

Challenge 1: Sphaira Medical

Stevie Wonder - Conceptualise the audio intercom system for MOBY and build a first prototype.

Sphaira Medical's Moby is a mobile protective pod that allows individuals to interact with the outside world without being exposed to contamination. To ensure a flawless sound interaction they need to develop a bi-directional, full duplex audio connection that is both noise cancelling and has minimal echo yet also ensures for an all encompassing sound experience.

4 Key Facts about the Challenge

- + **Challenge Partner**
 Sphaira Medical is a medtech startup with the vision to revolutionize care in medical isolation. Their goal is to bring people together no matter how dangerous the circumstances. How do they do this? They create MOBY™, the first 360-degree mobile protective pod.
- + **Mentor & Industrie Experte**
 Golo von Basum combines profound skills in leadership, networking, transformations, communications, strategic planning, a combination of multiple roles, and supplier management with his knowledge in physics, technology, and medical product development.
- + **Technical Challenges**
 Analyse audio behavior (echo, reflections, damping) inside MOBY to derive specific requirements - Select and basic test of Dev-boards (inside and outside) - Build breadboard set-up based on Dev boards for MOBY (full duplex, inside and outside) - Bench testing of breadboard setup to understand and initial optimisation of parameters.
- + **Why is it important**
 MOBY is the world's first Mobile Protective Pod. It is designed to make meaningful face-to-face interaction possible for people facing medical isolation.



Why you should apply and what you will learn

In this challenge, you will gain insight into the product development of a medical product and learn audio designing and testing, SW development (embedded & application) and electrical engineering (circuit & PCB designer).



Golo von Basum

Chief Product Officer
at Sphaira Medical

Challenge 2: Restless Audio

SmartCabinet - Make Pro Audio systems smart and increase the usability

We run high-power, high-volume audio applications with the typical DSP-Amplifier-Speaker setup. The goal is to use Speaker-Feedback to regulate DSP-values like Gain, Limiter and volume in reaction to Date, Time and sensor-values from the Speakers like SPL, temperature etc.

4 Key Facts about the Challenge

- + **Challenge Partner**
 Restless Audio is a spinoff project of Chris Iwasjuta. Chris has spent the last years designing, manufacturing and running multiple sound systems from MotionLab.Berlin.
- + **Technical Challenges**
 The goal is to make the system easily usable and run at total capacity without technical damage. The basis of the project is the open-source WiFi addon for the DCX2496 Audio controller. A new embedded project has to be created to measure sensor data in/on the speaker and report them back to the DuinoDCX-unit-SPL-Driver temperature.
- + **Mentor & Industrie Experte**
 Co-Founder of MotionLab.Berlin, Chris Iwasjuta also spends his time building and setting up professional sound systems putting them at the disposition of Berlin's infamous electronic music scene.
- + **Why is it important**
 By solving this challenge the system can be easily customized to every venue and event which directly improve the experience of the attendees of the show.



Why you should apply and what you will learn

You are in love with Berlins infamous electronic music? Do you love tech? This challenge is perfect for you. Be part of a self-made pro Soundsystem and learn about ESP32 development as well as the gathering and processing of radio frequencies and Wifi.



Chris Iwasjuta

Co-Founder & Managing Director
at MotionLab.Berlin

Challenge 3: Resc.io Safety Station

The intelligent first aid equipment with real-time monitoring

Thousands of safety stations need to be checked and refilled constantly, all by hand. Redicilous isn't it? Resc.io is changing everything. If not, first aid can be a huge problem. Resc.io saves lives and resources, as it provides real-time updates on medical equipment's status using permanent monitoring via different sensors, remote control via one IoT-Cloud real-time alerting/ rule engine and escalation levels.

4 Key Facts about the Challenge

- + **Challenge Partner**
 Resc.io is a spinoff company of Rhenus Logistics born in 2021 through a corporate partnership with MotionLab.Berlin seeking to optimize the monitoring of first response equipment in Industrial warehouses.
- + **Technical Challenges**
 Make Resc.io even smarter and design a visual dashboard that customers love. For this, you will choose the appropriate hardware components. Develop a system to send data by the trigger to the resc.io backend and ensure configurability. As an add-on we want to integrate NFC identification.
- + **Mentor & Industrie Experte**
 Julia Jörling and Jonas von Frieling combine the experience in Management and Industrial Engineering needed for Resc.io to continue growing. Join the ride!
- + **Why is it important**
 The cost to manually control Safety Station is enormous. If something is missing, it can cost lives! A smart solution lets companies focus again on the essential and protects.



Why you should apply and what you will learn

The Challenge is perfect for you if you want to learn more about UX/UI design, backend development, data gathering and analysis, rule engine design, geofencing, and customer behavior prediction.



Julia Jörling

Project Manager Innovation Hub
Rhenus SN Digital GmbH & Co. KG

Challenge 4: MotionLab.Berlin

Smart MeetingRoom - Smart Display to show / book meetingrooms with your Membercard

At MotionLab.Berlin you can easily book various resources like machines, rooms and more. To improve the user experience we want to make every reservation easily visible directly at the resources. What are your ideas to combine a digital booking system with our infrastructure? Come on a journey with us.

4 Key Facts about the Challenge

- + **Challenge Partner**
 MotionLab.Berlin is a Hardtech Innovation Hub created in 2017, hosting more than eighty companies and five hundred active members looking to innovate in Hardware Solutions and now you are part of it.
- + **Technical Challenges**
 Create a smart Display that queries the COBOT API to display booking the according to the entity. Make an instant booking of the resource possible on-site. Use an NFC-Reader to identify the user and assign the desired booking accordingly. Make it energy-efficient / run on batteries / solar.
- + **Mentor & Industrie Experte**
 Chris Iwasjuta is a Co-Founder at MotionLab.Berlin and the expert in Tech. With great experience driving hardware projects and constructing prototypes for startups and corporates he will support you on this journey.
- + **Why is it important**
 By optimising the booking of resources at MotionLab.Berlin, members will reduce their prototyping delays and staff can better manage and maintain the various prototyping machinery



Why you should apply and what you will learn

Werden Sie Teil unseres Challenge-Teams und entwickeln Sie etwas, das von Hunderten von Menschen jeden Tag benutzt wird. Lerne den Umgang mit den API-Schnittstellencobot, oauth2, esp32, e-ink display sowie Touchscreen und WiFi / (Lora)



Chris Iwasjuta

Co-Founder & Managing Director
at MotionLab.Berlin