrawal

You do not have to participate in this research study.

You should only take part in this study if you want to volunteer. You should not feel that there is any pressure to take part in the study. You are free to participate in this research or withdraw at any time. There will be no penalty or loss of benefits you are entitled to receive if you stop taking part in this study. Decision to not participate will not affect your student status (course grade) or job status.

Benefits

We are unsure if you will receive any benefits by taking part in this research study other than the exposure to new robotic technologies.

Risks or Discomfort

This research is considered to be minimal risk. That means that the risks associated with this study are the same as what you face every day. There are no known additional risks to those who take part in this study. There is also a very small risk that someone who is not authorized could get access to the data we have stored about you, however all data we record will be anonymized. We describe how we will protect your confidentiality in a later section of this consent form.

Compensation

You will receive no payment or other compensation for taking part in this study.

The findings from this research may result in the future development of products that are of commercial value. There are no plans to provide you with financial compensation or for you to share in any profits if this should occur.

Costs

It will not cost you anything to take part in the study.

Privacy and Confidentiality

We will keep your study records private and confidential. Certain people may need to see your study records. Anyone who looks at your records must keep them confidential. These individuals include:

- The research team, including the Principal Investigator, study coordinator, and all other research staff.
- Certain government people who need to know more about the study, and individuals who provide oversight to ensure that we are doing the study in the right way.
- Any agency of the federal, state, or local government that regulates this research including the Office for Human Research Protection (OHRP).

Your identity will be protected to the extent permitted by law, including the Freedom of Information Act. We may publish what we learn from this study. If we do, we will not include your name. We will not publish anything that would let people know who you are.

You can get the answers to your questions, concerns, or complaints

If you have any questions, concerns or complaints about this study, or experience an unanticipated problem, or research-related injury call Megan Zimmerman at (301) 975-0452.

If you have questions about your rights as a participant in this study, or have complaints, concerns or issues you want to discuss with someone outside the research, call the Human Subjects Protection Office at (310) 975-5445.

You will receive a copy of this signed consent form.

Permission for Employee to Part in this Research Study

Do you, the participant, plan to use your employer's computers, email or other resources to participate in this study?

☐ **No**

☐ **Yes** – Please obtain the permission of your employer below.

I freely give my permission for my employee to take part in this study. I understand that by signing this form I am agreeing to allow my employee to take part in this research. I have received a copy of this form to take with me.

_____ _____

Signature of Employer of Person Taking Part in Study Date

_____

Printed Name Employer of Person Taking Part in Study

Consent to Take Part in this Research Study

I freely give my consent to take part in this study. I understand that by signing this form I am agreeing to take part in research. I have received a copy of this form to take with me.

_____ _____

Signature of Person Taking Part in Study Date

_____

Printed Name of Person Taking Part in Study

Statement of Person Obtaining Informed Consent

I have carefully explained to the person taking part in the study what he or she can expect from their participation. I confirm that this research subject speaks the language that was used to explain this research and is receiving an informed consent form in their primary language. This research subject has provided legally effective informed consent.

_____ _____

Signature of Person obtaining Informed Consent Date

_____

Printed Name of Person Obtaining Informed Consent