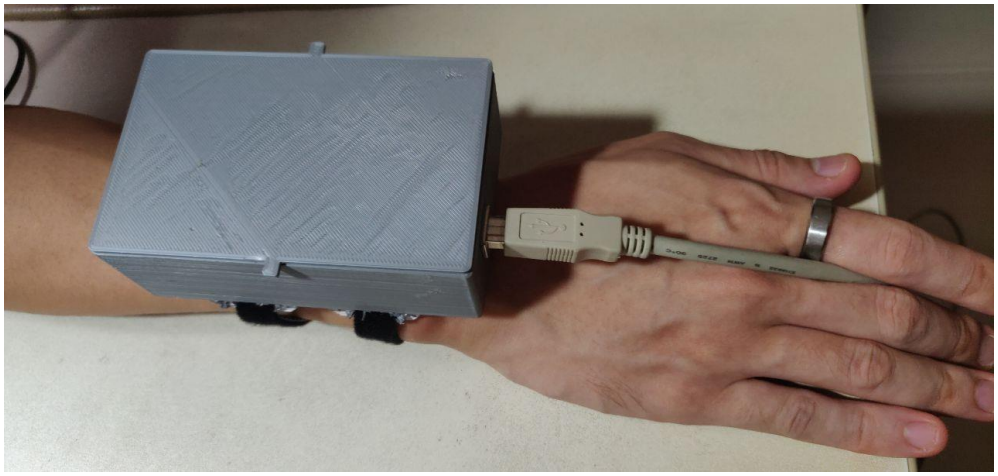
RealSense Physiotherapy Guidance System

Instruction Manual

Hardware

1. Connect the Intel RealSense D435 Camera to your laptop/computer through a USB cable that comes with the camera. An alternative is to use a USB-C 3.1 GEN 1 cable to ensure rapid data transfer and high FPS rates.

2. Put on the wearable module by fastening the wrist strap in the picture shown below. Make sure the cable hole is facing the front. Make sure it is tight to ensure accurate results, but not so tight that it restricts blood flow.

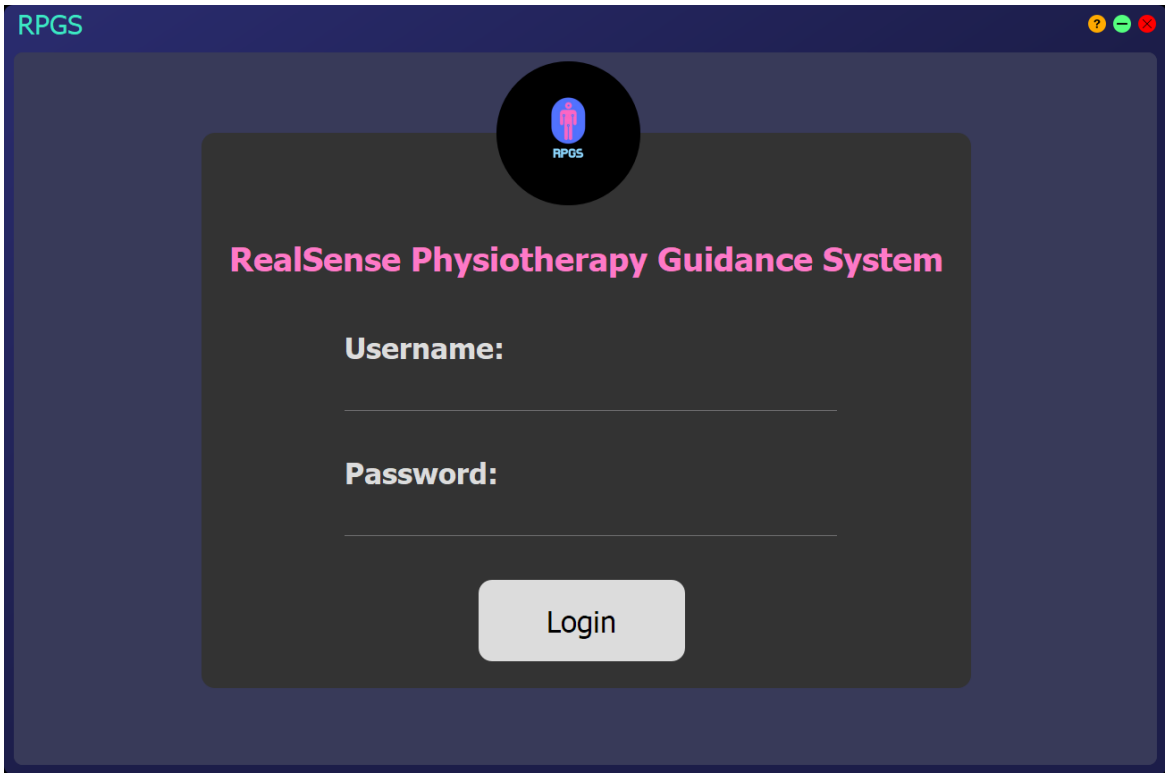


3. Connect the wearable module to your laptop/computer through the 4m long USB-B cable. Ensure that the cable is not tangled.

Software

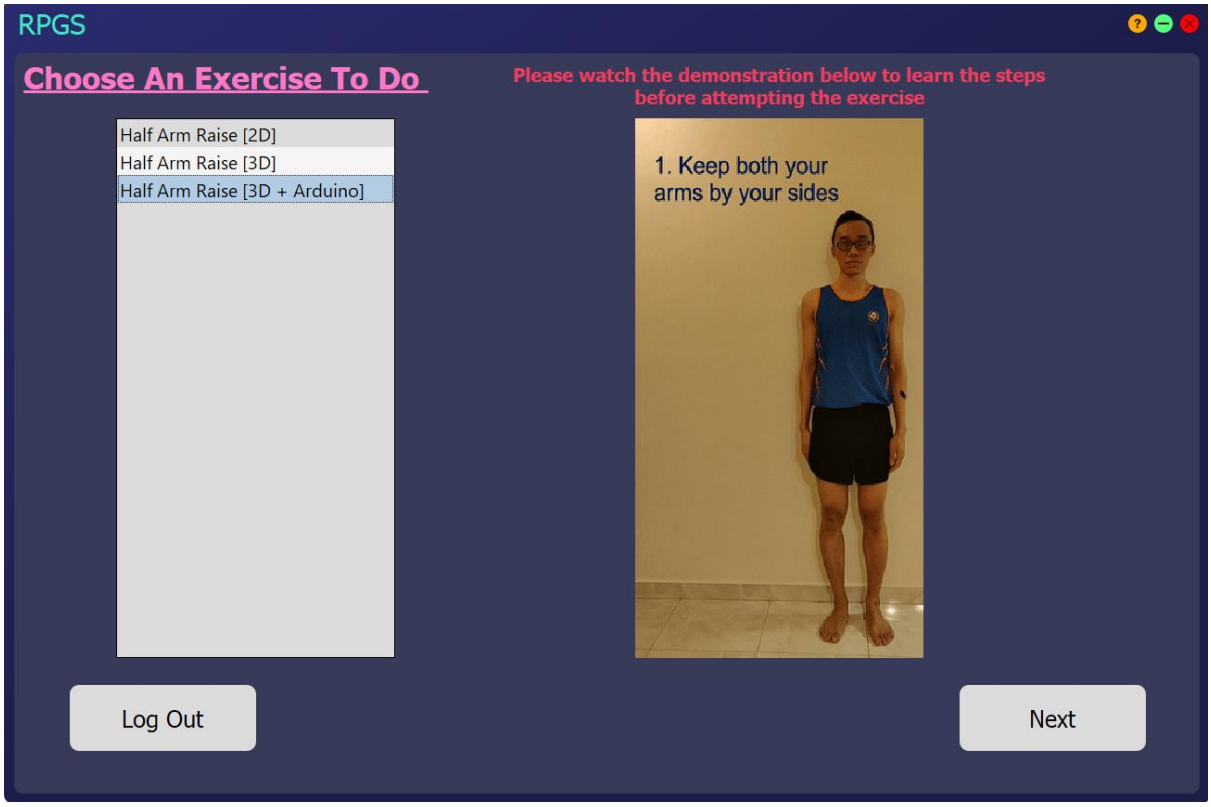
1. Launch the RPGS program on your desktop with the icon:

2. After the loading finishes, log in to your account depending on whether you are a patient or a physiotherapist



Patient mode

1. After successful logging in to patient mode, this screen below should be shown:



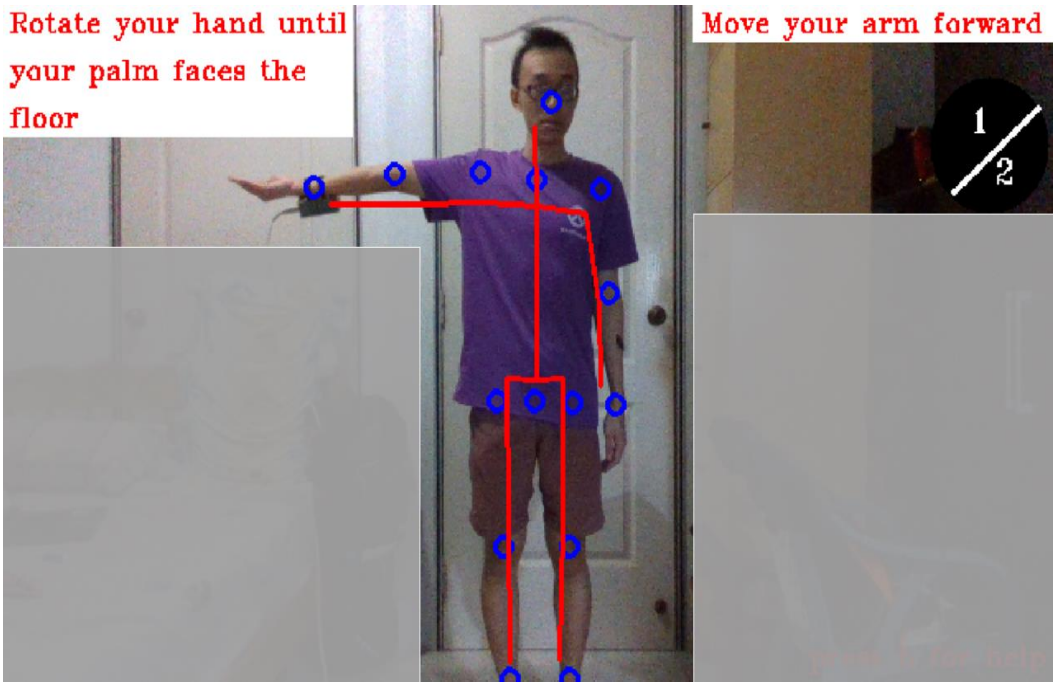
2. The left side of the screen shows a list of pre-programmed exercises that can be selected. Select the exercise you want to do.

3. The right side of the screen shows a demonstration of the exercise.

4. Click the

button at the bottom right corner of the screen after you have finished watching the demonstration

5. You will arrive at a screen showing a feed from your camera, like the one below. Detected skeletal joints are shown in blue, and the guidance skeleton is shown in red.

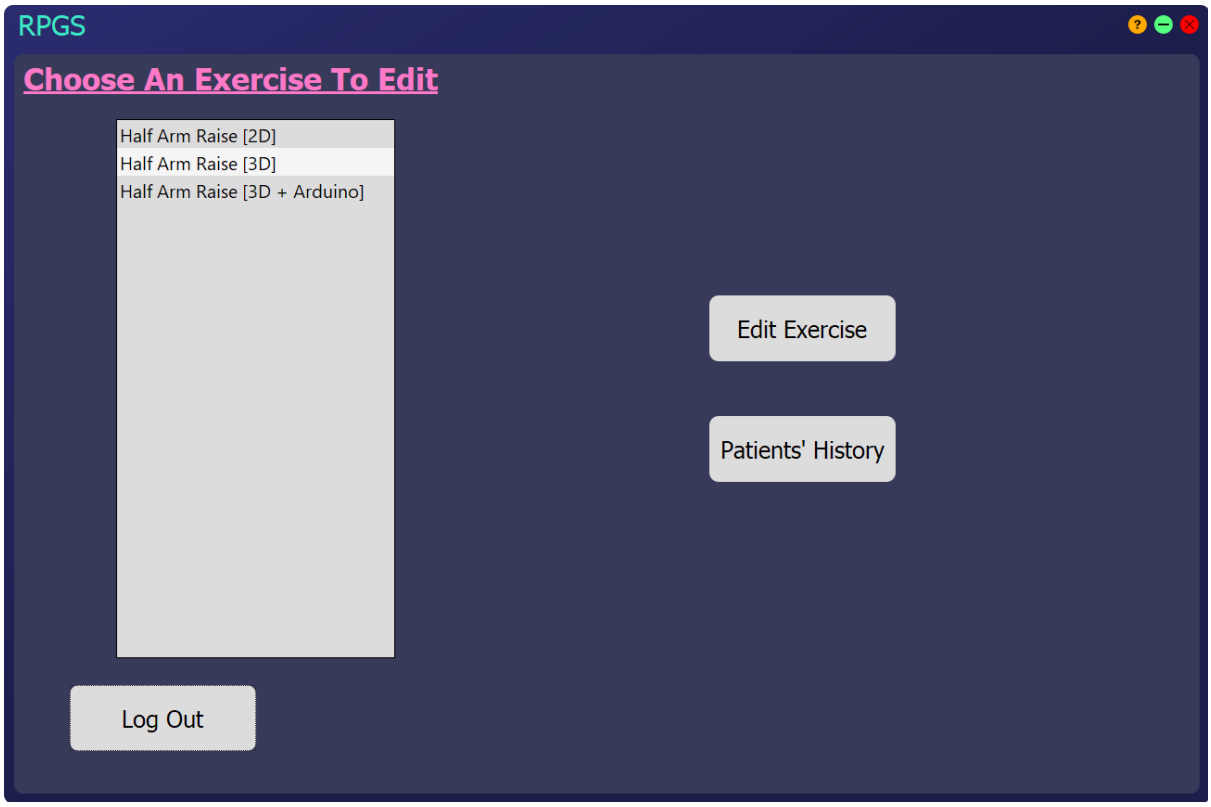


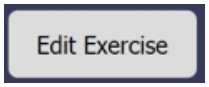
6. Move your limbs to match the guidance skeleton. If a pose needs correction, warnings will pop up on the screen detailing the correction that needs to be made.

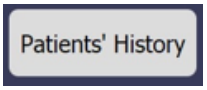
7. A counter is located around the top right-hand corner. It shows the number of reps per set that your physiotherapist has set for you, and how many reps you have completed.

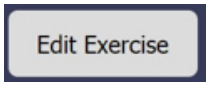
Physiotherapist mode

1. After successful logging in to physiotherapist mode, this screen below should be shown:

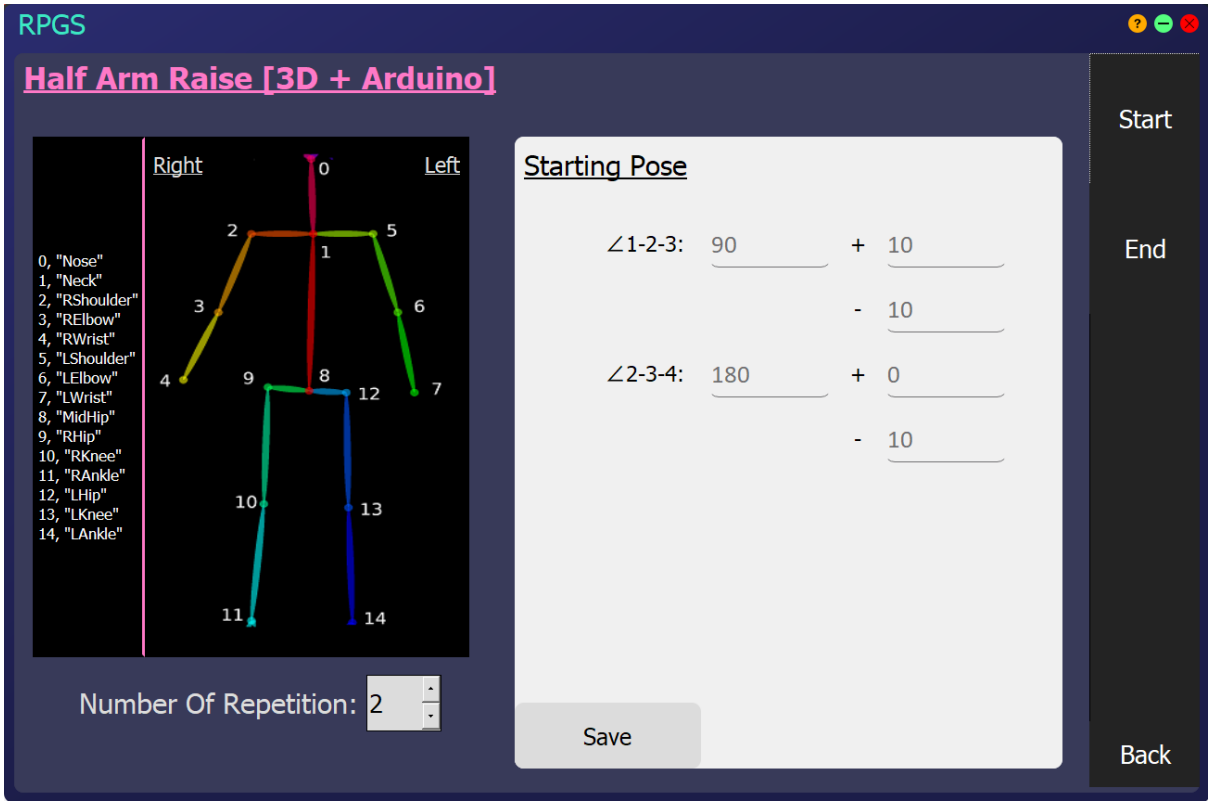


2. The left side of the screen shows a list of pre-programmed exercises that can be selected. The physiotherapist can choose to either edit the difficulty of the exercise under 

or view the patient's previous attempts under 

3. Clicking on 

allows the physiotherapist to customise the respective tolerances of each exercise. The screen below is shown:



A labelled skeleton with numbered joints is shown on the left. Physiotherapist can set optimal angles and acceptable allowances for the exercise to be counted as correct. Physiotherapist can also set the number of repetitions to be executed for an exercise, before saving the values.
[NOTE: All angles are in degrees]