User Manual
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Rehab Remote

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Introduction

We are very pleased to have worked with Biomotum to create the Telerehab Patient Portal to help in your data analytic needs. The patient portal which we have developed is a powerful web application for retrieving all exoskeleton data and graphing them by exoskeleton, user, and trial. Some of the key highlights include: admin ability to assign exos and approve accounts, user ability to view each exoskeleton, user, and trial which they have access to, and ability to download raw CSV data of specific trials. The purpose of this user manual is to help you, the client, successfully install, administer, and maintain the patient portal product in your actual business context moving forward. Our aim is to make sure that you are able to profit from our product for many years to come!

Installation

The web portal is run and serviced on Wix. Therefore, in order to access the site, a good internet connection must be established. Ownership of the wix site has already been transferred so all you need to do is login to your Wix account to access the web portal. The administration side can be accessed from any computer with connection to the internet.

Configuration and Daily Operation

When logged into the Wix site, the administrator will have specific duties whenever a new user creates and account:

- **Account Confirmation**
  The admin needs to confirm/accept the creation of the account that a user is attempting to make. To do so, the admin will simply navigate to the Wix site's inbox, find any messages that involve someone creating an account, click on the message and accept or block the request. If accepted, a user now has access to their account. If blocked, the user cannot create an account with that email anymore.

- **Exoskeleton Assignment**
  The next step for the admin after they accept user account requests is to assign exoskeletons to the new user's email. Navigate to 'Admin Dashboard' and click 'Assign Exos'. Once the user interface loads, click on the new user's email under 'User Emails', this will load the exoskeletons that they have and don't have access to. To add and remove access to certain exoskeletons, click on an exoskeleton in either exo box and click the arrow pointing to the box you would like to move it to. Once you have made the changes to the user, click 'Submit User Changes' before moving on.

- **General Usage**
  Besides new accounts being created, admin can also click on 'Data Hierarchy' from the Admin Dashboard to see the hierarchy for all available exoskeletons. Click 'Retrieve Data' to load the necessary data before clicking dropdowns and looking through graphs. There will be gray question marks below the navigation buttons, which are created to help users move about the page as needed.

Aside from the Wix site, there is also maintenance to the AWS EC2 instance. This instance acts as a remote server that constantly runs the three important Python scripts that populates the Biomotum Google Drive. If anything happens and changes need to be made, here are the steps to doing so:

- **Accessing The Server**
  To access the AWS EC2 instance, navigate to a capable SSH operator on your OS. In Windows, go to powershell. Make sure that you have downloaded the 'biomoutm.pem' key, which is necessary to access the instance. This key should be located in the Google Drive 'Documentation' folder. Navigate to the folder where the kye is located in the command line, then paste this line to access: ssh -i "biomotum.pem" ubuntu@ec2-34-222-9-240.us-west-2.compute.amazonaws.com

- **Moving About The Server**
  The server has all of the main scripts in the root folder, so there are no specific folders necessary to access. Although, the scripts run in two different tmux (a terminal multiplexer used to run multiple sessions) sessions. To access the main session, type: tmux attach-session -t main. To access the summary session, type: tmux attach-session -t summaries. To leave the sessions, type ctrl+b, then d. If you want to stop the scripts from running while inside of the tmux session, type ctrl+c. If you want to run the scripts again, type python main.py for main and python summaries.py for summaries.

- **Getting Server Files On Local Machine**
  Throughout this project, file management between a local computer and the remote server was being done using FileZilla. This is done if any changes need to be made to code. To use FileZilla, open the application and click 'Open the site manager', add a new site, change the Protocol to SFTP, make the Host 'ec2-34-222-9-240.us-west-2.compute.amazonaws.com' and Port 22. Then change the Logon Type to Key file, make the User 'ubuntu', and Browse for the key file in the local computer to find the Biomotum .pem file. Once that is done, click connect, and all access will be completed. It will then be seen that the scripts sit inside the root folder, so there is no need to look through folders to find them. Some other files such as .json files and .yaml file also sit within this directory. Do not touch those. They are used to connect to the Google Drive API within the scripts. If scripts are changed, drag the changed scripts to the FileZilla window to update the files in the instance. Then, ssh into the instance by clicking 'Connect'.

Maintenance

There are a variety of things that must be looked after to ensure the website remains running smoothly. To list a few, security, plugins are up to date, data backed up, domain name and ensuring the site is not slowing down.

In order to maintain security it is important that all keys that are logged in the Wix developer mode are not visible by those that should not see them. This can be done by being careful of who the site's editorial status is given too. There should be weekly checks on who is authorized to interact with the site and also who is given the ability to do any edits to the site. These users are able to not only view the keys but also use them for whatever purposes they see fit. To sum security up, ensure no unauthorized users are gaining access to any parts of the site, also ensure that your personal information such as usernames and passwords are not only very difficult to guess but also not accessible by any other users such as those authorized to use the site.

Plugins are also very important to keep track of, the graphing api that is in use should be frequently checked on to ensure proper usability. You should be checking on any updates to the api calls and or any plans to give the api a massive overhaul. Keeping in mind that this api could be changed in any number of ways is essential to maintaining the usability of the site.

Ensuring that the site is backed up is beyond vital to ensure that this site remains in your hands. At any point, any unprecedented situation could occur where the site is lost in its entirety. The only way to ensure that not all is lost is to have a backup on hand at all times. Ensure that at least every few months, you backup the site by making a copy of it and storing it in whatever location you deem best fit. Ensure that this location is safe not only for the measure of having a spare but also not to fall into another's hand as keys could then be stolen and used for whatever purposes as described above.

There are many methods one can use to ensure that the site is not secretly slowing down over time. One being that you can just try and guess but we will not focus on that method as it is often incorrect and impossible to track. Another option is to use Google's free tool called PageSpeed Insights, this tool can be used to measure the speed of a site. What you can do as the administrator is keep a log of this tool using it to compare to previous tests on your site's speed. A bonus of the PageSpeed Insights tool is that this tool will recommend methods for improving your site's performance, a stretch goal for you.

Trouble-shooting

Although we do not aim for having the potential for any parts of our deliverable to break, the chance remains that it could happen. Three main problems could arise that would cause the website to break, the api gets updated, the database gets filled with improper information and keys are lost. All of these potential problems would cause the site to lose functionality in its entirety. This next section will conduct the analysis of methods you could use to fix any possible problems that arise given the situation.

Given the situation when the api gets updated, the site could break in a variety of ways. The most likely effect would be that the function calls would no longer function properly or at all. Most api's when receiving a major update will change how functions are referenced and also possibly change the name of the function entirely. In order to troubleshoot this situation, the user should reference all api calls and ensure that they match up with the api documentation. If they do not match, reference the logic and commented code to find exactly what functions should be referenced in your particular situation.

If the situation arises that the database is filled with improper information, there are multiple sections of the site that need to be troubleshooted. The first step you should take is looking towards where the input is coming from. Pull up the database and look for any connections to text boxes or anything else, ensuring that data is being pulled from the correct locations. If after checking all locations and they are then found to be connected properly, look towards the codebase and ensure that all population boxe code has not been updated or changed in any manner. Given the situation where functions are called, ensure you take the time to understand those functions and ensure they are working as expected.

The situation of keys being lost could occur, this could happen for a variety of reasons. You could update the keys due to a security break, the api call could be changed and the keys will no longer correctly reference the requested data and more. If at any point the keys are lost or need to be updated for any reason, look towards our developer codebase and simply plug the updated keys into the code. If the api calls are updated, then look towards the text above to find what steps you should take to remedy that situation.

Once again we built this site to be functional before anything else. We aimed to ensure that our site functions properly at all times. This does not ensure that unforeseen circumstances could occur causing unpredictable problems arising in the future of this site. Given this knowledge, know that all circumstances should and will have a simple fix given you give the effort.

Conclusion

Thank you for giving us the opportunity to work with you on this important project. We understand the future implications and are excited to see the impact that this project will have on the future of Biomotum. We wish you the best of luck with the web portal and hope that you are able to effectively use it for many years to come and even expand upon it with new features. While we are all moving on to professional careers, we would be happy to answer short questions in the coming months to ensure that the web portal is operating optimally with Biomotum. With best wishes from your web portal developers:

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