Edition 12

Gerda Stetter Stiftung

Technik *macht* Spaß!

Annual Report 2024

What we aim for:

- ✓ Learning with fun
- ✓ Earliest possible inspiration for technology
- ✓ Instilling independent thinking
- ✓ Understanding cause-effect relationships
- ✓ Supporting children from socially disadvantaged families
- ✓ Getting more girls and young women interested in technology
- ✓ Fostering children from all nationalities
- ✓ Joint learning of young and old
- ✓ Crosslinking of schools, universities & companies
- ✓ Introducing High-Tech
- ✓ Supporting professionals on a long-term basis

Our motto for the next few years:

"Inspire lots of young people about STEM and Technology, as fast as possible."

“Infect 100,000 Children with the Tech-Virus!“

The world is changing rapidly and presenting us with ever greater challenges. Education, especially in the STEM subjects (science, technology, engineering and mathematics), is the key to successfully shaping this change. Germany, once a pioneer in engineering and technical innovation, has lost touch due to bureaucracy, sluggish digitalisation and a shortage of skilled workers.

This is precisely where our foundation comes in. With our numerous initiatives, we want to infect 100,000 children and young people with the “Tech-Virus“ and get them excited about the technologies of tomorrow. Our aim is to convey technology not as abstract and difficult, but as exciting and creative. The future belongs to those who learn early on how technology can change our lives.

Our work starts in primary school. Children need to be inspired to study STEM subjects at an early age, but schools cannot do this alone. We therefore rely on extracurricular educational programmes in cooperation with committed institutions and companies. Promoting talent is a challenge, but also a great opportunity for Germany and Europe.

Our international project "unleash new tech talents in Europe" is an important step in this direction. In the coming years, we want to engage 100,000 children and young people across Europe interested in new technologies that are needed to tackle digitalisation and climate change. The first successes are already visible: in the first year we reached 10,000 young people, and next year we will reach 30,000. In the long term, we want to inspire over 100,000 young people to shape the technology of tomorrow.

Our foundation relies on a Snowball Principle: enthusiastic young people pass on their knowledge to their peers and thus multiply the effect. We have already successfully implemented this model at the “SMART GREEN ISLAND WEEK“ on Gran Canaria, which this year brought together more than 1,000 people across all generations (from 6 to 66+ years). There, we discussed future concepts of digitalisation and sustainability with 150 scientists in parallel events, got 300 children from Gran Canaria excited about technology in Educational Workshops and also built new concepts and prototypes in a MAKEATHON with almost 600 Representatives from 39 Companies and Students as well as Vocational Students from 70 Universities/Institutions.

In Germany, we are working together with educational institutions, companies and international partners to join forces in order to facilitate access to STEM teaching materials and lower the hurdles for teachers and schools. The EduDemoS Project is an important building block in this context. In this EU-funded project, we are developing low-cost demonstrators (procurement costs 10-30 euros) on the topics of digitalisation and sustainability. In this way, we want to promote the widespread dissemination of a new STEM enthusiasm in a short space of time.

Be part of it!

Rainer Stetter

Dr.-Ing. Rainer Stetter
Founder & Board Member

The Foundation Members

The Managing Board:

"To be an entrepreneur also means assuming social responsibility. With our foundation, we want to push the technological education of children, students, and refugees with playful projects. After all, "childlike" curiosity and a freely lived play instinct form the basis for constant renewal and innovation."

Dr.-Ing. Rainer Stetter, CEO and the Foundation Founder, ITQ

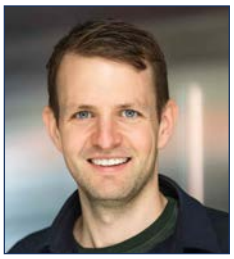
"With our comprehensive, modular training concept, we want to counteract the shortage of digital specialists at an early stage and thus sustainably promote and train young technical talent. And we want to do this in a fun, joyful, and enthusiastic way at all levels, because that's the greatest motivation for sustainable learning."

Sandra Stetter, Head of Business Administration, ITQ

The Foundation Board:

"Contributing to the earliest possible practice-oriented training is my personal motivation. By teaching technology in a playful way, we can simultaneously contribute to improving the image of technical professions."

Andreas Baumüller, CEO, Baumüller



"By supporting schools and competition venues, the foundation has provided valuable impetus. I am particularly excited about the idea of robotics student coaches, and I look forward to further expanding this mentoring support from universities and businesses for schools in the future."

Markus Fleige, TECHNIK BEGEISTERT e.V.

The Foundation Board:

"Companies have to take responsibility for training the next generation of employees. Getting young people excited about technology is the basis for this. Industry-related projects with universities and colleges of all kinds are suitable for bringing industry and training closer together."
Paul Kho, Freelance Journalist

"Our motivation is to inspire enthusiasm for science and technology. For me, bringing children closer to this in a playful and natural way, using modern and tangible learning methods, means thinking and acting in an entrepreneurial, future-oriented way. Just do it!“
Martina Manich, Managing Director, team::mt

"Digital transformation has a huge impact on engineering education. Only with new innovative teaching concepts can we keep up with the rapid development of new technologies. By simultaneously teaching practice-oriented and character-building competences with attractive formats, we can inspire students to study and prepare them for the demands of the working world.“
Prof. Dr. Peter Eichinger, University of Applied Sciences Aalen

"With the Hacker School, we make an important contribution to the digital education of our youth by inspiring them for the world of programming languages. We do this in cooperation with companies from the IT sector and our extensive network, including the Gerda Stetter Foundation. In doing so, we are committed to social responsibility and democratic values.“
Dr. Julia Freudenberg, Managing Director, Hacker School

Impressions of our Network

Voices:

"For our students at the Technical School for Mechanical and Electrical Engineering, participating in the MAKEATHON 2024 was an unforgettable experience. The interdisciplinary collaboration across educational and national borders, combined with the maker spirit on-site, makes this event an incredibly valuable learning environment. As a supervising teacher, this event was the epitome of 'joy in learning' and an inspiration to incorporate this enthusiasm for making into my own teaching. To tackle the shortage of skilled professionals, especially in STEM fields, Germany urgently needs innovative and engaging concepts that make learning fun for students – the MAKEATHON is one of them! Hats off to this fantastic idea!"

Alexander Sommer
Teacher
State Technical School Passau for Electrical and Mechanical Engineering

"As a child, I wanted to understand the entire world. Today, through the Gerda Stetter Foundation, I have the opportunity to pass on this fascination to children. With the EduDemoS Project, we develop demonstrators that combine environmental aspects with technology. How do I generate electricity from wind? How do I produce energy from the sun? We saw at the Maker Faire in Hanover how well this concept resonates. Beginners and advanced learners alike can actively engage with the topic – from simple assembly to programming and expanding the demonstrators."

Amélie Franken
Working Student
Gerda Stetter Foundation

"The Gerda Stetter Foundation has been doing great work for many years. It embodies the spirit of its founder, Rainer Stetter, who personally understands that education is the best social policy – especially technical education, which provides many people with new perspectives and opportunities for advancement. It contributes to addressing the shortage of skilled professionals in STEM fields, ensuring the future viability of the German economy and the prosperity of our country. The MAKEATHONS in Gran Canaria, which I had the privilege of experiencing firsthand, have already transcended national borders. STEM knows no boundaries, just as the creativity and imagination of children and young people have no limits. Good education takes advantage of this."

Thomas Sattelberger
STEM Activist
German Bundestag 2017–2022
Parliamentary State Secretary

"Together with the Gerda Stetter Foundation, we have been inspiring students and pupils to engage with technology for several years. Through various workshop formats on robotics, soldering, 3D printing, and app programming, we introduce students to the practical applications of mathematics, computer science, and natural sciences in a fun and pressure-free environment. In different MAKEATHON formats, students and university participants collaborate in intercultural teams to develop and present prototypes of their own inventions. I look forward to continuing to inspire enthusiasm for technology in the coming years through both existing and new formats."

Prof. Dr.-Ing. Bernhard Kausler
Technichal University of Nuremberg
Georg Simon Ohm

Voices:

"Creating an environment that sparks and nurtures curiosity about technological questions is the great achievement and success factor of the SMART GREEN ISLAND MAKEATHON. Curiosity is the driving force that fuels technological progress and enables entirely new innovations, providing answers to the pressing challenges of our time. Curiosity also drives us at MVTec to closely support the MAKEATHON. We want to meet young, technology-enthusiastic talents and understand how they approach and overcome challenges. I am very grateful to the Gerda Stetter Foundation for its projects and initiatives that bring together young people with a passion for technology and companies."

Dr. Olaf Munkelt
Managing Director
MVTec Software GmbH

"At the end of February/beginning of March, I had the opportunity to participate in the MAKEATHON on Gran Canaria for the first time, and I was truly impressed – both by the idea and concept, as well as by the motivation of the young participants, who spent four intense days developing automation solutions for a wide range of challenges. Following this experience, I was able to help introduce the concept to a broader audience of scientists in Germany and later worldwide, always encountering the same level of enthusiasm. For years, we have been searching for ways at universities and colleges to bring the fascination and potential of technology closer to students and, in doing so, inspire more of them to pursue technical careers. The MAKEATHON is the perfect format for this purpose."

Prof. Dr.-Ing. Michael Zäh
iwb, Technical University of Munich

"The MAKEATHON 2024 impressively demonstrated how young talents can tackle technical challenges with curiosity and creativity. The participants showed that difficulties are not only obstacles to overcome but also opportunities for sustainable innovation. These moments remind us at Krones of our mission to promote green innovation, share knowledge, and inspire the next generation. They reinforce our commitment to advancing STEM education and supporting young people in fully realizing their potential. We look forward to being part of the MAKEATHON again next year."

Sina Stieglmeier
Future Concepts
Corporate Research & Development
KRONES AG

"Through our collaboration in the InnoVET network, an international network of Vocational Education Institutions, I became aware of the SMART GREEN ISLAND MAKEATHON. I was immediately fascinated by the idea of combining making and sustainability within an educational project. This year, BBS Wilhelmshaven had the opportunity to support the organization and execution of the event for the first time with a group of apprentices. The apprentices, company trainers, and participating teachers were all highly enthusiastic. They are eager to continue supporting the event and have already confirmed their participation for next year. "

Michael Piossek
Teacher
Vocational School Wilhelmshaven

Our Education Concept

Modular Education Concept

Getting young people excited about technology is the basis for ensuring a qualified future workforce in German companies. Technical knowledge should be taught in a way that makes it fun for young people to discover technology.

The Gerda Stetter Foundation has set the goal for a modular training concept. We want to get children and young people excited about technical projects and thus help shape the technology of tomorrow in a smart and green way.

The focus of our activities is the handling of technical knowledge as well as the practice on technical projects. With this we already start at kindergarten age with our Technology Workshops in a very playful way. Our LEGO Mindstorms projects, which teach initial programming skills, are designed to get as many young people as possible excited about science and technology at an early age.

Furthermore, they serve to reduce the fear of complex technology. The pupils are coached by university students and build autonomous robots consisting of sensors, motors, and lots of colourful LEGO bricks as part of the project. The foundation operates according to the top-down principle, i.e., students supervise projects in which they pass on their knowledge to pupils. Consequently, elementary school children are guided by the pupils who have been trained in a LEGO Team.

Management	Engineers	Students
		
■ Basics and importance of systems engineering ■ Understanding of mechatronical projects and processes	■ Improve knowledge about interdisciplinary work ■ Enhance the use of software	■ Soft skills and experience in project management ■ Increased understanding of software

Another important point is better dovetailing, as the networking of disciplines and know-how will play an increasingly important role in the future.

Since the company was founded, we have maintained a comprehensive and cross-industry as well as international network consisting of leading industrial companies, partners, schools, and universities.

We are very involved in research and education and are pleased to have many successful collaborations and research projects with German and international companies as well as universities. By combining cross-departmental lecture concepts with practical team semester work in the industry, students learn to work independently, gain efficient project management skills as well as interdisciplinary knowledge and how to acquire important soft skills. In addition, we place great emphasis on promoting innovative capability and creativity and have therefore been organizing our MAKEATHONS at national and international level since 2016.

The name "MAKEATHON" forms a pun from "MAKE" and "MARATHON" and is an innovative & creative educational event, where several teams consisting of young talents develop innovative prototypes as well as technological concepts in an agile and interdisciplinary way in a very short time.

Thus, we bring together companies, universities and students who enjoy the fun of designing, constructing, and programming as a common denominator.

Trainees	Pupils	Children
		
■ Foster fascination for technology ■ Practical professional training	■ Understand cause-effect relationships ■ Promote team work and independent thinking	■ Learning with fun and fascination for technology ■ First experience with mechatronics

Digital Education – Technology Workshops

Technology Workshops – Getting tomorrow's Youth excited about Technology

How do you get young people excited about technology?

That's a question, many companies have to deal with these days. To get our young people excited about science and future technologies in a playful way as early as possible, we have been offering numerous innovative Technology Workshops for children and young people for many years.

We are particularly committed to promoting the technical education of girls. With our workshops, we want to help children and young people overcome their fear of complex technology. Whether it's a smartphone or a game console, technology is now part of many everyday objects that children and young people are confronted with at a very early age.

In addition, the speed of technological change continues to increase. This makes it even more urgent to have experts who research, develop and are informed about future technologies. Our Technology Workshops help children and students of all ages learn basic technical skills that will be required in their future careers, using do-it-yourself mini robots, LEGO Education, woodturning and soldering stations.

BENEFITS
How to benefit from our workshops

- Early promotion of young talents
- Learn technology interactively, and playfully
- Use of various technologies
- Networking with schools, universities, institutions, and companies
- Practice-oriented and innovative learning concepts
- Teaching technology to children and young people
- Know-how and knowledge transfer
- First introduction to high-tech
- Coaching and support

TECHNOLOGY WORKSHOPS OVERVIEW
We teach technology with a lot of fun!

Getting young people, and girls in particular, enthusiastic about technology is the basis for securing qualified young people in German companies. Technical knowledge should be prepared in such a way that young people have fun discovering technology for themselves.

250 Workshops
With over 6000 Participants
In 3 Countries
With 85 Schools, Institutions
12 Trade Shows
With 20 Companies

Securing the next generation of the future with the right Technology Workshops!

Playfully learning Technology

We focus on creativity and fun in dealing with technology. Children and students are presented with technical challenges in a playful manner and learn to develop solutions independently. This process contributes to lifelong learning, as this enthusiasm for technology is stimulated from an early age and maintained into adulthood.

Since 2011, we have been awakening the interest for technical projects of children and young people of all ages in kindergartens, schools, or educational institutions worldwide with our Technology Workshops. With our Cleaning Robot, we succeed in motivating even the very young ones. In this kit, a robot is assembled by the children, from the wiring to the mechanics, and then moves across the floor driven by an unbalance. With the help of our specially trained technology coaches, we can reach a wide range of young people with simple technical means and encourage them to tinker, develop and program.

Our training concept is based on cooperation with various German universities. In recent years, we have trained more than 500 students as technology coaches. These in turn have been able to teach more than 6000 children about technology in a playful way in workshops, at trade fairs or in schools.

TECHNOLOGY WORKSHOP HIGHLIGHTS

MUNICH

INGOLSTADT

DUISBURG

NUREMBERG

REGENSBURG

BERLIN

LANDSHUT

SPAIN

CHINA

Digital Education – LEGO Workshops

LEGO Workshops – Playfully learning Technology

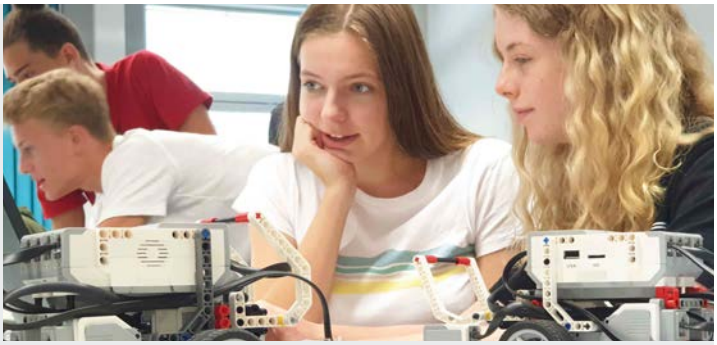
When it comes to promoting key skills for the 21st century, we offer versatile Technology Workshops with our LEGO Education training concepts. Whether for schools, educational institutions, training centers, universities or for introducing adults and companies to technologies – with LEGO Mindstorms EV3 or LEGO WeDo Education, programming as well as future technologies can be taught in a playful way.

Almost everyone knows the colourful LEGO building blocks as toys, but the small bricks also have great potential for education. With our Technology Workshops, we can use the action-oriented learning concepts of LEGO Education to teach schoolchildren and students of all ages basic technical contexts that will be required in their future careers. With practical teaching concepts, learners are encouraged to think for themselves and work creatively on innovative solutions.

By experimenting and trying things out for themselves, children and young people learn to grasp complex topics, to question them critically and to develop their own creative ideas and approaches to solutions. In education and training, the learning system is also suitable for modeling, analyzing and programming industrial processes.

BENEFITS
How you benefit from our cooperation

- Training of qualified future employees
- Learning programming skills
- Use of future technologies
- Networking with schools, universities, institutions, and companies
- Practice-oriented and innovative learning concepts
- Teaching technology to children and young people
- Know-how and knowledge transfer
- First introduction to high-tech
- Coaching and support



LEGO WORKSHOPS OVERVIEW
We teach technology with a lot of fun!

Getting young people, and girls in particular, enthusiastic about technology is the basis for securing qualified young people in German companies. The transfer of technical knowledge should be prepared in such a way that young people have fun discovering technology for themselves.

500 Workshops
With over 14000 Participants
In 5 Countries
With 265 Schools, Universities
40 Competitions
With 45 Companies

With our innovative education concepts, we secure the young talents of the future!

Innovation through Education 4.0

With our LEGO Education learning concept, we inspire not only children and young people, but also specifically girls for technical projects worldwide. Our education concept is based on the well-proven top-down principle, in which young students are guided and trained by our ITQ LEGO Coaches. In addition to technical content, the program includes soft skills for dealing with children and young pupils.

The pupils, who are coached by students, assemble robots with sensors, motors and many colourful LEGO bricks in our LEGO Mindstorms Workshops. To help us spread our approaches even further, we developed the concept of student LEGO Coaches for pupils initially at the Technical University of Munich and since then we have established it at several other universities. In the context of soft skills events, we offer students the opportunity to learn and apply necessary soft skills using a real interdisciplinary development task as an example. To further deepen these skills, students coach pupils towards a robotics competition.

This approach, which we want to introduce to as many other colleges and universities as possible, brings us closer to our goal of providing schools with a broad supply of motivated coaches.

LEGO WORKSHOP HIGHLIGHTS

MUNICH

DUISBURG

NUREMBERG

HEIDENHEIM

AUGSBURG

CHINA

SPAIN

URUGUAY

USA

Digital Education – MAKEATHONS

MAKEATHONS – Securing our Future with Innovation Festivals

Innovative minds secure the future of companies – but how do you find them? In particular, skilled workers who bring knowledge from the fields of IoT, Robotics, Artificial Intelligence, Smart Automation, Smart Mobility or Smart Green Energy are in demand.

That's why we organize Innovation festivals (MAKEATHONS) with the aim of training Young Talents to become innovative and creative professionals and bringing them into direct contact with companies to develop creative, technical projects together. The name "MAKEATHON" forms a pun from "MAKE" and "MARATHON" and is an innovative & creative educational event, where Young Talents (students, trainees, and apprentices), consisting of several teams, create and develop innovative prototypes as well as technological concepts in an agile and interdisciplinary way in a very short time.

The practical requirements (Industry Challenges) often come from companies that want to develop a suitable software or hardware solution for their own problem.

We bring together companies, universities and students who have as a common denominator the fun of designing, constructing, and programming. The results are remarkable, and it always amazes us how quickly the Young Talents turn their creative ideas into reality.

BENEFITS
How you benefit from our cooperation

- Development of new innovative ideas and concepts
- Recruiting of qualified Young Talents
- Establishment of technology cooperations
- Elaboration of your Industry Challenge
- Initiation of new business models
- Knowledge and know-how transfer
- Networking with companies, universities, and students
- Part of a national and international innovation community

MAKEATHONS OVERVIEW
We "MAKE" on a national und international level

We have already shown it many times, what new ideas for a digital future can look like or how recruiting talented developers in the competition for talented professionals can work.

42 MAKEATHONS — **With over 4500 Participants**

In 6 Countries — **With 350 Universities**

Over 1200 Ideas — **1400 developed Prototypes**

Be part of our innovative MAKEATHON Community!

Innovation through Education 4.0

There is a lot of talk these days about Education 4.0 and innovation. However, there is usually more talk than action, which is why we have been working for years on developing new concepts and formats to promote Young Talents and bring them into contact with companies.

Our idea to organize a MAKEATHON was born in 2016 in Munich, where it immediately proved to be an excellent educational concept. Since then, we have been constantly developing the event and it has already taken place in many other countries. By now, we connect companies, industry associations, universities, institutions, and schools not only in Germany, but worldwide.

Due to Corona, we had to initiate new ways and flexibly adapt our concepts in spring 2020. As a result, we were able to host our first Hybrid MAKEATHON at the end of June 2020, just a few weeks after the first easing of the lockdown. This new format digitally connects small, locally operating teams via the "network" and thus makes it possible to react quickly and flexibly to external conditions.

The organisation of the Packaging Valley Makeathon in 2020 with completely new partners from industry, associations and universities and a total of almost 100 people after less than five weeks of preparation is proof of this.

MAKEATHON HIGHLIGHTS

GRAN CANARIA

BOTSWANA

TUNISIA

ITALY

COLUMBIA

CHINA

MUNICH

SALAMANCA

NUREMBERG

Smart & Green – Our Vision

An Island as Demonstrator

The world is undergoing a massive upheaval. Technological, social, and climatic conditions are changing at at an ever-increasing pace. A virus has highlighted the fragility of our system. Entire industrial sectors, such as the pharmaceutical industry, but also the automotive industry, are changing with incredible speed. Climate change seems to be accelerating more and more, with hot weather periods, with temperatures above 40 degrees Celsius and alternating with severe storms.

Although there are many discussions, talks and protests, responsibilities are usually only shifted back and forth. Determined and joint activities, however, do not emerge. To counter this perceived self-paralysis, we launched the "Smart Green Island" project at the end of 2016.

Within this project, we want to work together with motivated minds from different disciplines, generations, and nations to develop technically smart concepts and solutions to demonstrate how a (green) life in harmony with nature is possible. Our vision is to demonstrate, using the Island of Gran Canaria as an example, how a closed loop between energy production and usage can be created in a smart way while at the same time preserving the existing natural resources.

However, with this project, we do not only want to show how energy can be used in an intelligent way. In fact, almost all areas of daily life need to be addressed to provide a comprehensive picture of how life and work can take place in harmony with people and nature.

The needs of the world' s countries in terms of environmentally compatible living are very different due to different economic and climatic constraints. In order to be able to run through as many different scenarios as possible in a geographically compact and thus resource-efficient manner, Gran Canaria was chosen. This almost round island with a radius of about 45 km is practically a continent in miniature due to its unique geographical location with a total of 14 climate zones. On this island, both sub-tropical and desert-like conditions as well as scenarios in an urban or rural environment can be played out simultaneously.

Digitalization and Sustainability

Gran Canaria's proximity to Africa and its location in the Atlantic means that solar and wind energy is available in almost unlimited quantities. This energy could be used to desalinate water, which is needed for daily life and agriculture. At the same time, sustainable living and emission-free mobility could be realized. Furthermore, the intelligent and digital connection of the different areas can open up further ecological and economic opportunities.

To put these goals into action, we have been organizing our SMART GREEN ISLAND MAKEATHONS on Gran Canaria since 2016. Through these events, we can build a global network of motivated individuals. At these innovation festivals, several hundred students from different universities around the world, as well as numerous national and international sponsoring partners from industry, come together on Gran Canaria. For four days, students work together with companies on climate-friendly technologies and develop first innovative prototypes. Seven of these Innovation Festivals have been held since 2016, with a total of more than 2000 participants from over 45 countries and 180 universities.

Complementing the MAKEATHONS, other "Smart & Green" projects have been carried out on the island to deepen and expand the knowledge gained from the events. For example, in previous years students were able to develop climate-friendly projects, such as the PlastiX project, during the Smart Green Summer Camps. In addition, students can make optimizations as well as further developments to the existing prototype during long-standing projects, such as the Bamboo Solar Car – a solar-powered vehicle with a frame made of bamboo.

The Corona pandemic did not stop at live activities either and therefore, numerous events had to be cancelled or adapted and held with a changed concept. However, the ITQ Group used the months of the lockdown to develop new and innovative concepts. Together with the Rhine-Waal University of Applied Sciences and ITQ GmbH, Dr. Stetter ITQ S.L.U. is planning to set up a "Green Lab" on the island.

Young Talents will have their own location on the island to work on their green projects. This already started this summer with the interdisciplinary student project "Future Technologies for Smart Green Islands" of the Rhine-Waal University of Applied Sciences. During the seminar, students develop their first innovative and sustainable projects, which are then to be continued on Gran Canaria.

In order to advance our vision of the Smart Green Island, we want to offer our students a professional working environment on Gran Canaria. Therefore, we are looking for a suitable location on the island to get closer to our goal of developing Gran Canaria into a European demonstrator for a smart and green way of life.

Smart & Green – MAKEATHONS

SMART GREEN ISLAND MAKEATHONS – History

In September 2016, we held the first SMART GREEN ISLAND MAKEATHON with more than 40 participants, advancing future "digital" and "climate-friendly" innovations. Just 30 months later, we were able to increase this number tenfold and already attract 400 participants to our event.

Eight years later, in 2024, there were even more than 750 registrations. Accordingly, the SMART GREEN ISLAND MAKEATHON has established itself as a successful, innovative, and international success model. With each additional MAKEATHON, the vision of a SMART GREEN ISLAND is realized a bit more and Gran Canaria becomes an exemplary climate-neutral island.

KEY FACTS

During our MAKEATHONS, new ideas and solutions are constantly being developed by Young Talents regarding topics such as Smart Home, Smart City, Smart Production, Robotics, AI, IoT, Smart Mobility, Smart Farming, Smart Health and Smart Green Energy.

- **7 MAKEATHONS**
- **Over 2000 Participants**
- **With 45 Nations**
- **With 180 Universities**
- **Over 250 Ideas**
- **350 Prototypes**

2024

SMART GREEN ISLAND MAKEATHON IMPRESSIONS

2023

2020

2019

2018

2017

2016

Smart & Green – First Projects

Bamboo Solar Car: Sustainable and Innovative Mobility

During the SMART GREEN ISLAND MAKEATHON in February 2019, the idea for a new Smart & Green Innovation Project in the Smart Mobility sector was born – the Bamboo Solar Car – a solar-powered car made of bamboo.

This low-cost vehicle made from standard components and renewable and recycled parts is intended to make sustainable electromobility available to everyone. The focus here lies on countries and regions with a weaker infrastructure and many hours of sunshine, as the Bamboo Solar Car uses a solar cell on the roof to generate energy for movement. The car's frame is made entirely of bamboo tubes, which are cut and glued together using precise instructions. The flexibly sized solar panels achieve an energy output of up to four kilowatt hours. After just one day of sunshine, the car battery is half charged, and after two days it is fully charged. In this case, the car has a range of about 30km, which can cover at a maximum speed of 40km/h.

A first prototype was already created in May 2019 during the ITQ summer event. Within only 24 hours, the ITQ team succeeded in developing this first prototype.

Through the globally established network of Dr. Stetter ITQ S.L.U. with international universities and colleges, exciting follow-up projects could be realized. Consequently, 4 project teams were formed at different locations, which were digitally connected with each other.

The student teams from Germany, Gran Canaria, Tunisia, and Botswana incorporated their know how and worked energetically on the optimization. Between March and October 2019, a total of three prototypes of the Bamboo Solar Car were built.

2. Prototype, Laserworld of Photonics, June 2019

1. Prototype Bamboo Solar Car, ITQ Event May 2019

3. Prototype Bamboo Solar Car, Gran Canaria, August 2019

Solar Car Botswana: Recycling Car in Safari Design

The fourth prototype was created at the end of 2019 – during a in Botswana. Here, the team was faced with its own unique challenges. The German students imported suitcases full of materials such as electronics and car parts to Botswana; only the raw material bamboo was ordered locally in advance. However, at the beginning of the MAKEATHON it turned out that the bamboo – which was initially considered to be essential – could not be procured. As a result, the team had to redesign the entire car body under great time pressure. In discussions with local MAKEATHON participants and companies, local, low-cost resources were found. The team obtained old, rusted steel tubes for the frame from a nearby recycling yard.

Within one night shift, the students welded and soldered together a sturdy car body. Through exchanges with locals, it became clear that another feature was indispensable for the African conditions: a protective tarpaulin to protect against sand and dust. Thanks to good networking and a high team spirit, a company was found that quickly made a tarpaulin overnight to protect the solar car from dust and dirt. Thus, the Bamboo Solar Car became a recycled solar car in safari design.

Organizing projects like the Bamboo Solar Car in conjunction with MAKEATHONS provides an ideal platform for young people to network with each other and gives them the opportunity to generate innovative ideas and develop prototypes in a short period of time.

Our vision behind the Solar Car Botswana project is very diverse and easily applicable for global educational purposes. We are particularly keen to promote young talents within the framework of innovative educational events, to provide creative training, and to generate enthusiasm for technology and future topics in the fields of digitalization and sustainability.

With Education 4.0, we manage to develop innovative solutions for the problems of our time. The focus is on promoting education beyond national borders and thus supporting the young generation worldwide and getting them excited about future topics such as Smart & Green Technologies. In doing so young people are given the opportunity to shape their own future and that of their country.

International student team Solar Car Botswana

Solar Car Botswana

Solar Golf Car: Smart Golf Mobility

The idea for this project was born in cooperation with a local golf course, which is neighbouring to the Dr. Stetter ITQ Smart Villa on Gran Canaria. The operators of the course became aware of our activities like the SMART GREEN ISLAND MAKEATHON and the Bamboo Solar Car, after doing test drives near their golf course. Thereupon, the operators approached us and the idea to equip their golf cars with solar panels was quickly developed.

The goal of the Solar Golf Car is to develop a concept to make golf more sustainable in terms of Smart & Green Mobility. With the installation of the solar panels and the use of solar energy, the CO2 footprint of golf can be reduced.

With the Solar Golf Car Project, we want to advance solutions in the sector of Smart & Green Mobility. The project is a good example to show that even with small means and innovations an effective and sustainable contribution can be made to our environment, as well as achieving great things in total. It combines ecological and technological innovation. In addition, the Solar Golf Car is perfect for a student project to give young people the opportunity to help shaping their own future. Moreover, in this process their skills in terms of international and interdisciplinary cooperation as well as practical project management could be expanded. These aspects are also essential and indispensable in the context of Education 4.0. After the first prototype, two optimized versions of the Solar Golf Car followed in 2020. These included improvements such as a cloud-based data storage space with dashboard visualization, an improved sensor technology and a simplified hardware architecture.

Furthermore, the students worked on a new connector design (fiberglass connecting parts) between the solar panel and the golf car to make it safer and more aerodynamic. To ensure an efficient and cost-effective manufacturing of this connector, the team developed a reusable wooden form to easily build these connectors. This also leads to faster, more resource-efficient and more accurate reproducibility of the connector. In this effort the ease of assembly and repeatability of their construction was very important to the students to ensure that this solar innovation can be more easily adopted for other Solar Golf Cars, respectively future versions of the Solar Golf Car. Further steps in the project are to continuously improve the Solar Golf Car mobile app and to develop a new Solar Golf Car design.

Besides that, we want to make a further contribution to the transformation of Gran Canaria into an innovative Smart Green Island. Due to the climatic conditions with a lot of sun and a lot of wind it is perfect as a showcase for innovative Smart & Green Mobility solutions.

Sandwich-Robot: Learning with Industrial Robots

The Sandwich Robot Demonstrator was developed during a two-month Summer Internship Program. Involved in the development process was an international and interdisciplinary team of 5 students from the University of Cambridge and the University of Las Palmas de Gran Canaria.

The special feature of the Sandwich Robot project is that the demonstrator consists of several devices and hardware from different companies. The materials were sponsored as part of this educational project. The sandwich robot consists of a robot arm and delta robot from igus, an XTS rail from Beckhoff, a delta robot from B&R and Phoenix Contact, which work together as one unit. With the help of the existing industrial

hardware, which was provided by the participating companies, innovative solutions can be realized by the students. They can directly program the PLC's of different manufacturers and thus bring the plant to life. By using the latest technologies like the OPC UA protocol, the hardware of different manufacturers can be used, and the plant can communicate beyond its interfaces.

For the user of the Sandwich Demonstrator to receive a finished product, they must customize the sandwich before the manufacturing process. Using an app made specifically for the Sandwich Robot, the operator can first select their own preferred type of bread. Then they can choose their individually desired toppings, as well as the sauce(s). As soon as the user has assembled the sandwich via the app, the Sandwich Robot starts preparing it. In the first step, the igus Robot Arm brings the bread to a rail fixture of the XTS rail, which forwards the bread to two Delta Robots. The Delta Robots then prepare the sandwich with the selected ingredients. Now the sandwich can be removed and eaten by the operator.

With our Sandwich Robot Project we created an opportunity to better prepare young talents for future technologies and to get them excited about technology. In addition, the project is meant to encourage young people to show initiative in solving problems and to develop innovative solutions and ideas in the field of Smart & Green Technologies. Furthermore, such real projects or demonstration plants can be used to make topics such as automation, batch size 1 manufacturing, IoT and robotics more tangible and learnable within a very short time. This way, young people will be able to make their own contributions in the future and develop real smart machines and systems, which in turn will benefit the participating companies.

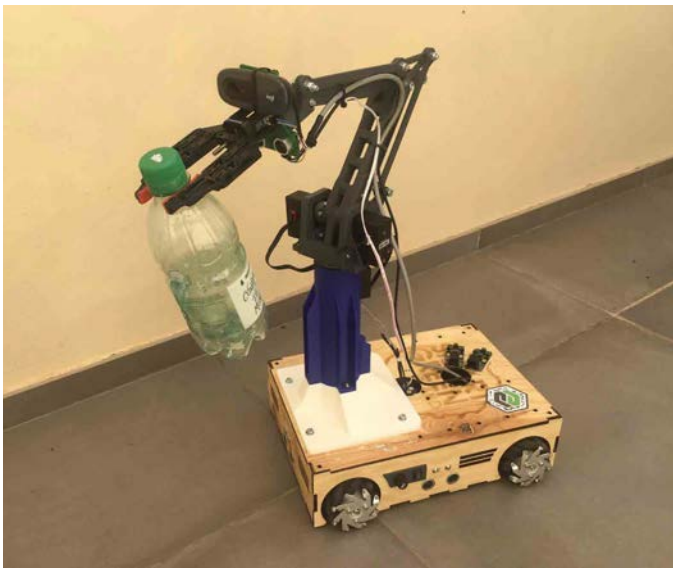
PlastiX: Artificial Intelligence against Plastic Pollution

Besides the climate change, removal of plastic waste from the environment is one of the key ecological challenges and problems of the 21st century. Therefore, we decided to start a project whose main goal is to find suitable and innovative solutions against plastic pollution. During our SMART GREEN ISLAND Summer Camp in September 2019, we developed concepts to solve this problem in an automated and efficient way. This laid the foundation for a smart, innovative, and sustainable project – the so-called PlastiX Project.

The PlastiX mission is dedicated to AI-based detection and automated professional disposal of plastic waste from the environment. The project was developed by an interdisciplinary and international team of 10 young talents. As part of the project a concept of a database for training neuronal networks was created. In addition, the project team developed the first robot prototypes. A total of 7 robots were developed that could be used for various purposes.

With the further developed robot “roBottle”, a new mobile robot has been developed to autonomously collect already existing and improperly disposed waste e.g., at the beach or in the forest etc. In addition, the mobile robot will use modern infrastructure and IoT technologies to act autonomously and efficiently with the help of Artificial Intelligence (AI). AI algorithms ensure that the robot can perceive the environment like a human. For this purpose, a camera at the front end of the gripper serves as an eye, with the help of which it can recognize and collect plastic bottles and other environmentally harmful objects. What sounds easy for a human is hard work for a robot. The robot must be able to recognize bottles as such and navigate to them. The collected waste should then be transported to a station that can recycle all or a part of the waste. The robot's chassis was made of plywood and the components of its robotic arm were made of environmentally friendly and compostable PLA. In addition, the robot was equipped with Swedish wheels. After the kinematics were solved, the robot was able to move without mechanical constraints.

Our vision within the PlastiX Project is to unite the topics of digitalization and sustainability and to find efficient solutions regarding the problem of plastic pollution. In order to achieve this goal and to realize our vision, the prototypes of the young talents, which were developed with the help of artificially intelligent systems, should and must be turned into reality in the future. Furthermore, above all our intention is to sensitize young people worldwide to the topics of digitalization and sustainability and to encourage them to actively deal with the problems of today, as well as to find and implement effective innovative solutions for the future in such projects.



Gardenbot: Precision Agriculture of the Future

Our Gardenbot Project is based on a Columbian Smart Farming Project called "FarmBot". It was developed during our first SMART FARMING MAKEATHON 2017 in Bogota, Columbia. This project was realized with the help of an international student team in collaboration with the Columbian University of Los Andes.

The aim of the Gardenbot Project is to investigate various cultivation and management strategies. In addition, we want to better protect plantations from external influences, bad weather conditions and pests in the future, as well as control growth. So with this, a new solution was created that can not only be useful for agriculture, but also for private households. Farmers and consumers can automatically and intelligently manage, monitor, and control their fruits and vegetable beds.

To make this possible, a small test bed was created for the project and the Gardenbot robot was attached to the bed. The attached controller can move autonomously within the bed and carry out processes such as sowing, watering and moisture measurement. Thus, the planting and treatment of the bed can be automated without human labour, so that the consumer only harvests his own crops.

Via an open-source web app, it is possible to keep better track of the harvest. The web app can be downloaded to any computer, tablet, or smartphone with a modern web browser, allowing the user to customize, adjust and control his own plantation at any time and from anywhere. In addition, the user can use the manual control elements to move the Gardenbot and operate its tools and peripherals in real time.

Thus, as an innovative Smart & Green Technology, our Gardenbot has the potential to advance Agriculture 4.0. This technology will increase the yield of fruits and vegetables while conserving resources. For this reason, Agriculture 4.0 is also named as the new precision agriculture of the future. With the help of digitalization and artificial intelligence, technological advances can be made possible in agriculture and innovative concepts can be developed.

In addition to developing effective problem-solving approaches, projects such as the Gardenbot help students to link their theoretical knowledge with practice and thus expand their technological know-how with real projects. The practical implementation enhances an intensive examination of the subject matter and, above all, raises the awareness of young people for global themes such as digitalization and sustainability.

Erasmus+ Program: In the same Code

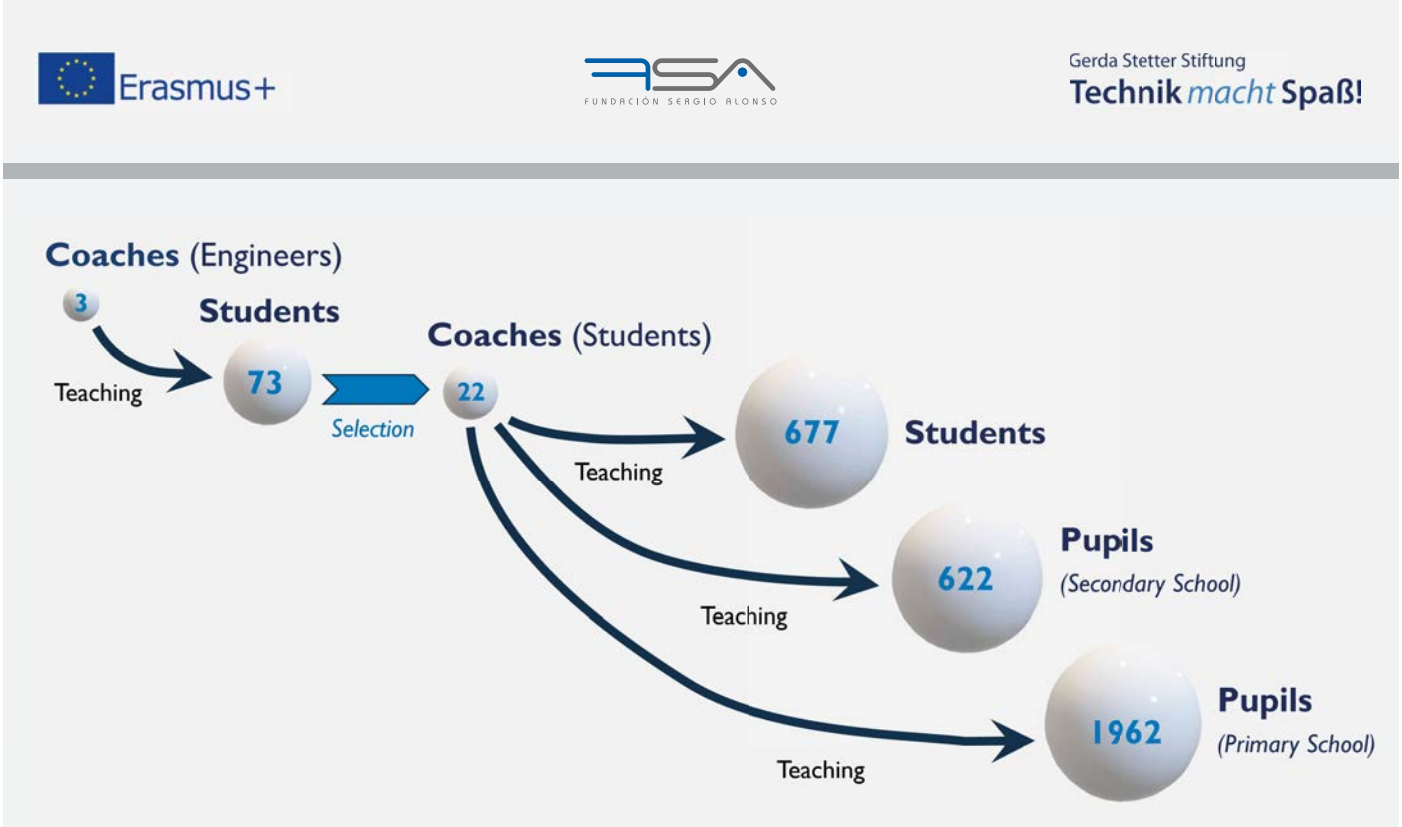
We are living in an era of transformation that affects all aspects of life equally. However, the education system is falling behind – an alarming issue considering the shortage of skilled professionals in STEM fields. To counter this development, we outlined the cascading Snowball Principle in a European Erasmus+ pilot project together with the Foundation Sergio Alonso on Gran Canaria.

Through this initiative, we combined our expertise with that of our partners and sustainably expanded our network. Initially, three tech coaches (one engineer, one male student, and one female student) were trained.

Over nine months, they in turn taught 73 STEM students to build and program small robots using Scratch. From these 73 students, 22 volunteered as coaches. A remarkable aspect of this process was the gender ratio: out of the original 38 young women, a disproportionately high number volunteered for coaching, resulting in 14 out of the 22 new coaches being female. Between September 2022 and July 2024, these coaches conducted over 166 workshops at vocational schools, secondary schools, and even elementary schools, engaging a total of 3,351 children and young people with STEM in a playful and interactive way. Nayra Morales, Director of the Foundation and Project Manager, points out: "With the coaching approach "In the same Code", we can reach a large number of young talents very quickly, who are then further supported in specialized advanced courses."

This unique combination of learning and teaching – being supported and challenged, then supporting and challenging others of the same age – has proven to be extremely effective." In the same Code" has successfully demonstrated what it takes to implement a project on a European scale.

Foundation Sergio Alonso successfully implements Erasmus+ pilot project using the Snowball Principle



EU Research Project: EduDemoS

EDUDEMOS

Co-funded by the European Union

The climate is changing, and the number of skilled professionals in the STEM fields (Science, Technology, Engineering, Mathematics) is decreasing problems that will worsen in the future if no action is taken. That is why the EU-funded project EduDemoS (EDUcating through Sustainable DEMOnstrators) was launched to promote educational innovations for digital and sustainable transformation.

Against the backdrop of a growing demand for digital professionals and the global challenge of ecological change, EduDemoS focuses on imparting knowledge of sustainable technologies and digital skills to students and teachers across Europe. In this effort, the Gerda Stetter Foundation from Germany, the Sergio Alonso Foundation from Spain, the Finnovaregio Foundation from Belgium, and GBS St. Gallen from Switzerland work closely together to pool their expertise in education, innovation, and technology and make it available to a broad educational landscape.

The central goal of EduDemoS is to introduce teachers and students to the topics of digitalization and sustainability in a practical way and thus strengthen the skills that future generations will need for a dynamic job market. The core of the project lies in the development and provision of demonstration models on STEM topics that are low-cost (procurement costs between 10 and 30 Euros) and easy to replicate. These so-called demonstrators cover a range of technical fields, including mechanics, 3D printing, electricity, electronics, and the Internet of Things (IoT). Each demonstrator is designed to convey complex topics through simple and accessible representations and to encourage independent implementation. In this way, children and young people should be introduced to technical understanding and interest in the topics of sustainability and technology at an early age.

The implementation of the demonstrators is carried out with the help of a detailed step-by-step guide in the "IKEA format,"

supplemented by open-source CAD data, electronic component lists, and example programs. These materials are freely available on the project website www.edudemos.eu, providing schools, vocational schools, and universities across Europe with easy access to comprehensive teaching materials. This open availability is intended to particularly support educational institutions in structurally weak regions and geographically remote areas, where access to such resources provides a valuable foundation for education.

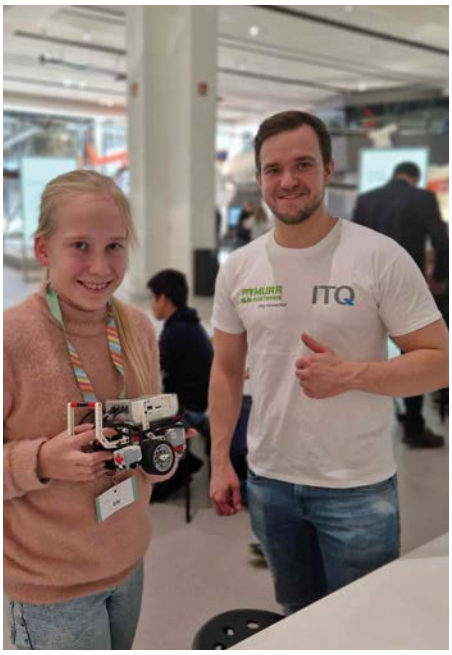
The project not only supports education in the field of digital and sustainable technologies but also contributes to reducing access barriers and promoting the STEM sector. Furthermore, it offers an integrative educational platform specifically designed to create future-oriented learning environments for a climate-neutral and technologically advanced society.

"Funded by the European Union. However, the views and opinions expressed are solely those of the author(s) and do not necessarily reflect those of the European Union or the European Education and Culture Executive Agency (EACEA). Neither the European Union nor the EACEA can be held responsible for them."

December 2023: Robot Workshop

Robot Workshop at Deutsches Museum in Munich, December 16





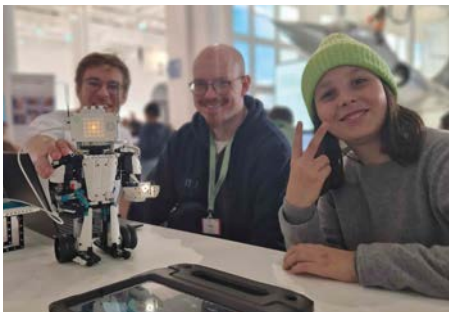




Video Robot Workshop
Deutsches Museum
www.youtube.com/ITQGmbH

December 2023: Robot Workshop

Robot Workshop at Deutsches Museum in Munich, December 16

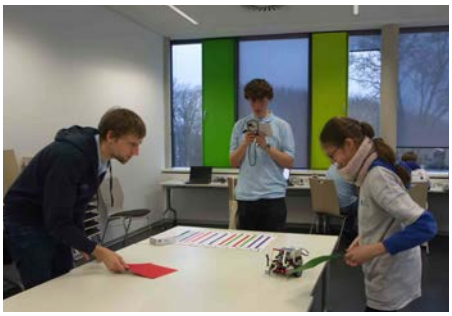


The Year 2024 in Pictures

January 2024: MakerLab, Experimenting, Building, Creating!

MakerLab at Rhine-Waal University of Applied Sciences in Kamp-Lintfort, January 13






January 2024: Idea Workshop City Library Bergheim

Idea Workshop on the Digitalization of the Bergheim City Library, January 23





February 2024: Robolympics Duisburg

Robotics Competition at the University of Duisburg-Essen, February 08

Our training activities are spread across Germany. Among other initiatives, projects have been taking place in Duisburg for many years in collaboration with Rhine-Waal University of Applied Sciences and the University of Duisburg-Essen.

Since 2016, we have been offering seminars in cooperation with the Chair of Mechatronics at the University of Duisburg, including the "Excursion and Seminar on Product Development".

At the start of each winter semester, 30 to 40 students are trained as technology coaches. After their training, the students have to develop their own teaching concept, which they then implement in Duisburg schools. The seminar concludes with participation in the Robolympics, where schools compete against each other in various robotics challenges.

Regular MAKEATHONS also take place in Duisburg. For example, in July 2024, students participated in a Smart Library MAKEATHON. The theme of the intelligent city library led to creative ideas and innovative prototypes.

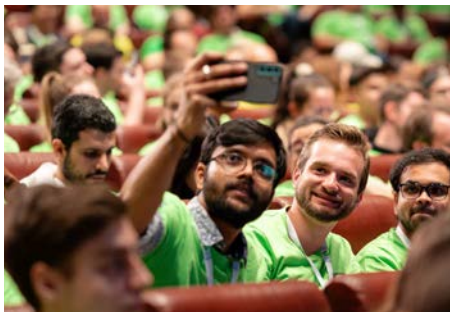
In January 2024, we also initiated a mini-MAKEATHON for teachers in cooperation with Rhine-Waal University of Applied Sciences. The task was to develop an Arduino- and sensor-based system for a digital classroom.

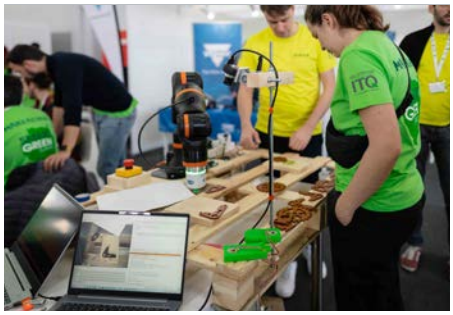
Beyond these activities, we have also launched a Scratch Club for children, where young learners can develop their first programming skills in a fun and interactive environment.

The Year 2024 in Pictures

February 2024: 7. SMART GREEN ISLAND MAKEATHON

International MAKEATHON on Gran Canaria, February 28 – March 02

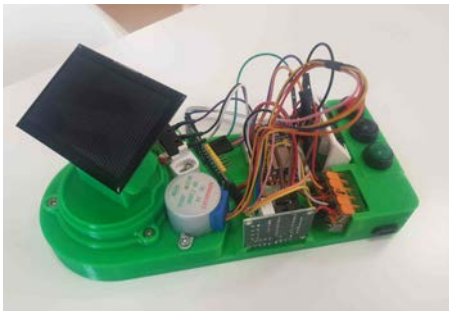


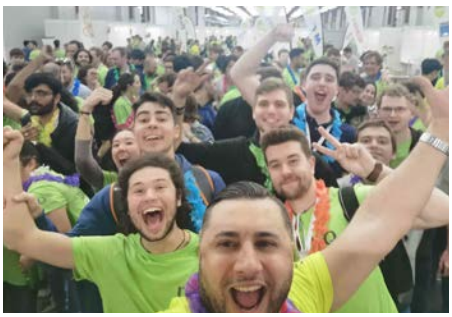


Video Smart Green Island
Makeathon Short impression
www.youtube.com/ITQGmbH

February 2024: 7. SMART GREEN ISLAND MAKEATHON

International MAKEATHON on Gran Canaria, February 28 – March 02





Video Smart Green Island
Makeathon Aftermovie
www.youtube.com/ITQGmbH

The Year 2024 in Pictures

March 2024: TUM MakerSpace Chain Reaction

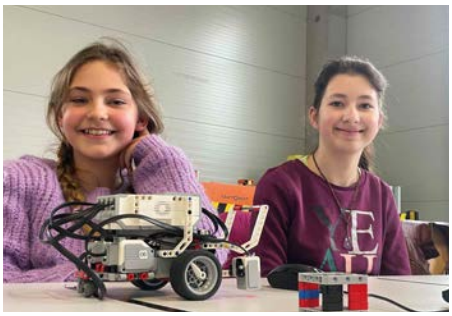
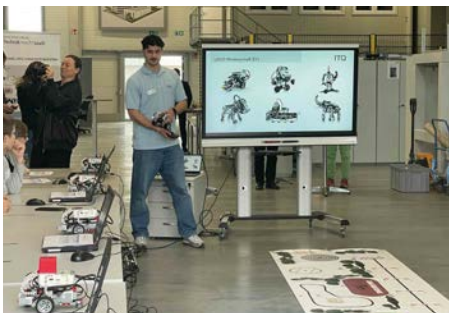
Technology Workshops with Pupils at TUM in Garching, March 12





March 2024: LEGO Mindstorms Workshop

LEGO Mindstorms Workshop with Pupils at TCW in Nördlingen, March 26

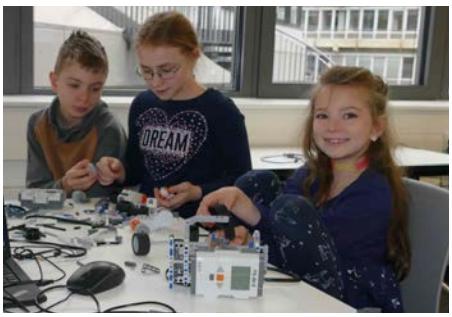





April 2024: LEGO Mindstorms Workshop

LEGO Mindstorms Workshop with Children at the University of Paderborn, April 04



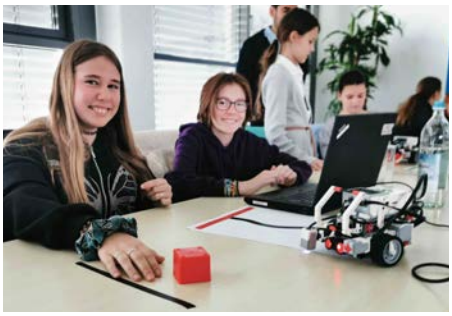


April 2024: Girls‘ Day

LEGO Mindstorms Workshop with Children at ITQ in Garching, April 25






The Year 2024 in Pictures

April 2024: VHS Cleaning Robot Workshop

Course with Children at the Adult Education Center (VHS) Garching, April 27





May 2024: KARL Robot Workshop

KARL Robot Workshop with Children at Dreilinden Gymnasium in Berlin, May 07




May 2024: VHS LEGO Mindstorms Workshop

Course with Children at the Adult Education Center (VHS) Garching, May 11

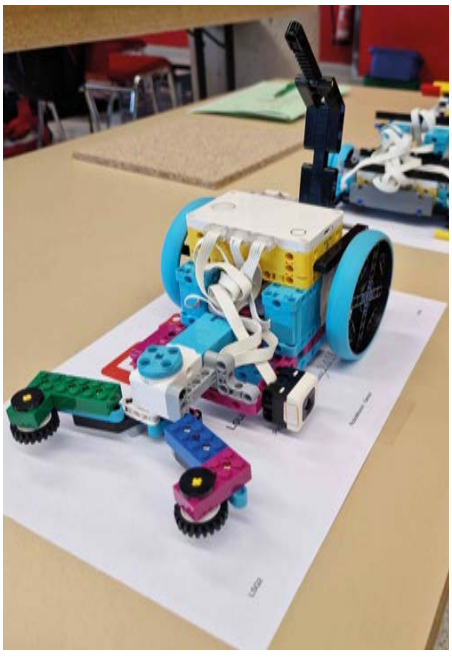




May 2024: World Robot Olympiad Neufahrn

Robotics Competition at Oskar-Maria-Graf- Gymnasium in Neufahrn, May 16





The Year 2024 in Pictures

May 2024: Visit of Technical University of Munich

Visit of Technical University of Munich at ITQ in Garching, May 22

June 2024: KARL Robot Workshop

KARL Robot Workshop with Children at ITQ in Berlin, June 22

June 2024: Museum Mile Festival

Technology Workshops at Deutsches Museum in Bonn, June 22





This year, not only the Deutsches Museum in Munich celebrated with the "Festival of the Future", but also the Deutsches Museum in Bonn with the "Museum Mile Festival". From 22 to 23 June, there were lots of activities for children and families on the Museum Mile with workshops, theatre, music and a stage program. Naturally, our foundation was present with a dedicated team, inspiring both children and adults to discover the fun in technology.

More than 5,000 visitors attended the "Museum Mile Festival". Our team consisted of Technology Coaches, Engineers, and Students from ITQ Duisburg, who amazed the visitors – both young and old – with LEGO Mindstorms EV3 Robots, that they could program and play with themselves. In addition to LEGO Mindstorms, guests had the opportunity to bring the small KARL Robot to life using Python, making it interactive and engaging. The "Digital Petting Zoo 4.0", featuring a scorpion, dog, and crocodile, fascinated even the youngest visitors.

Another highlight for children was using a camera to swap faces on a screen, drawing on touchscreens and watching an AI generate cat pictures from their sketches, or even experimenting with AI to merge "Mona Lisa" and "Peppa Pig" into a new creation.

It was a highly successful event, where our colleagues from Duisburg once again showcased how technology can be both fun and educational, sparking excitement among the next generation of innovators!

The Year 2024 in Pictures

June 2024: Festival of the Future

Technology Workshops at Deutsches Museum in Munich, June 29-30

Video Festival of the Future
www.youtube.com/ITQGmbH

June 2024: Festival of the Future

Technology Workshops at Deutsches Museum in Munich, June 29-30

This year, the "Festival of the Future" once again took place at the Deutsches Museum in Munich. From June 29 to 30, the museum island was filled with activities for children and families, including workshops and stage programs. Naturally, our foundation was present with a dedicated team, inspiring both children and adults to discover the fun in technology.

A total of 10,000 visitors attended the "Festival of the Future." Our team consisted of technology coaches from Gran Canaria, ITQ Engineers, Students from Munich University of Applied Sciences and Technical University of Nuremberg, as well as Apprentices from Murrelektronik GmbH.

Together, they engaged visitors – both young and old – with LEGO Essential, Prime Education, and LEGO Mindstorms EV3 Robots, which they could program and interact with themselves. The "Digital Petting Zoo 4.0", featuring a scorpion, cow, crocodile, and llama in a playpen, fascinated even the youngest visitors.

Another highlight was the Cleaning Robot, which was very well received. For the Murrelektronik Apprentices and the Technology Coaches from Gran Canaria, the festival was an extra special experience.

Just one day before the event, they were trained on our technology tools and were immediately able to pass on their newly acquired knowledge using the snowball principle. Once again, many visitors were infected with enthusiasm for technology and left the event truly inspired!

The Year 2024 in Pictures

July 2024: LEGO Mindstorms Workshop

LEGO Mindstorms Workshop with Pupils at Thoner Espan Elementary School in Nuremberg, July 05




July 2024: KARL Robot Workshop

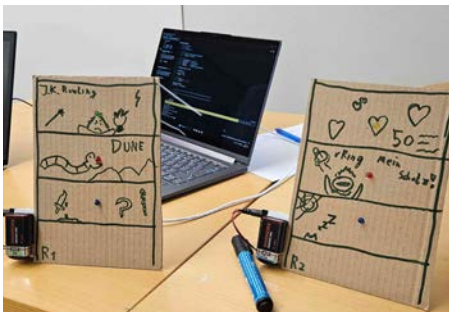
KARL Robot Workshop with Pupils at the Tierpark Zoo in Berlin, July 22

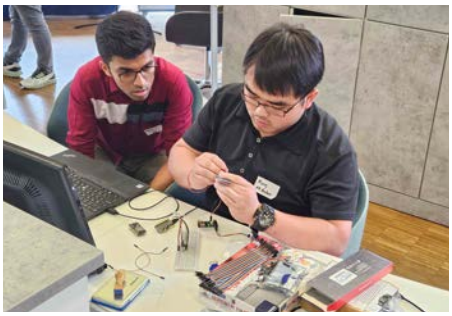


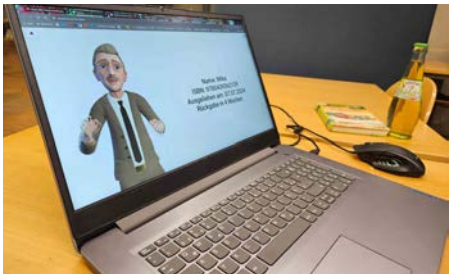

July 2024: Smart Library MAKEATHON

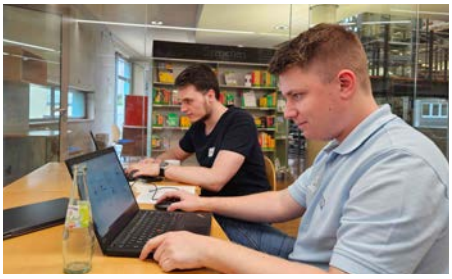
MAKEATHON with the City Library Bergheim, July 06-07

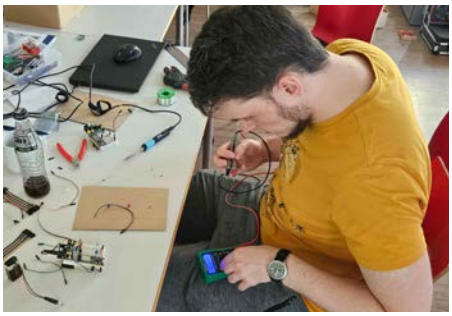
STADT.BIBLIOTHEK.BERGHEIM











The Year 2024 in Pictures

July 2024: Robotics Competition

Robotics Competition as part of the Soft Skills Internship at Technical University of Munich, July 15





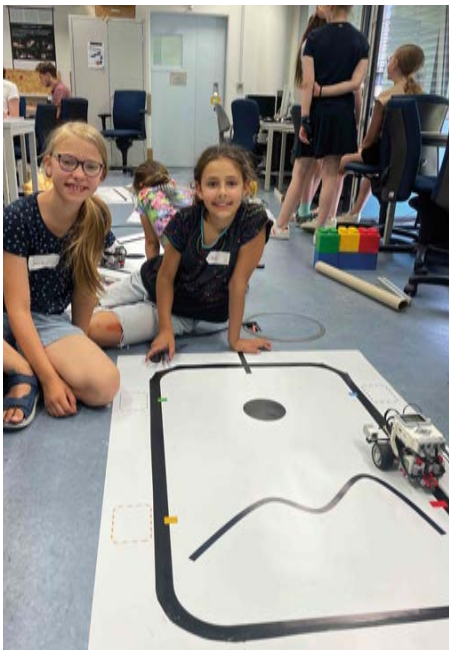
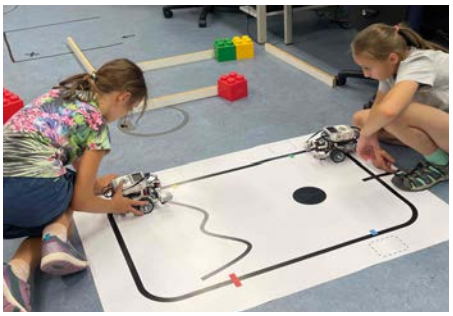
July 2024: LEGO Mindstorms Workshop

LEGO Mindstorms Workshop with Pupils at the Gymnasium in Nördlingen, July 16-17




August 2024: Girls Do Technology

LEGO Mindstorms Workshop at Technical University of Munich, August 06-07

August 2024: Maker Faire Hannover

EduDemoS Demonstrators at Maker Faire in Hannover, August 17-18

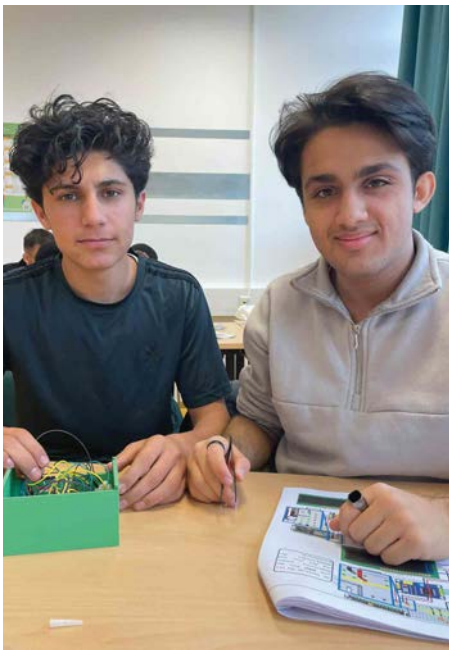


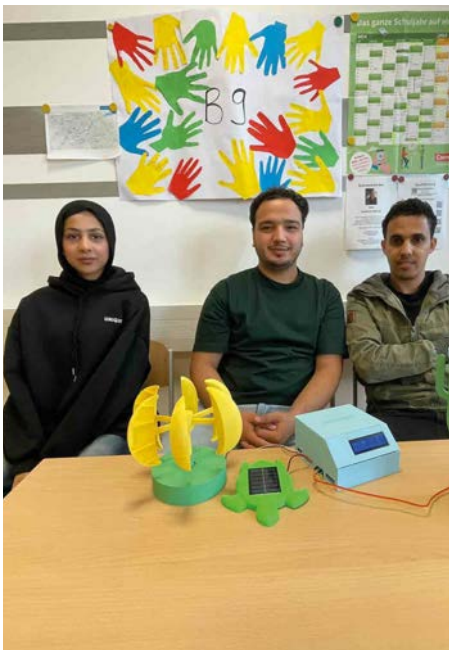


The Year 2024 in Pictures

October 2024: EduDemoS Roboter Workshop

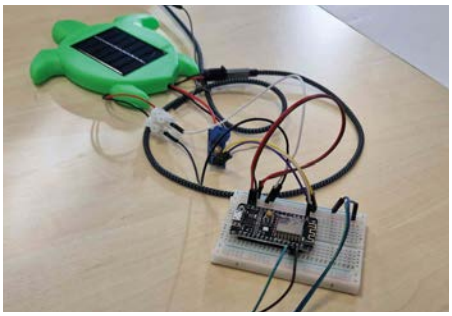
EduDemoS Robot Workshop with Vocational Students at Städtische Berufsschule in Giesing, October 11





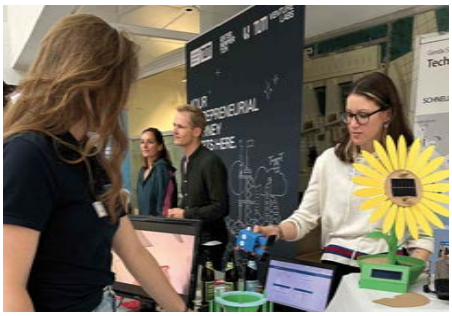
Oktober 2024: EduDemoS Roboter Workshop

EduDemoS Robot Workshop with Pupils at ITQ in Garching, October 17



October 2024: TUM Student Club Fair

EduDemoS Demonstrators at Technical University of Munich, October 23





October 2024: Autumn Campus MAKEATHON Gran Canaria

MAKEATHON in cooperation with InnovAction and Sergio Alonso Foundation, October 24-25



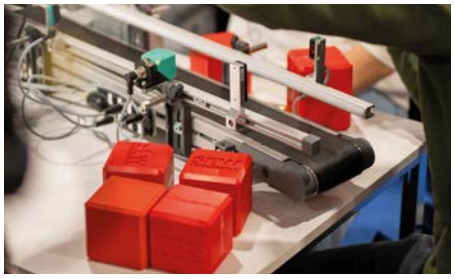

The Year 2024 in Pictures

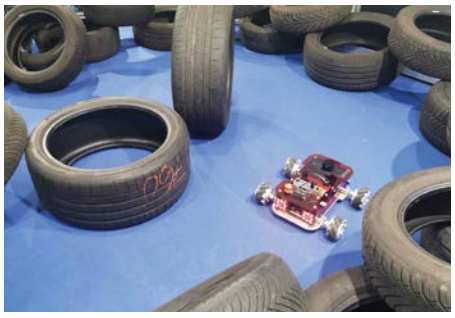
November 2024: 1. SPS MAKEATHON

MAKEATHON at SPS Fair in Nuremberg, November 12-14






Video SPS MAKEATHON
www.youtube.com/ITQGmbH

November 2024: 1. electronica MAKEATHON

EDUDEMOS electronica

MAKEATHON and Technology Workshops at electronica Fair in Munich, November 15










Video electronica MAKEATHON
www.youtube.com/ITQGmbH

Press Review

channel-e

Smart Green Island Makeathon 2024: Prototypen-Entwicklung und Nachwuchsförderung

16.02.2024 AUSBILDUNG & KARRIERE

© IQT GmbH

Mit dem Smart Green Island Makeathon vom 28. Februar bis 2. März 2024 auf Gran Canaria vernetzt ITQ junge Talente, Unternehmen und Ausbildungs-Institutionen auf internationaler Ebene miteinander, um gemeinsam an Technologien zu arbeiten und die Digitalisierung im Sinne der Nachhaltigkeit voranzubringen.

Die ITQ GmbH lädt vom 28. Februar bis 2. März 2024 zum siebten Mal zum Smart Green Island Makeathon nach Gran Canaria ein. In diesem Jahr wird rund um das Event eine ganze Smart Green Island Week mit drei Veranstaltungen mit zirka 900 Interessierten – laut Veranstalter im Alter von 6 bis 66+ Jahren – organisiert.

- Den Anfang macht die 19. Eurocast Konferenz, die vom 25. Februar bis 1. März 2024 Experten für High-Tech zu Themen rund um Computer Aided Systems Theory nach Las Palmas einlädt. Chairmen der Konferenz sind unter anderem Dr. Rainer Stetter von ITQ sowie die Mitinitiatoren des ersten Smart Green Island Makeathons Prof. Dr. Dirk Jacob, Hochschule Kempten, und Prof. Dr. Erich Markl, Fachhochschule Technikum Wien. In 22 Workshops informieren sie ein internationales Fachpublikum aus Wissenschaft, Forschung und Lehre über die Themen Robotics, Künstliche Intelligenz, IoT, Smart Energy und Circular Economy.

Source: channel-e Magazine, February 16, 2024

COLEGIO ALEMÁN
DEUTSCHE SCHULE LAS PALMAS DE GRAN CANARIA
Ort der Begegnung seit 1920

MAKEATHON GRAN CANARIA 2024

05.03.24
Sekundaria

Wie kann man aus Wasser Energie gewinnen? – Unter diesem Titel nahmen ca. 30 sorgfältig ausgewählte Schülerinnen und Schüler der 8. bis 12. Klasse am 29. Februar 2024 an einem Workshop zum Thema Wasserstoff teil. Dort hatten sie nicht nur die Möglichkeit, einige Experimente mit Wasser bzw. Wasserstoff durchzuführen, sondern auch die Programmierung eines Lego-Roboterfahrzeugs zu erlernen.

Der Workshop fand im Rahmen des Makeathons statt, einer Bildungsmesse, bei der junge Talente, Universitäten und innovative Unternehmen gemeinsam an Projekten arbeiten. Wir möchten uns herzlich bei der Stiftung Sergio Alonso bedanken, die unsere Schüler freundlicherweise zu dieser Veranstaltung eingeladen hat. Besonders möchten wir Claas Schott von der Hochschule Bremerhaven für die hervorragende Zusammenarbeit danken, da er den Workshop geleitet hat.

Claas Schott erklärte uns die Vorteile dieser Technologie: „Wasserstoff wird durch Elektrolyse von Wasser erzeugt und stellt daher eine ideale Möglichkeit dar, überschüssigen Strom zu speichern." Der Workshop bot den Schülern einen spannenden Einblick in die Anwendung neuer Technologien und lieferte wertvolle Impulse für ihre schulische und berufliche Zukunft.

Source: Colegio Alemán News, March 05, 2024

VDI nachrichten

Nachhaltig motiviert 21. Feb 2024 Von Martin Ciupek Lesezeit: ca. 3 Minuten

Makeathon auf Gran Canaria weckt Begeisterung für Technik

Wer heute erfolgreich technische Herausforderungen meistern möchte, sollte interdisziplinär und im Team arbeiten. Genau das tun junge Talente beim Smart Green Island Makeathon. Auch Unternehmen können davon profitieren.

Source: VDI nachrichten Magazine, February 21, 2024

DIGITAL ENGINEERING MAGAZIN

Smart Green Island Makeathon 2024

So wollen Ingenieure den Umgang mit gebrauchten Batteriezellen revolutionieren

09.03.2024 · Von B&R Industrie-Elektronik · 2 min Lesedauer ·

Beim Smart Green Island Makeathon auf Gran Canaria hat ein Team das Problem des Elektronikschrotts ins Visier genommen. Unter der Leitung des Platinsponsors B&R wollen die jungen Ingenieure den Umgang mit gebrauchten Batteriezellen revolutionieren.

Das B&R Team auf Gran Canaria im Februar 2024: Die rund 60 jungen internationalen Talente kommen von der Hochschule Kempten, der Hochschule Bremerhaven, der FH Aachen, der Universität Genua und vielen mehr. (Bild: B&R)

Source: Digital Engineering Magazine, March 09, 2024

Make:

Gran Canaria: Makeathon statt Urlaub

05.03.2024 13:33 Uhr Daniel Schwabe

Ende Februar fand auf Gran Canaria der siebte Smart Green Island Makeathon von ITQ statt, auf dem 300 Studierende spannende Projekte umsetzten.

Ein Traktor, der statt mit Verbrennungsmotoren mit Elektroantrieb fährt und seinen Strom über einer Solarzelle bezieht. Mandarinengreifer, die durch Drücken der Frucht den Reifegrad bestimmen können. Konzepte zur Überwachung von Brauanlagen bis hin zu Prototypen für neue Baukästen für Kinder und Jugendliche. Viele innovative Ideen entstanden Rahmen des Makeathon und wurden vom 28. Februar bis 2. März umgesetzt.

Bei **ITQs Makeathon [1]** wurden den Teilnehmern verschiedene Challenges gestellt, um in diesen vier Tagen Projekte zur Nachhaltigkeit und grünen Technologien umzusetzen. Dabei fungierten die Mitarbeiter der Sponsor-Unternehmen als Mentoren und unterstützen die aus mehr als 30 Ländern stammenden Studierenden mit Technologie und Know-how bei ihren Aufgaben. Viele der Projekte nutzen neue Technologien wie KI-gestützte Bildverarbeitung. Beispielsweise, um automatisch Müll aufzusammeln und zu klassifizieren. Oder um Schädlinge auf Pflanzen zu erkennen und diese Pflanze dann zu behandeln.

Source: Make Magazine, March 05, 2024

GEW
...total lokal

AUSLANDSPRAKTIKA IN DER AUSBILDUNG

Das fliegende grüne Klassenzimmer

Yvonne Oltmanns hat an einem internationalen Praktikumsprojekt teilgenommen.

Diesen Satz kennt wohl jeder: „Nicht für die Schule lernen wir, sondern fürs Leben." Eine Redewendung so alt wie das Bildungswesen selbst. Die Berufsbildenden Schulen Wilhelmshaven haben diesen Satz neu interpretiert und den Worten Taten folgen lassen. „Unsere Berufsschulklasse ist die erste, die am SMART GREEN ISLAND MAKEATHON auf Gran Canaria teilgenommen hat", schwärmt Auszubildende Yvonne Oltmanns von der GEW.

Attraktive Ausbildung

Die gelernte Altenpflegerin absolviert bei dem Energieversorger ihre Ausbildung zur Kauffrau für Büromanagement. Als moderner Arbeitgeber hat das Unternehmen der zweifachen Mutter dafür ein Teilzeitmodell angeboten.

Traditionell ermöglicht die GEW allen Azubis ein Auslandspraktikum: „Unsere Lehrer *Michael Piossek* und *Karen Frank* hatten von der grünen Bildungsveranstaltung in Spanien erfahren und sich erfolgreich beworben." Finanziert wurde das Projekt von „Erasmus+". Einem Förderprogramm der Europäischen Union.

Mal veranstaltet. Ausrichter war die ITQ GmbH aus Garching, deren Geschäftsführer *Dr. Rainer Stetter* die Idee zu diesem Projekt und dem Veranstaltungsort hatte. Denn Gran Canaria bietet mit ihren unterschiedlichen Klimazonen die idealen Voraussetzungen, um zu zeigen, wie man sich mit erneuerbaren Energien ökologisch autark versorgen kann.

Andere Länder, andere Sitten

Die elfköpfige BBS-Klasse war vor Ort für das Marketing zuständig. „Angefangen von der Betreuung des Info-Standes über die Registrierung der Teilnehmenden bis hin zu einer Schnitzeljagd-App, mit der man das Gelände erkunden konnte.

Source: GEW Wilhelmshaven Magazine, June 12, 2024

konstruktions praxis

MINT-Nachwuchs

Makeathon: In vier Tagen zum Prototyp

20.03.2024 · Quelle: ITQ · 3 min Lesedauer ·

Für eine Woche verwandelte sich die Hauptstadt Gran Canarias, Las Palmas, kürzlich bereits zum siebten Mal in ein Laboratorium für „Sustainable Life": Im Rahmen des Smart Green Island Makeathon arbeiteten 33 Teams an verschiedenen Industry Challenges und entwickelten erste Prototypen.

Während der Smart Green Island Week verwandelte sich Gran Canaria wieder zur Heimat künftiger Daniel Düsentriebe
(Bild: ITQ)

Source: Konstruktionspraxis Magazine, March 20, 2024

PC & Industrie — Aktuelles

Digitale Zukunft retten

100.000 Kinder sollen mit Tech-Virus infiziert werden.

Deutschland galt lange als eine der führenden Nationen im Bereich des Industrie-Ingenieurswesens. Doch in den vergangenen Jahren hat sich die wirtschaftliche und damit auch gesellschaftliche Situation immer weiter zugespitzt. Die Gründe sind vielfältig: Durch fehlende Innovationsfähigkeit, aufgrund mangelnder Digitalisierung, lähmende Bürokratie aber auch durch weltweite Krisen wie der Klimawandel und Kriege ist Deutschland in den letzten Jahren im internationalen Vergleich ins Hintertreffen geraten. Erschwerend hinzu kommt das nicht enden wollende Thema des Fachkräftemangels.

In Deutschland verlässt die sogenannte „Boomer"-Generation, mit viel Fachwissen, in den kommenden Jahren die Unternehmen und geht in Rente. Zeitgleich konfrontieren uns jüngste PISA-Studien wieder mit mangelnden MINT-Fähigkeiten bereits bei den Kleinsten der kommenden Generationen.

Um sich diesen Effekten entgegenzustemmen, bedarf es einer massiven Anstrengung aller Generationen. Wir brauchen einen neuen Spirit des Aufbruchs, der Innovation und der Hoffnung!

Bildung als Schlüssel für Innovation

Die Grundlage für Innovation ist Bildung. Nur wer sich Wissen aneignet und in einer immer komplexer werdenden Welt auch Details in verschiedenen Bereichen versteht, kann Zusammenhänge erkennen und wirkungsvolle Maßnahmen ergreifen und umsetzen. Hierfür müssen wir bereits im Grundschulalter ansetzen und die Kinder und Jugendlichen für Technik begeistern. Dies ist eine Mammutaufgabe. Laut Statista gab es im Schuljahr 2022/2023 in Deutschland 32.666 allgemeinbildende Schulen mit knapp 9 Millionen Schülern. Die Schule allein kann das Thema MINT nicht ausreichend abdecken, weshalb seit Jahren das außerschulische Bildungsangebote von Institutionen aber auch bereits von einigen Unternehmen wächst. Das Angebot ist vielfältig, aber deckt bei weitem nicht den Bedarf.

Zugang zu MINT so einfach wie möglich

Ein Kernproblem scheint das föderalistisches Bildungssystem zu sein, das oft zu uneinheitlichen Ansätzen mit langwierigen Prozessen führt. Die Qualität und Quantität der existierenden Initiativen im schulischen Bereich sind regional sehr unterschiedlich. Wir haben jedoch keine Zeit, das System zu ändern. Um die Kinder und Jugendlichen dennoch frühzeitig für die Technik zu begeistern, müssen wir jetzt handeln. Was fehlt ist unter anderem ein flächendeckendes Netz, ein Informationssystem, zu allen MINT-Angeboten. Es benötigt beispielsweise eine Art freizugängliche Landkarte, die darstellt, welche Initiativen mit welchem Angebot zur Verfügung stehen – am besten international. Auch wäre ein umfangreicher Webshop hilfreich, der jegliches technisches Lehrmaterial vereint. So wissen die Lehrer, wo sie welches Angebot finden und die Hürde, den Kindern im Unterricht MINT beizubringen (lassen), könnte verringert werden. Derzeit arbeiten wir an einer intelligenten Verschaltung von besonders aktiven Initiativen im MINT-Bereich, um gemeinsam eine höhere Schlagkraft und Umsetzungsgeschwindigkeit zu erreichen.

Fachkräftemangel

Deutschland steht nicht alleine da. Auch im Ausland sehen wir ähnliche Problematiken im Bildungssystem. Der Ruf nach einem „europäischen Masterplan", der dem MINT-Fachkräftemangel entgegenwirkt, wird lauter. Mit dem internationalen Projekt „Unleash new tech talents in Europe' soll ein erster Meilenstein dazu gelegt werden. Ziel dieses Projektes ist es, insgesamt 100.000 Kids'Young Talents, also Kinder und Jugendliche im Alter von 6-18 Jahren sowie junge Erwachsene zwischen 18 und 25 Jahren, für neueste Technologien, die man zur Bewältigung der Digitalisierungskrise und zur Eindämmung des Klimawandels benötigt, zu begeistern. Daraufhin sollte eine umfängliche und praxisgerechte Ausbildung erfolgen. Initial sind bereits mit Deutschland, Österreich, Schweiz, Spanien und Italien fünf Länder an Board. Die Initiative soll in der kommenden Jahren sukzessive ausgebaut werden und letztendlich mindestens zehn europäische Länder, unter anderem Polen, Großbritannien, Serbien, Ungarn und Albanien umfassen.

In diesem Jahr konnten bereits die ersten 10.000 Kinder und Jugendliche mit dem MINT-Virus infiziert und für Technikbegeistert werden. Nach dem Schneeballprinzip sollen dann im zweiten Jahr bereits 30.000 Kinder und Jugendliche eine grundlegende Technikausbildung erfahren haben. So erreichen wir in den kommenden drei bis vier Jahren nahezu 100.000 Kinder, die sich für Technik interessieren.

Autor: Dr. Rainer Stetter Geschäftsführer der ITQ GmbH und Gründer der Gerda Stetter Stiftung „Technik macht Spaß!"
ITQ GmbH
www.iqt.de

VHS LEGO Mindstorms Workshop in Garching

Source: PC & Industrie Magazine, October 21, 2024

Get on Board!

Become a Technology Sponsor

When the foundation was established in 2011, we had the ambitious vision that every school and kindergarten in Germany would have a technology club by 2021. Much has changed in the meantime in the age of digitalization, but there is still a long way to go before we reach our goal. We already offer our "LEGO Mindstorms" project in many institutions and teach the students technical contexts with a lot of fun to get them excited about science and technology at an early age.

Our concept is to introduce teams of pupils to technical problems in a playful way using the high-tech LEGO Mindstorms construction kit. The organizational and technical leadership of these teams is taken over by students selected and trained by us. Fun and play are never neglected. To ensure that the teams are not just "playing" but are actually working in a focused and concentrated manner, the foundation repeatedly supports selected teams in their participation in competitions such as the First LEGO League or the international robotics competition World Robot Olympiad. This year, we supported pupil teams in five national and international competitions and were even able to send two teams from the Bavarian Ottobrunn High School to the World Finals in Detroit and Montevideo.

To push this concept further, we are always looking for companies that, together with us or on their own initiative, build up and support further school teams and enable them to participate in specially organized competitions.

If you as a sponsor, company or private person, would like to support the activities of the Gerda Stetter Foundation with financial means, donations of materials and its influential network, please feel free to contact us.

On behalf of a new technophile generation, we are happy about every commitment!
If you want to donate money, we will give you a donation receipt.
The Foundation is recognized as a non-profit organization by the government
of Upper Bavaria (Foundation-Number: 12.1-1222.1 M/T 24).
HypoVereinsbank, Transfer Reference „Technik macht Spaß“, IBAN DE03700202700010181498, BIC HYVEDEMMXXX.

THANK YOU!

Summary of our List of Sponsors


B&R


BAUMULLER


BECKHOFF


FESTO


MathWorks


HONDA
The Power of Dreams


igus


infineon


KOSTWEIN


Lorenz


mayr®


GRUPO ASA


MITSUBISHI


MULTIVAC


MVTec Software GmbH


OPTIMA


PHOENIX CONTACT


rexroth
A Bosch Company


SIEMENS


SIGMATEK


SMARTKONZEPT
DIE WOHNMANUFAKTUR


SOFTWARE FACTORY


somic
VERPACKUNGSMASCHINEN


TRUMPF


WAGO


MURR ELEKTRONIK
stay connected


FUNDACION SERGIO ALONSO


PACKAGING VALLEY

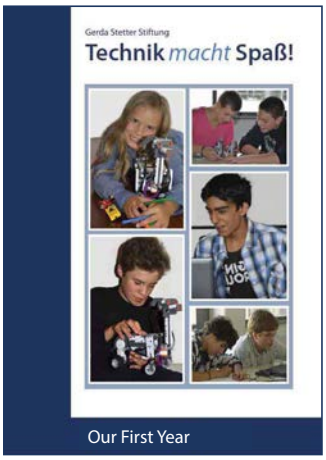

team::mt
marketing 4 tomorrow


Cabildo de Gran Canaria

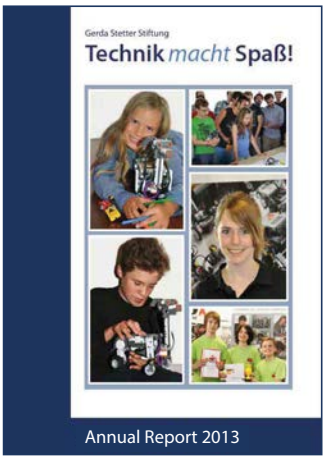
Edition Review – What we did so far

Our Goal is to teach Education 4.0 with a lot of Enthusiasm ...

Front Cover – Event Highlights 2012 – 2023



Our First Year



Annual Report 2013

Annual Report 2014

Annual Report 2015

Annual Report 2016

Annual Report 2017

Annual Report 2018

Annual Report 2019

Annual Report 2020/2021

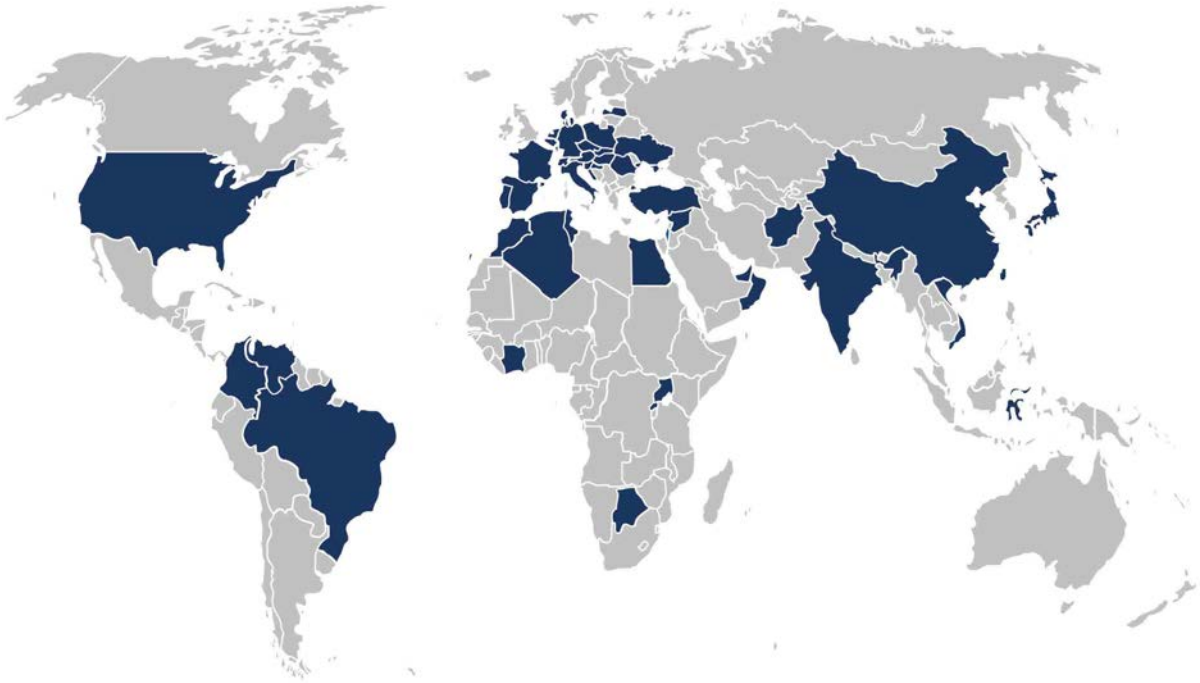
Annual Report 2022

Annual Report 2023

... and we have achieved a lot so far

Network 2012 – 2023

Our Network



Foundation Administration „Technik macht Spaß!“ | Parkring 4 | D-85748 Garching near Munich
Phone: +49 89 321981-70 | Fax: +49 89 321981-89 | E-Mail: info@technikmachtspass.org

www.technikmachtspass.org