



Dear Colleague,

Welcome to the 6th SocketSense newsletter.

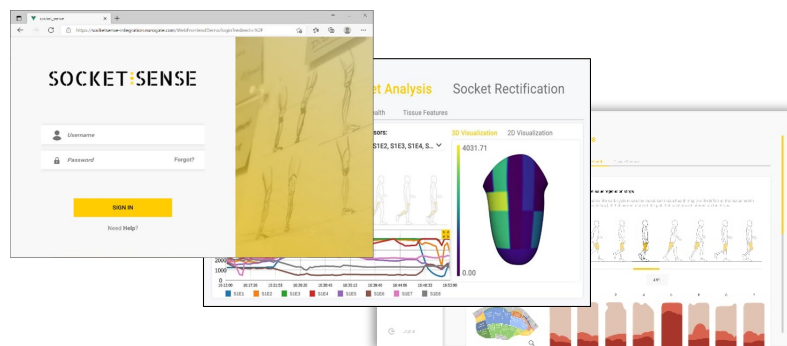
First, I would like to thank all SocketSense partners and supporters for excellent cooperation and communication during 2021 and wish you all Merry Christmas and Happy New Year 2022!



In the rest of this newsletter, I would like to share with you some of the recent progresses.

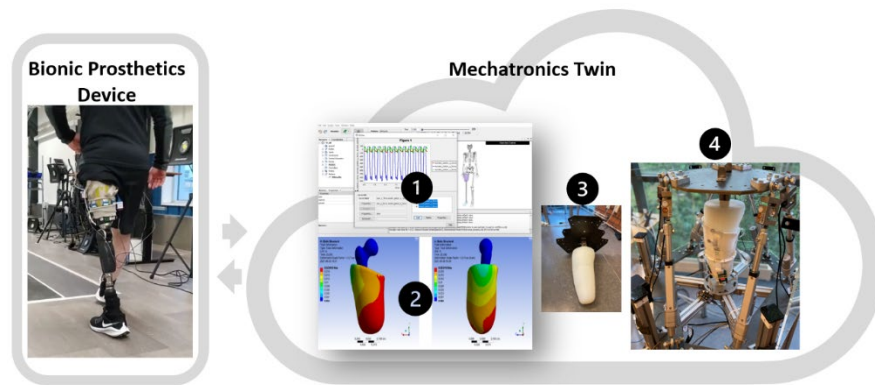
The H2020 project SocketSense aims at developing an innovative prosthetic socket system with an integration of advanced sensing, data analysis, AI methods, embedded edge- and cloud computing. The key cutting-edge is given by the support for an effective monitoring and assessment of dynamic operational conditions within prosthetic sockets that are traditionally not directly observable. To meet these goals, the recent work has been focused on the overall system integration and testing, with the following highlights:

- The work on a software system, featuring a graphical user interface (GUI) and a set of services relating to sensor calibration, data collection, analysis and presentation, has been continued. See the figure below for an illustration of the GUI. Further tuning or minor improvements and accommodation for user interactions, e.g. comfort-level visualization, will be performed after clinical trials have been completed during 2022.





- The testing of the sensors and the associated electronic system for functionality and performance assessment has been continued at the lab scale. In particular, dynamic testing with the sensor strips in socket, of which the stimulus are generated by a test rig of Stewart Manipulator according to some analytically defined dynamic gait trajectories, has been successfully conducted. This test rig has been developed as the key part of a mechatronics-twin framework that serves as an analytical replica for revealing complex operational interplay of amputee, prosthetic device and prosthetic socket. For a short overview, see the white paper here (<https://www.socketsense.eu/2021/09/20/whitepaper-on-twin-framework/>). A more detailed technical paper on the system design, titled “A Mechatronics-Twin Framework based on Stewart Platform for Effective Exploration of Operational Behaviors of Prosthetic Sockets with Amputees”, has been accepted to BIODEVICES 2022, the 15th International Joint Conference on Biomedical Engineering Systems and Technologies. This conference aims to bring together researchers and practitioners from electronics, mechanical engineering, physics and related areas.



- Furthermore, the clinical trials to be carried out at South Tees Hospitals NHS Foundation Trust, Middlesbrough, UK, and the Virgen del Rocío University Hospital, Seville, Spain, have been finally approved. The project partners are currently also trying to cope with the uncertainties due to on-going COVID-19 pandemics. See <https://www.socketsense.eu/2021/06/22/clinical-tests-are-progressing/>



All the best

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