MAKERSPACE

eBootcamp 2022

Pitchdeck for **Start-Ups**

Agile development for electronic hardware products

Batch #1 | Oct-Nov 2022

BY UNTERNEHMER TUM

MAKERSPACE

What is the eBootcamp?

combines blended learning and
hands-on product development

specific focus, quicker prototyping,
more concentrated effort

17.10.22 - 30.11.22

- **in-person, team-based electronic product development sprint.**

- **6 weeks, part-time.**

- **10-16 hours of training per week including 1-1 and team coaching sessions.**

- **6 hours of product and technical support from application engineers & subject-matter experts.**

- **individual, focused development time.**

- **access to MakerSpace's electronic labs & technical infrastructure**

- **combines established companies and startups in one format**

01

Overview

MAKERSPACE

02
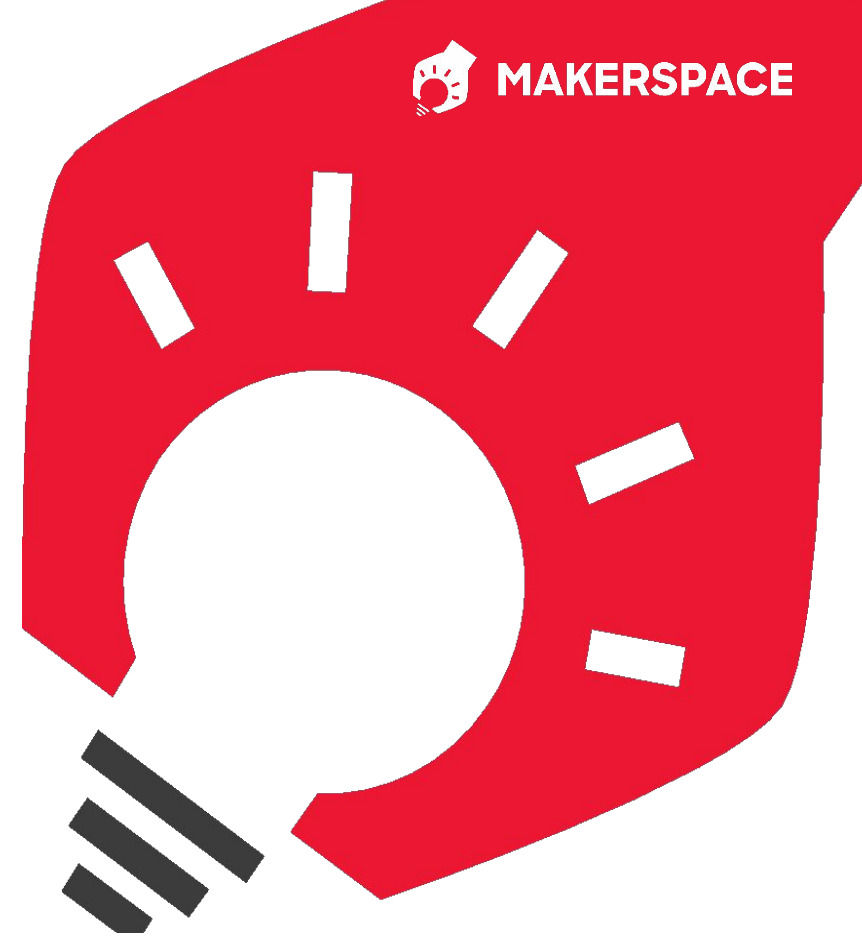
Our Innovation Ecosystem - UnternehmerTUM

MAKERSPACE BY UNTERNEHMER TUM

UnternehmerTUM is Europe's **leading start-up and innovation center**, with more than **50 high-growth technology start-ups every year** and its unique range of services. Founded by Susanne Klatten and Prof. Helmut Schönenberger in 2002, UnternehmerTUM has played a key role in numerous well-known startups including Flixbus, Konux, Celonis, Proglove, AirUp, Tado and Twaice.

- We help founders turn **their ideas into reality**.
- Our teams of experts help **start-ups develop and launch new products**.
- **Our industry and business network** helps start-ups and scale-ups build their own **innovation capacity and company culture.**
- MakerSpace offers companies, start-ups and innovators a space to invent, **prototype and develop their phygital/phystech** at two locations with a total of 2,700 square meters.

5.000+	Participants / year

50+	Scalable startups / year

100+	Partnerships / year

03

Our Innovation Ecosystem - MakerSpace

UnternehmerTUM MakerSpace is one of Europe's leading high-tech workspaces, which offers members access to the entire range of equipment and facilities required for advanced prototyping. Our infrastructure includes electronic circuit board design and production machinery, CNC-production machines, 3D printers, laser-cutters, vacuum formers, hardware libraries and 80+ pieces of equipment. MakerSpace is staffed by a dedicated team of makers, engineers, prototyping- and subject-matter experts.

STANDORT GARCHING MAKERSPACE I

The original in Garching - a 1,500m² high-tech workshop open to the public, and conveniently located on the TUM Garching Campus within walking distance of several faculties, as well as GATE Garching.

STANDORT MÜNCHEN MAKERSPACE II

Located in Munich Urban Colab (MUC) - 1,200m² of high-tech workshop space near the center of Munich, with a focus on electronics, IoT and robotics. MUC is collaborative space focused on developing and testing solutions in the Urban Mobility, Smart Cities and Sustainability fields.

04

MakerSpace Infrastructure

## Teams participating in the eBootcamp have access to:

Two electronic labs (Munich Urban Colab & Garching)

- Pick & Place: Essemtec Fox & Fritsch placeALL510
- PCB Mill: LPKF ProtoMat S64
- Oscilloscope: Rohde & Schwarz RTM3004
- Power Supply: Rohde & Schwarz NGP800
- Reflow Oven: IBL SV 540 & Asscon VP450
- Screen Printer: Uniprint-M
- Virtual Bench: NI VB-8012
- Microscope: Zeiss Stemi305

Component & Hardware Library

- Standard sensors such as air-pressure, light, touch, induction, motion, acceleration.
- Cameras for ESP, Raspberry Pi, including 3D cameras.
- Wireless network hardware für Zigbee, WLAN, LoRa.
- Actuators - Servos, Stepper, BLDCs, etc.
- Actuator drivers
- Hardware kits for topics such as wireless power supply, connection technology, etc.
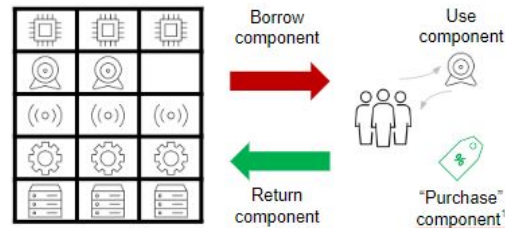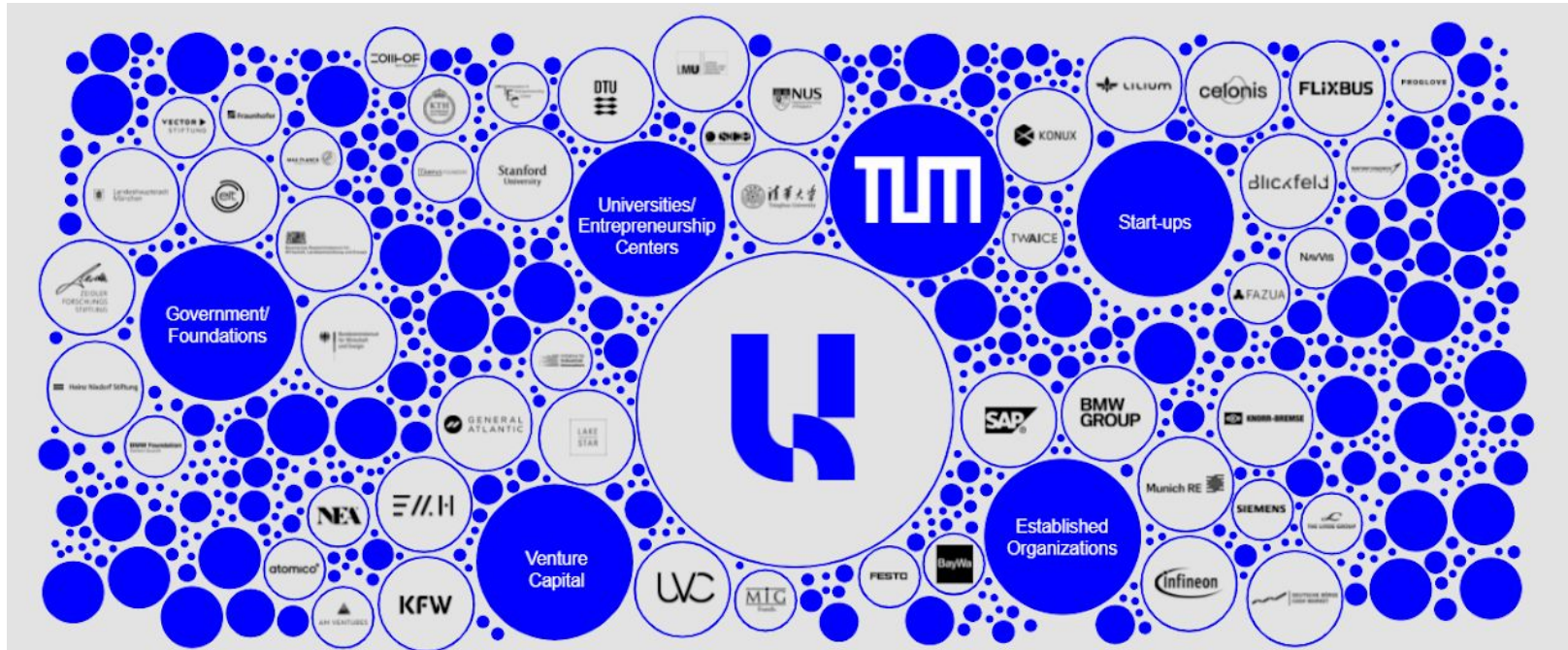

Dedicated IoT Lab
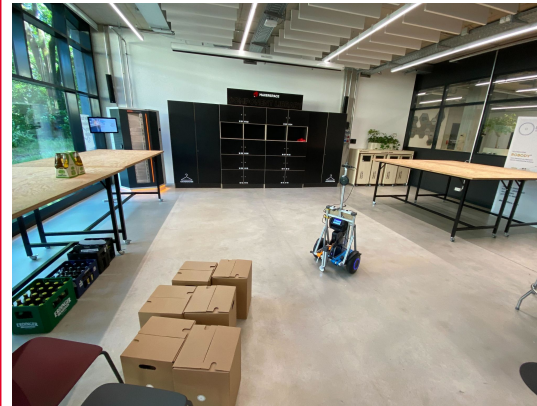
Access to MakerSpace's complete workspace:

- 3D printers and scanners (FDM, SLS, SLA)
- Laser-cutters
- CNC production machines, including milling, water-jetting, bending, etc.
- Fully equipped wood workshop.
- Fully equipped textile workshop.
- Numerous other machines.

05

Our partners – profiting from domain knowledge and a diverse ecosystem.

UnternehmerTUM & MakerSpace have an established network of partners across industry, universities, venture capital, family offices and established startups.

Our corporate and knowledge partners for the eBootcamp include:

06

eBootcamp - Overview

The goal of the eBootcamp is to help startups, corporate innovators and student teams to more quickly and cost-effectively develop high-quality prototypes in the fields of IoT, Connected Devices, Robotics & Automation. The bootcamp takes place twice annually, and consists of 5 entries for startups & 5 corporate (sponsored) teams.

THE FORMAT

- **5 Corporate and 5 Startup Teams participate in the eBootcamp. (Startup teams should have already raised (pre)seed-funding or a prototyping grant)**
- **Each team brings their initial prototype or MVP.**
- **The goal is for each team to achieve two product iterations and present them at the Demo Day.**

| Start with an MVP | Product development plan | Hands-on learning and coaching | Iterate | Functional/Advanced Prototype |

07

Program Overview

The first batch of the eBootcamp will run from 17.10.22 through 30.11.22.

Companies and startups can focus on their product development and make use of the vibrant MakerSpace environment:

The program includes:

1. Coaching and hands-on product development sessions from our team of electronic, software- and product-development experts.
2. Expert sessions from MakerSpace's corporate partners on PCB design, sensors, industrial automation, battery technology, testing & inspection, soldering & electronic production processes,
3. Use of the IoT hardware & electronic component libraries at MakerSpace
4. Machine–access-courses and access to the electronic lab for the duration of the program.
5. Access to MakerSpace's complete infrastructure, including electronics lab, 3D printers, laser-cutters, CNC-machines, spread over two locations, for the duration of the program. For a complete list, visit: **www.maker-space.de/werkstatt/**
6. Demo Day - product pitch with MakerSpace ecosystem partners.

eBootcamp Timeline & Structure *(Subject to revision)*

Our eBootcamp is organized to support, and gently push through two design iterations, while maximizing the transfer of production and process knowledge.

Week 1
- Kick-off Event
- Start-up Stories - *learn how successful product startups did it.*
- Onboarding electronic lab
- Kick-off Workshops
  a. 'User-centric product development'
  b. 'Planning your prototype'
- Project planning, goal setting & initial BoM
- Access courses electronic lab (PCB design)
- Independent work
- Check-In (2x weekly)

Week 2
- Access courses electronic lab (Pick 'n' Place, measuring & testing)
- Additional MakerSpace Kurse, e.g. 3D printing, Laser-cutting, etc.
- Coaching
- Check-In (2x weekly)
- First Demo-Session (Rough Prototype)
- Expert Session
  - Sensor Selection and Integration (Würth Electronics)
  - Industrial Automation (Siemens)

Week 3
- Coaching & guided product development
- Check-In (3x weekly)
- Expert Session
  - Battery Technology (Panasonic Industry)
  - Industrial Sensors (Infineon)

Week 4
- Coaching & guided product development
- Check-In (3x weekly)
- Second Demo-Session (Functional Prototype)
- Expert Session
  - Soldering and Production Processes (Stannol?)
  - Measuring & Inspecting (Rohde & Schwarz)

Week 5
- Coaching & guided product development
- Check-In (3x weekly)
- Expert Session
  - Sensors & Laser-Scanners (SICK)
  - From Prototype to Product (Würth Electronics)
  - Product-Testing (National Instruments)

Week 6
- Coaching & Coaching & guided product development
- Check-In (3x weekly)
- Demo Day
- Networking with Partners, Stakeholders and Investors

MAKERSPACE
BY UNTERNEHMERTUM

09

Success Stories – Made @ MakerSpace

PARK HERE

ParkHere develops and implements IoT-based solutions for parking and fleet management.

The three founders met at the "Makerthon" at UnternehmerTUM in 2015, and developed a concept to optimize the utilization of the parking space using autonomous sensors and energy harvesting technology.

The team worked at MakerSpace and participated in various UnternehmerTUM programs, allowing them to successfully launch in a very short time.

https://www.youtube.com/channel/UC4AuSF_NNQRAtlCvw8RYrDA

PROGLOVE

Proglove builds industrial wearables that are the lightest, smallest and toughest wireless barcode scanners in the world, offering employees in the fields of manufacturing and logistics a more efficient, ergonomic and connected way of working.

The team has grown into 250+ employees & raised $49m in funding to date.

https://www.youtube.com/watch?v=wC76e87L0Qc

air up

air up® is a revolutionary new water bottle. The one-of-a-kind drinking system transports carefully-crafted "flavors" through the mouth to the olfactory receptors, where your brain perceives the smell as taste.

The five founders began their entrepreneurial journey in 2017, and have built a very successful company with 250+ employees & $68m in funding raised.

https://www.youtube.com/watch?v=lGf3hGasD70

10

Success Stories - Made @ MakerSpace

TUM|HYPERLOOP
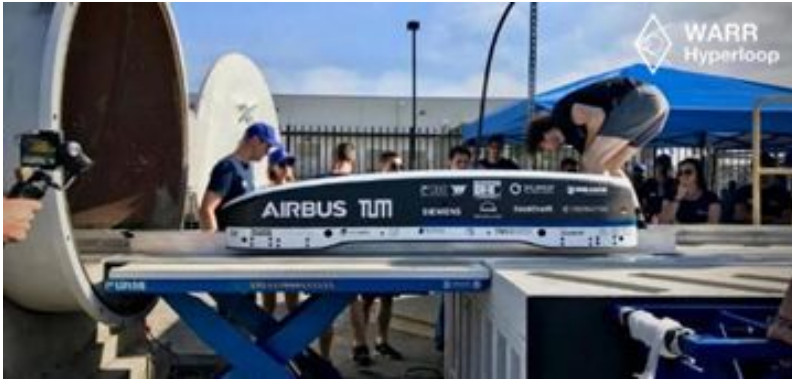
In 2015 a student initiative was founded at the Technical University of Munich (TUM) to develop and build prototypes for the SpaceX Hyperloop Pod Competitions. Over the last half decade the team has won all editions of the event and gathered extensive experience in the field of ultra-high-speed ground transportation.

In 2019 the Technical University of Munich, working closely together with the successful student initiative NEXT Prototypes, has launched the ambitious TUM Hyperloop program with the aim to design and build a full-scale ultra-high-speed ground transportation system, based on the ideas of the Hyperloop concept.

https://www.youtube.com/watch?v=tbxw3upuUJ4&t=94s
https://www.youtube.com/watch?v=VYStvnepo40

angsa

Angsa-Robotics is an early-stage startup which is developing an autonomous robot that can detect and selectively remove small-scale trash from green and gravel areas. The robot meets the European safety standards of autonomous vehicles. By using GPS tracking and computer vision, the robot recognizes its defined area. In addition, various sensors are used to avoid collisions at an early stage. This data is used to determine the most efficient path and confidently avoid obstacles.

https://www.youtube.com/watch?v=aeaijhdBQGY
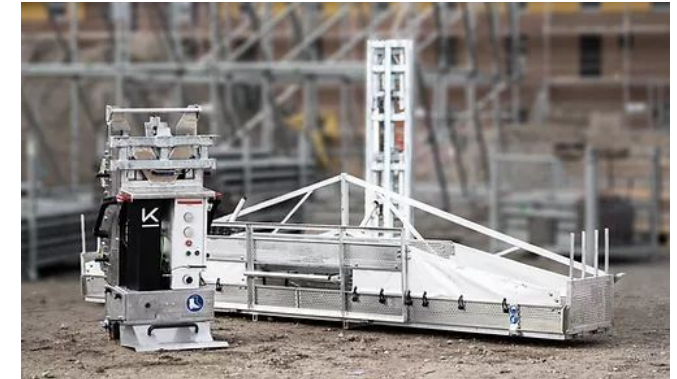
KEWAZO

Scaffolding is one of the world's most difficult, manual and dangerous construction jobs. With the help of automation and intelligence, KEWAZO overtakes the dangerous logistics processes to deliver maximum efficiency to the industry. The automated solution addresses labour shortage, saves up to 44% of labour costs, and improves working conditions for your employees. The robotic system can be installed in under 20 minutes with the minimum space requirements, it operates completely wirelessly and provides autonomous control.

The team consists 25+ employees & has raised $9m in funding to date.

https://www.youtube.com/watch?v=95r4XKTqiVk

11

FAQs

What is the aim of the eBootcamp?

To support teams with a clear business idea which involves electronic hardware (IoT, Connected Devices, Robotics, Automation, etc.) to quickly refine their prototype with a view to market entry, and as support in the fundraising or customer acquisition process.

What is the USP of the eBootcamp?

The unique combination of infrastructure, experts, electronic hardware manufacturers and the UnternehmerTUM innovation network - virtual collaboration in real life.

What types of teams/innovations can best benefit from the eBootcamp?

Teams with a clear hardware product, who have already developed a first prototype.

What is the recommended team size?

2-3 members per team.

Is the eBootcamp a full-time program?

No. The eBootcamp is an in-person program, but teams are free to decide how much time they spend attending workshops, coaching sessions, etc. and how much time they spend on actual product development. Team members are free to divide roles amongst the team.

What topics does the eBootcamp not address?

The focus of the eBootcamp is on technical execution and achieving product maturity. Business-related topics like market-entry, business planning, legal and HR aspects of launching a business are not part of the eBootcamp.

What about confidentially / IP topics?

The topic of confidentiality / IP can be tricky when working in an open innovation system. Teams are advised to take common sense precautions on the information they share externally, the same as when meeting with a prospect or investor. As part of the selection process, MakerSpace will also ensure that there is minimum product overlap amongst participating teams. Our experience has shown that the benefits of working in an open innovation environment far outweigh the risks.

Who will participate in the Demo Day?

For corporate teams, this is an opportunity to showcase the product to internal stakeholders and potential customers and they are encouraged to invite their representatives. For startups, this is an opportunity to meet potential investors, VCs, customers and accelerators/incubators - all of which will attend the Demo Day.

What happens after the Demo Day?

Startups have the opportunity to connect with UnternehmerTUM's startup incubation programmes (depending on maturity & market stage), including:

- XPLORE - https://www.unternehmertum.de/en/services/xplore
- XPRENEURS - https://xpreneurs.io/
- Tech Founders - https://techfounders.com/
- UnternehmerTUM Venture Capital - https://www.uvcpartners.com/

What does participation in the eBootcamp cost?

Startups - free. Startups are expected to have raised a small amount of funding, e.g. prototyping grants or (pre)seed funding.

Registration via this **link**.

Contact Information

For more information, please get in touch with us:

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