1. **Preliminary set-up (before participant arrives):**

Have headset fully charged

Boundaries drawn

App pulled up on screen

Begin casting

1. **Greet Subject**

“Hello! Thank you for participating in this study on utilizing virtual reality to develop controls for teleoperating novel robots. Please have a seat, and I’ll provide you with a consent form and get you set up with the Oculus headset.”

1. **Obtain Consent (Provide Consent form, (offer to) read to subject if necessary, get signature)**

“Before we begin, here is some information about this study. The purpose of this study is to learn how people would like to control remote-controlled robots if they are able to use their bodies to do so, rather than, for instance, video-game style controllers. The way this study will go is, you’ll put on the headset, and it will show you robots of different shapes, which will perform different motions. For each motion, we are interested in how you would move your arm to control the robot, to tell it to follow that motion. You can watch the robot as many times as you’d like, and when you’re ready to record your command motion, you’ll click the “Record” button inside the headset with this trigger button here. The headset will record your hand positions as the robot goes through its motion again. We will ask you to make five recordings per robot motion, and then the app will prompt you to move on to the next robot movement. The total experiment should take about an hour.

“The form here has more information about the study, including the purpose of this experiment, and the risks and benefits of participating. The main points are on the front page, and if you agree to participate, there is a place for your signature at the very back.

There are two important privacy things I need to draw your attention to: first, that we will not be taking any identifiable information, with the exception of your email, which we will use to send you your $12 Amazon gift card as a thank-you for your participation. We will not associate the email with your data. Secondly, the Oculus records only head and hand positions, so we would like to record a video of you while you are participating in this study in case the additional information about what the rest of your arms are doing turns out to be useful. If you do not wish to be video-recorded, you may still participate in the study; please indicate so on this page, here. Pieces of the video recordings may also be useful for research presentations at robotics conferences. This is again optional; if you are willing

The main risk to you is some slight physical discomfort or motion sickness from wearing the headset. If you are feeling discomfort at any time, please let me know, and I will pause the experiment to give you a chance to recover. If you need to leave early, that is also acceptable.

The main benefit will be your $12 Amazon gift card, which should arrive in your inbox in the next business week.

Do you have any questions? Please feel free to read the document; I have spare copies for you to take home if you like.

1. **Provide brief overview of experiment**

“Today you will be asked about the motions you would like to use to command several different kinds of remote-controlled robots.

I’m going to try to have what you’re looking at broadcast to my computer screen here and here’s a video of what this will look like. on the computer screen…” (show them video, make sure they understand how to move forward, press buttons, when the gesture starts and stops, etc, all five demos)

Explain mirror

“You will put on this headset and I will help you adjust it and start up the app. You will then use this trigger button here to select your participant ID, which is \_\_\_\_.

“Once the experiment begins, the robot will pop up in front of you. If you click on the ‘play animation’ button, the robot will perform a pre-animated movement. You can decide what motion you would like to use to correspond to that movement, and then click the ‘record’ button to make the robot repeat that motion while the app records your motion simultaneously. You will provide five demonstrations for the gesture you would like to correspond to each robot movement, and then the ‘Next’ button will pop up, allowing you to move on to the next movement. You can play the robot’s animation as many times as you like before recording, and you do not need to play it in between recordings unless you wish to.”

[Answer relevant questions without over-explaining experiment, and defer some questions if they will be explained later]

1. **Help the participant don and adjust the headset.** Make sure it is comfortable and in focus. Make sure they understand the use of the controllers. Make sure the app is loaded and that casting is happening effectively. If video recording, make sure the webcam is active and includes the full participant.
2. **Perform VR Study (have the user press “Begin”)**
3. **Administer Post-Experiment Questionnaire**

Experimenter Text: “That’s it! Thank you. I’ll take the headset and controllers from you now. If you could please complete this questionnaire, that will be it for today’s study. Thank you for participating and you should receive your Amazon gift card in the next week or so.”

1. **Check all questionnaires for completeness**
2. **Experiment Finished. Thank Subject.**
3. **Ask Subject if they have any questions.**

**Imagine that you want the robot to make the motion you see in front of you, but it’s not doing it. How would you like to move to tell it to do that motion?**