# Step-by-Step Instructions

I. <u>Hardware Set-Up</u>

1. Find a desk, tape measure, computer, phone charging cord, and the provided markers and black mat.
2. You will be attaching two clamp stands to the edge of the desk. One clamp will be for the phone holder, and the other clamp will be for the ring light.
3. Attach the clamp for the phone holder on the edge of the desk. On the underside of the clamp, turn the knob counterclockwise to tighten until it is steady.
4. Open your phone and click on *Iriun Webcam* App. Then, plug the phone's charging cord into the USB port on the computer. Place your phone into the phone holder.
5. Attach the ring light clamp to the edge of the desk. On the underside of the clamp, turn the knob counterclockwise to tighten until it is steady.
6. Plug the ring light's USB cord into the USB port on the computer/laptop. Press the red power button.
7. Then, click the minus sign on the ring light's remote 9 times, so that the light is on the dimmest setting.
8. Adjust the two clamp stands so that the ring light hovers beneath the phone holder without obstructing the view of the phone's camera.
9. Place the black mat on the top of the desk directly below the phone holder and the ring light.
10. Measure the height of the phone holder to the top of the black mat. The height should be 21-23 inches.

II. Hand/Wrist Marker Application

1. You will be placing a total of 8 markers on your hand and wrist.

2. *Palm-Side Down - 3 Markers*
   - Turn your hand and wrist so that your palm is facing down on the table. Place the following 3 markers on the side that is facing up.
     - Marker 36: place on the base of your thumb
     - Marker 29: place on the center of your hand
     - Marker 8: place on the center of your wrist

3. *Palm-Side Up - 5 Markers*
   - Turn your hand and wrist, so your palm is facing up on the table. Place the following 5 markers on the side that is facing up.
     - Marker 43: place on the center of your wrist
     - Marker 1: place on the thumb-side of your wrist
     - Marker 15: place on the little finger-side of your wrist
     - Marker 2: place on the middle base of your palm
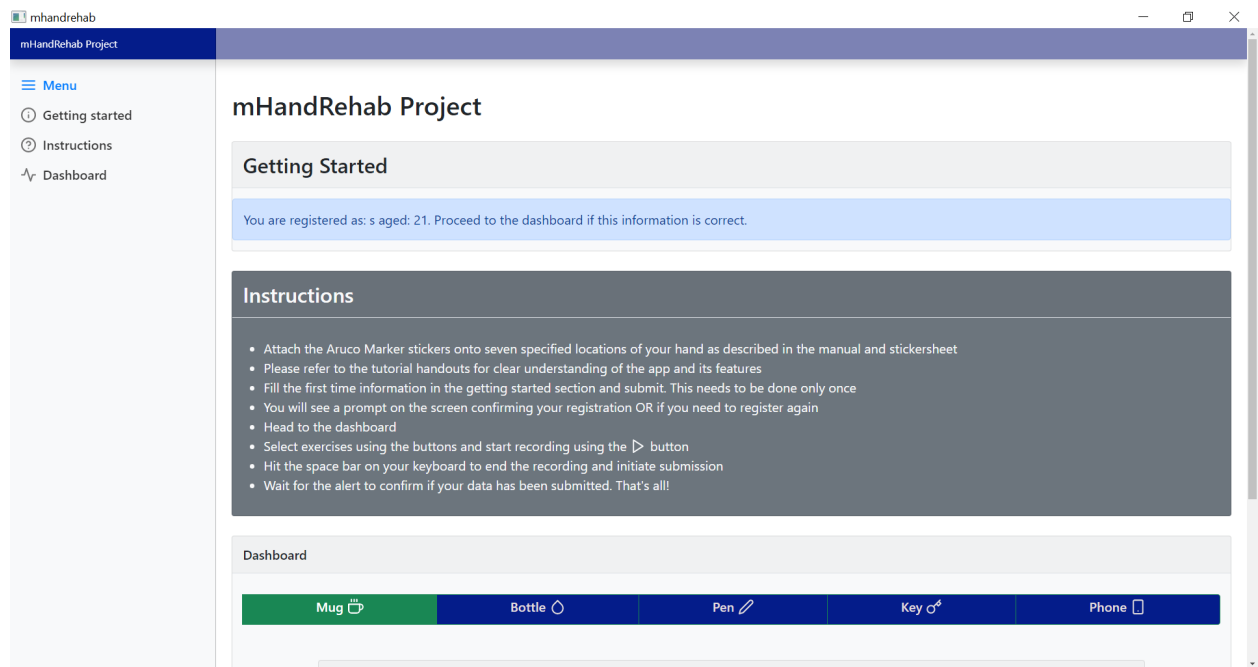   - Marker 22: place on the little finger side of your hand
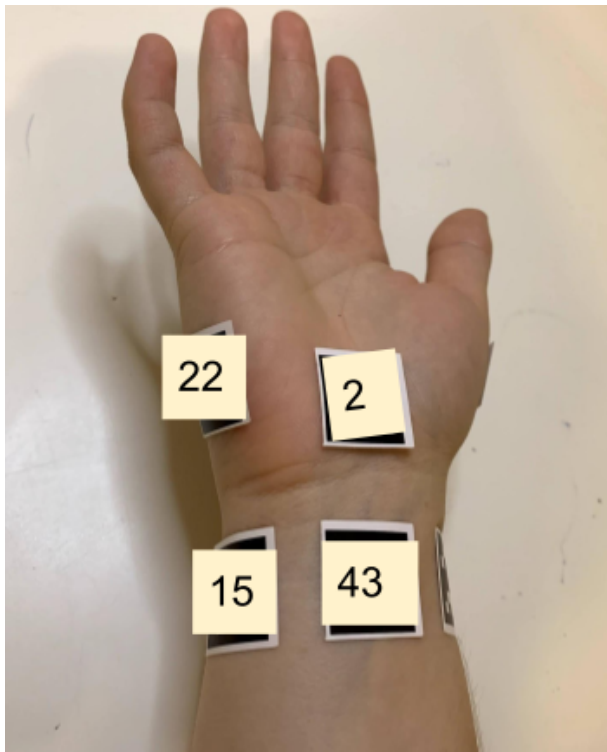
III. Desktop Application Navigation

1. Double click the *mHandRehab* desktop application. This will open up the application.
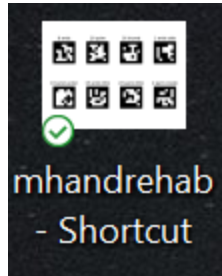

2. A log-in page will open. Log in with your provided user ID and age and click 'Register and Begin.'

3. Then, scroll down to the Dashboard. You will see icons for the four exercises.
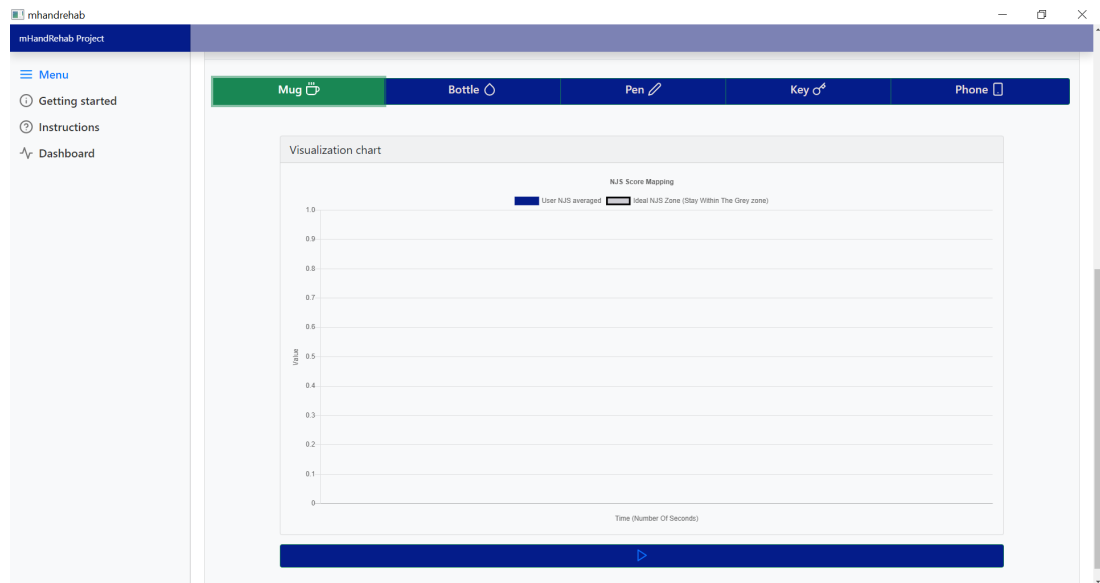
4. After clicking on the appropriate exercise, the exercise icon should become a bold green color.
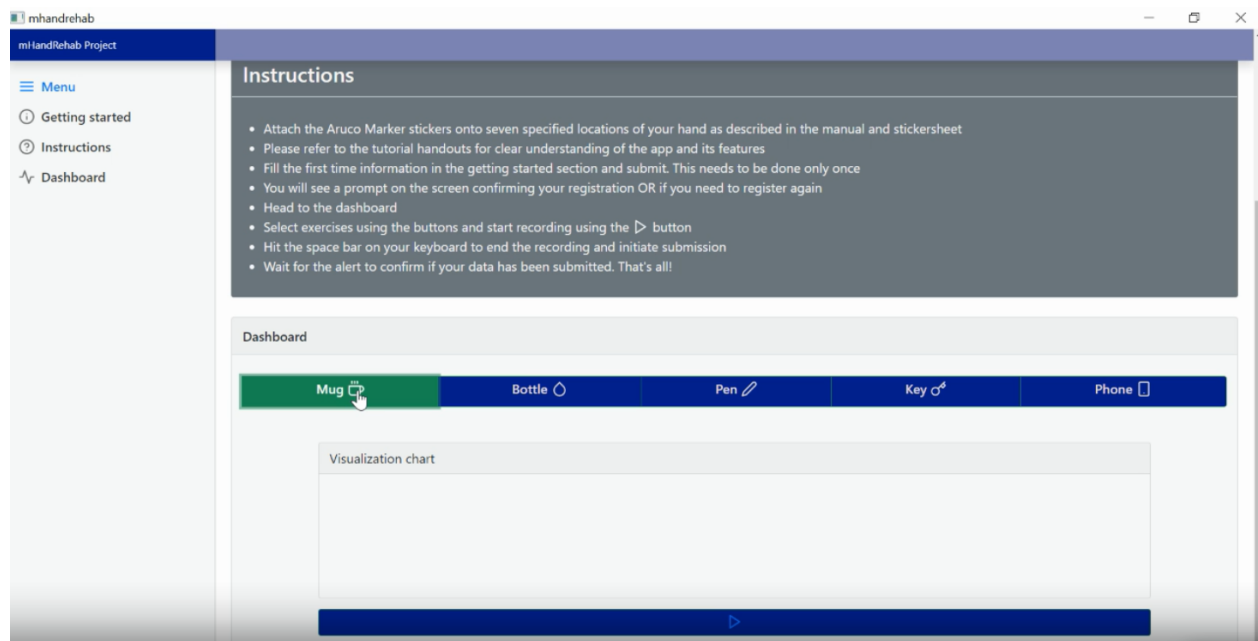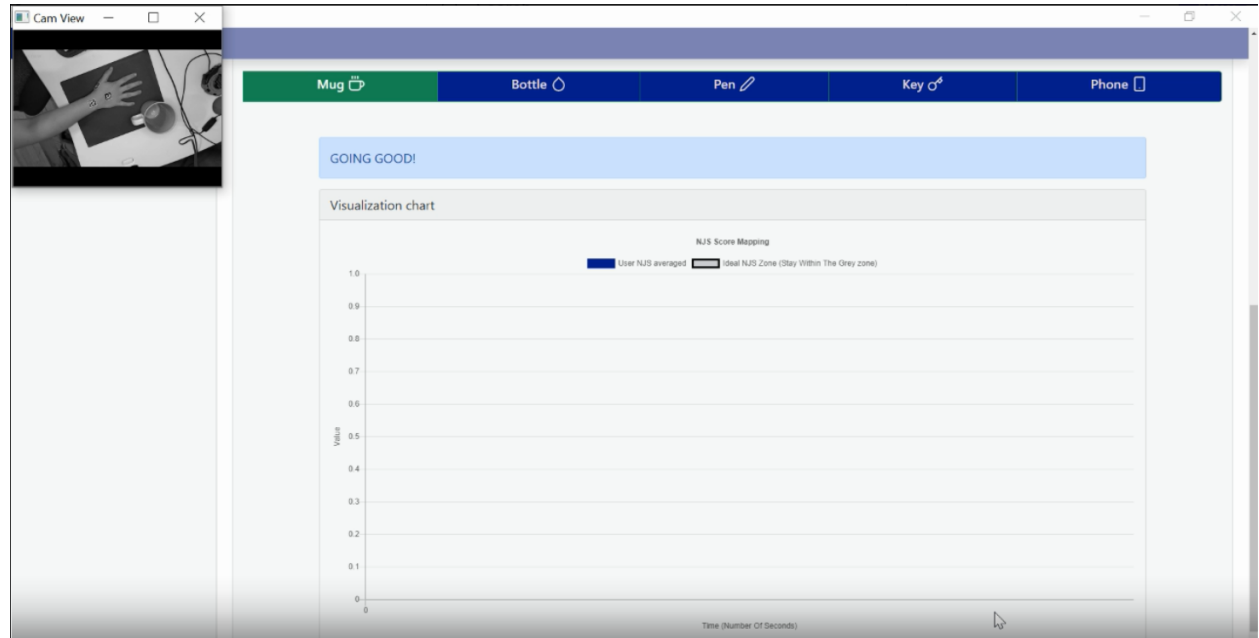

5. Place the object on the black mat.
6. Then, place the palm of your hand, wrist, and half of your forearm on the black mat.
7. To begin the exercise, click the play button with your non-exercise hand.
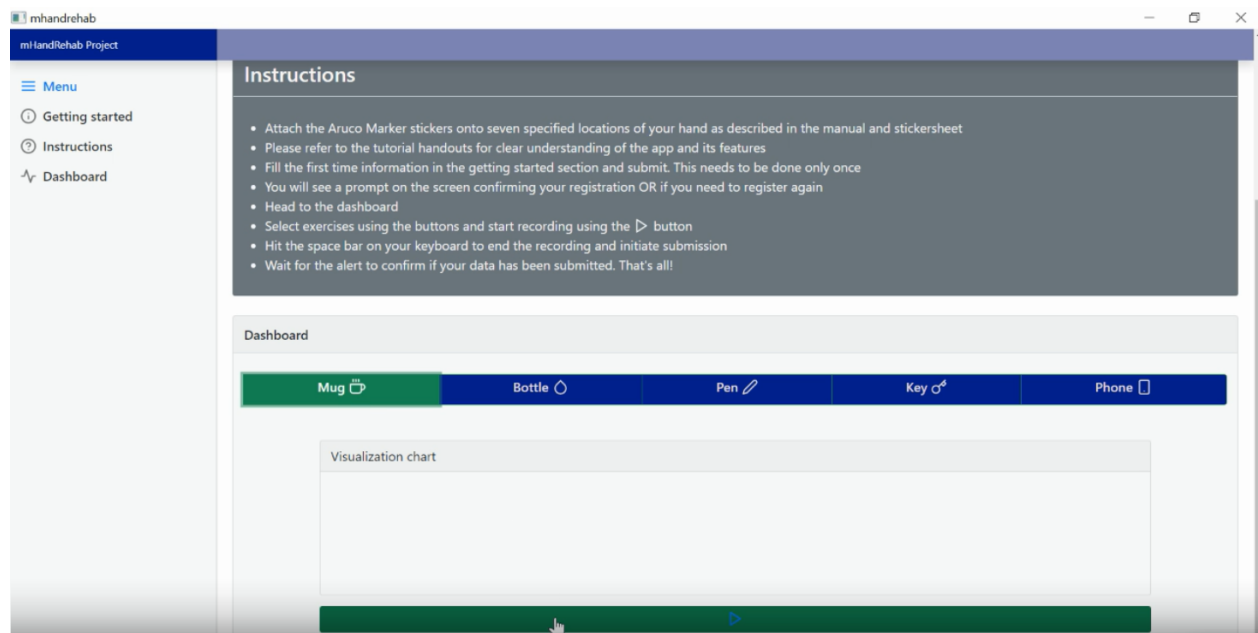
8. The page should refresh and show an empty graph.

9. A small webcam window will automatically open. Make sure your hand, wrist, and half of your forearm are visible in the frame.

10. Pause for one second with your hand laying palm-down on the mat.

11. You may now begin your exercise.

IV. Exercise Completion Instructions

- *Mug*

    1. Grasp the mug with a comfortable grip.
    2. Lift up the object as smoothly as possible.
    3. About halfway in the air, perform a pouring action. Pause for one second at the end of the pouring action before smoothly lowering the bottle back down to the mat.
    4. Then, place your palm facing down on the mat and pause for one second.
    5. With your non-exercise hand, press the space bar to end the exercise.
    6. Wait for the confirmation message in a green alert that says "Great! Your data has been submitted successfully." If you see any other messages, reach out to the program supervisor ASAP.

- *Bottle*

    1. Grasp the bottle with a comfortable grip.
    2. Lift up the object as smoothly as possible. About halfway in the air, perform a pouring action.
    3. Pause for one second at the end of the pouring action. Lower the bottle back down to the mat.
    4. Then, place your palm facing down on the mat and pause for one second.
    5. With your non-exercise hand, press the space bar to end the exercise.
    6. Wait for the confirmation message in a green alert that says, *"Great! Your data has been submitted successfully."* If you see any other messages, reach out to the program supervisor ASAP.

- *Pen*
    1. Pick up the pen steadily and turn the pen in your hand into a writing position. With the pen cap still on, mimic writing your first name on the black mat.
    2. Pause for one second once you are finished writing your name.
    3. Slowly set the object back down on the table.
    4. Then, place your palm facing down on the mat and pause for one second.
    5. With your non-exercise hand, press the space bar to end the exercise.
    6. Wait for the confirmation message in a green alert that says *"Great! Your data has been submitted successfully."* If you see any other messages, reach out to the program supervisor ASAP.
- *Playing Card*
    1. Pick up the playing card steadily.
    2. About halfway in the air, turn over the playing card so that front is facing up.
    3. Pause for one second.
    4. Then, slowly turn and lower the card so that it is facing down on the mat.
    5. Place your palm facing down on the mat and pause for one second.
    6. With your non-exercise hand, press the space bar to end the exercise.
    7. Wait for the confirmation message in a green alert that says *"Great! Your data has been submitted successfully."* If you see any other messages, reach out to the program supervisor ASAP.

V. Audio Cue Meaning, Written Cues, & Graph Interpretation

1. Audio Cue Meaning

    a. If you hear a beep tone during the movement, this means that your movement is too unstable. The goal is to have as few beep tones as possible.

2. Written Cues

    a. The "TOO JERKY" message is giving a written cue to slow down and smoothen your movements.

    b. The "GOING GOOD" message means that your movements are smooth and within the gray zone.

3. Graph Interpretation

    a. The goal is for the blue line on the graph to stay beneath the black line in the gray zone. When the blue line rises above the black line, that indicates that a certain portion of your movement was unstable.