SUMMARY

Aim of the present study was to develop a mobile application for real-time monitoring and guidance of the patients using smart scoliosis brace. Application that offers a modern UI that is both comprehensive and easy to understand for ordinary user without prior medical experience. For these purposes C# programming language and Unity IDE were used, the prototype of the application was designed in Figma. The final application contains 6 screens: authentication, home page, strap pressure, breathing pattern, statistics and Bluetooth connection. Developed application can be installed on Android device.

In the UI of the application, the user can see the strap pressure value that is received from the corset's sensors along with the amount of time when the corset has been worn. This information helps users to wear corsets correctly for the prescribed number of hours. Additionally, Bluetooth connection-related data is displayed on the respective screen to provide the state of connection and data-related information.

To conclude, the mobile application for smart scoliosis monitoring has a great potential to improve treatment quality and help patients to track their progress as well as provide physicians with more data for the assessment. Due to the fact that the application was implemented in Unity IDE, it has a potential to become available for iOS devices as well as for desktop devices which would make the product accessible across all major platforms.

Together with further improvements, the application has the potential to become immensely helpful for patients undergoing scoliosis treatment. The future work should focus on database integration to safely authenticate the user and display corset-related data, this also includes push notifications implementation which is heavily dependent on database integration and was part of the application's requirements. Besides, further UI improvements should be implemented, such as different states of connection/data, the graphs to display strap values during the day, and have a functionality to change the time period to weeks or months as well as the graphs with breathing information. Besides the information of the Bluetooth connection status, different API commands can be added to help the user to debug corset/Bluetooth-related issues independently.