Wearable Soft Robotics for Independent Living

Newsletter September 2022

Must…keep…going!

The Freehab team are very busy as we work towards submitting an application for testing our knee assistive device on patients. It requires a lot of work because, as you can imagine, there are strenuous checks that must be in place to be able to test a state-of-the-art, novel device on real people. Currently, we are focusing on a sit-to-stand device that will assist at the knee, helping its user into standing. We have widened the population that we intend on testing the device on. We have been busy preparing a protocol for testing the device and creating risk documents, information booklets and completing a multitude of other documents that are required for testing. The engineers have faced lots of different challenges, including how to create a device that can offer the right kind of assistance for all users, despite the different size, shape and lengths of legs.

Participants wanted!

We are recruiting participants from our clinical partner sites. We are also widening our recruitment. If you are a stroke survivor or have had a traumatic brain injury and have hemiparesis (weakness on one side), have accessed stroke/traumatic brain injury physiotherapy services (NHS or privately), and live in the Bristol/ North Somerset/ South Gloucester area, then you might be able to test our device in our study. You can find an expression of interest document on our website here https://therighttrousers.com/2022/09/21/want-to-take-part-you-might-be-able-to/ .

This could be Rotterdam…

In July, the engineers Richard and Nahian, and our physiotherapy Research Fellow, Leah, all attended Rehab Week in Rotterdam. This conference was fairly novel in bringing together both clinicians and engineers, when so often they attend conferences separately. This traditional separation of the

professions is a fundamental flaw in the design of a lot of devices. This is one of the fantastic things about the Freehab team, which consists of researchers with clinical backgrounds as well as engineers working closely together.

Hot off the press!

Keeping on the theme of interdisciplinary collaboration, we have a paper that has been accepted for publication regarding physiotherapist and patient perspectives of exoskeletons, and how their perceived limitations might be addressed by new engineering technologies. We look forward to sharing it with you in the next newsletter.

In the meantime, we have had a different paper hot off the press! 'User perspectives on the future of mobility assistive devices: Understanding users' assistive device experiences and needs' is available to read here https://doi.org/10.1177%2F20556683221114790 . The data collection was done before the inception of Freehab, so it is broader than our current focus. Nonetheless, it provided some grassroot ideas for device functions and considerations. Happy reading!

Introducing…

Every newsletter we would like to introduce you to a different member of the team. Up today: Dr Nahian Rahman, our Research Associate:

"My interest in robotics started growing during my undergrad in Mechanical Engineering back home in Bangladesh where I attended robotic competitions and built low-cost alternative solutions based on microcontrollers. After obtaining a master's degree in robotics in South Korea, I made the decision to pursue academic research. My doctoral study had a different focus to my current work, as it explored industrial rigid grippers. Now I am interested in medical and rehabilitation robotics. In the FREEHAB project, I can apply my previous expertise of deploying prototypes and control to soft, compliant, wearable devices. Until now, I contributed to developing a soft knee stabilising device and a soft sit to stand device. We will test the device with stroke patients and patients with traumatic brain injury, which is a great opportunity to build knowledge for future development. I believe this will be helpful in solving the challenging problems of soft robotics and soft wearables."

If you would like to be removed from the newsletter database, please let Leah Morris know. ***The Right Trousers Team***

Contact for newsletter
Dr Leah Morris
Glenside Campus, Blackberry Hill, BS16 1DD
Email: leah.morris@uwe.ac.uk

Find lots more info, including videos, articles and our friendly team of engineers, clinicians, and researchers on: https://therighttrousers.com/

University of BRISTOL

EPSRC
Pioneering research and skills

UWE Bristol University of the West of England