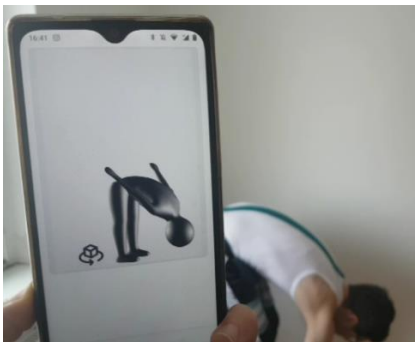
Student research project (Bachelor-, Studien- oder Masterarbeit) - Hardware

Hi! We are MinkTec, a spin-off of the IMT (https://www.tu-braunschweig.de/imt) and we want to be the very first company to find and successfully target the causes of non-specific back pain. Our unique sensor shirt is the first easy-to-use technology in the world to track the exact shape of the spine 24/7 and display a personalized 3D-avatar of the user in their mobile app. Using machine learning algorithms, we want to analyze motion patterns of back pain patients to find the causes of their pain. Our app provides tips and tricks for better posture as well as targeted vibration alerts and includes an individualized training plan that is covered by all German Health Insurances.



Status quo: app prototype

Plan for further development

If you're in doubt, here is a proof, that we are just as nerdy as you ;-)
https://www.youtube.com/watch?v=TM2augDfPaI&t=1s

We want to launch our product by the end of 2021 and still have a lot of development ahead of us, so your contribution would be very much appreciated and needed!

If you are interested in any of our topics or if you want to create your own (like building a website, working on our product-market-fit, testing the system etc.) please feel free to contact me via benjamin.holmer@minktec.com or +49 176 6122 8869

Development Topics:

Hardware: We want to continuously improve our hardware, e.g. include new features (GPS module, new microcontroller, more accurate IMUs etc.). We are looking for mechatronics engineers, who love to take on new technical challenges and add their own creative thoughts. If a soldering iron is an integral part of your work space and if you're the kind of guy – or girl – who likes to create their own technical solutions for everyday problems, you have come to the right place.

Materials Science: The signals of our sensors start drifting after a few hours, which means our software may not detect the correct shape of the spine, resulting in wrong conclusions for the user. The material is undergoing some sort of hysteresis, visco elasticity and/or temperature drift. We want YOU to find out what is really going on in the micro structures and try out new substrates and conductive materials for screen printing (like carbon nano tubes etc.) and/or manufacturing processes to improve the quality of our signals. If you can help us bring our sensors up to medical grade, we could create a huge impact on the treatment of back pain.

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