Edition 7

Gerda Stetter Stiftung

Technik *macht* Spaß!

Annual Report 2018

What we aim for:

- ✓ Learning with fun
- ✓ Earliest possible inspiration for technology
- ✓ Fostering 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

„Be the change you want to see in the world."

(Mahatma Gandhi)

„Has Germany slept through Digitization?“

Such or similar headlines accumulate more often in recent times in both reputable news magazines and the yellow press. Many managers, but also politicians, tend to call these statements fake news and point out that Germany is doing (at the moment) quite well economically. At the same time, many lectures point out that the rate of change in digitization is not linear, but exponential. From this, it can be inferred that being in front doesn‘t mean as much nowadays as it used to, as advantages melt away much faster than they did 10 years ago. Another major plea in the magazines and papers is that there is a lack of qualified professionals of all kinds, but especially of highly skilled digitally qualified workers.

The shortage of skilled workers can also be felt in the daily work of our foundation. Our propositions and our assistance are increasingly requested by both state and academic institutions as well as by companies. On one side, this makes us very happy, but on the other side, it puts us more and more often into the situation that we can barely fulfill all the requests. That‘s why we are increasingly actively engaging our networks to explain how we make modern, digital – not boring – education. In the course of this, we offer, for instance, workshops which train a company‘s employees to propagate the concept of modern education into their immediate environment (schools, universities, etc.) - leading to a classic snowball effect. Furthermore, with our new initiative „Recruiting 4.0,“ we aim to find imitators and participants for cool and innovative education. A first trial balloon, which we have already launched with the VDMA in May 2018, was very successful, so we had a second event followed on November 6th, during at which young talents, innovative companies and university professors have reported on how to gain access to young people and how modern apprenticeships should be designed in order to be well equipped for the future.

The success of our initiatives in recent years motivates us a lot and spurs us on to plan further activities for 2019. The next big highlight is just around the corner. In February 2019, we will start the next big Makeathon in Gran Canaria. Our platinum labels for the event are already sold out and the number of gold sponsors has quadrupled. With this tailwind, we want to bring together young talents from all over the world as quickly - and as many as possible - and connect them with companies, researchers and politicians. Because the exponential rate of change leaves us no longer time to hesitate. The new magic word is called „MAKE“ not „Doubt.“

Enjoy reading!
Yours

Dr. Rainer Stetter
Founder & Managing Board

A True Story

Hussein & Friends

Over a million refugees came to Germany in 2015. The huge numbers of refugees from crisis areas such as Afghanistan and Syria in the late summer of 2015 motivated us to help quickly. Through our foundation network, we got in contact with the Diakonie Riemerling through a teacher from the Secondary School Ottobrunn. There, a home had been set up for unaccompanied minor refugees.

Since language and education are the keys to integration, we have offered school-assisted internships and technical workshops for the youngsters. This is how we got to know Hussein, who in February 2016, as a 17-year-old, wanted to do a technical internship with us.

On the very first day of the presentation with the management Hussein directly asked for an apprenticeship in the first sentence. Impressed by his willingness and commitment, we decided to offer him a training position as a specialist in computer science. We quickly created the organizational framework because our company had not trained any trainees until then.

Together with students and co-workers of the TU Munich, we developed the idea that not only Hussein, but also other refugees could be offered an opportunity on vocational perspective.

The project **Hussein & Friends** was born.

In order to reach many more young refugees as quickly as possible, Hussein, Reza and other refugees, who have already been trained as technical coaches, have been going to residential homes and integration classes together with our German Lego Coaches and students since April 2016. Through this, they should be increasingly affected by the "snowball" effect as well as been inspired by "technology friends".

Since September 2016 Hussein (21 years, from Syria) and his friends Reza (26 years, from Afghanistan) and Abed (27 years, from Palestine) have been trainees at ITQ.

> "I want to understand today's technology.
> Hussein, IT specialist trainee at ITQ, from Syria

> "Hussein has inspired me with his fascination for technology.
> Reza, IT specialist trainee at ITQ, from Afghanistan

> "I want to learn and share my knowleadge with others.
> Abed, IT specialist trainee at ITQ, from Palestine

Together they work on...

...the software of the future.

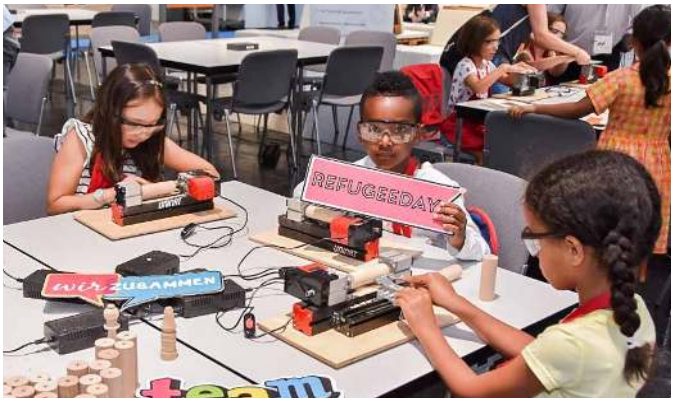
Integration through Technology

Among the refugees that come to Germany there are many young people. In order to offer them a perspective, the Gerda Stetter Foundation "Technik macht Spaß!" belonging to ITQ GmbH has launched the project "Hussein & Friends", which aims at integrating young refugees faster. It exemplifies an entry into education, training and thus integration into the labor market.

The goal is to bring the refugees closer to our world of technology and offer them training opportunities in technical professions. This creates perspectives for technology enthusiasts among the refugees.

The integration project "Hussein & Friends" not only drives the integration of refugees, but also helps companies to find suitable trainees. According to IHK, there is a predominant shortage in technical occupations such as mechatronics and automation technology.

Integration Islands at automatica fair 2018



Integration Islands at automatica fair 2018

Technological Workshop with refugees – 08.03.2018

- Technological Workshop with Lego Coaches: Young refugees get to know Technologly in a fun way
- The aim is to show young refugees career prospects in the field of technology

Tech Days – 14.04.2018

- Lego WeDo- and Lego Mindstorms-Workshops for refugees and students: Playfully introduce technology
- The aim is to show refugees and students career prospects in the field of technology

automatica 2018 – 19. & 20.06.2018

- Integration Islands: Students and young refugees come into playful contact with technology
- The aim is to show refugees and students career prospects in the field of technology

DFB Tech Workshop MittelstandsCampus – 13.07.2018

- Young footballers get in contact with „programming." They come into playful contact with technology at a very early stage

Family Day Hansen – 27.07.2018

- During the Rommelag event, members of the Hansen family come into playful contact with technology
- The aim is to show the Hansen family the Education 4.0 concept as well as the integration project „Hussein & Friends" during the event

Technological Workshop with Messe München – 24.10.2018

- Technological Workshop with Lego Coaches: young refugees get to know technology in a fun way
- The aim is to show young refugees career prospects in the field of technology

electronica – 13. & 16.11.2018

- Integration Islands: Students and young refugees come into playful contact with technology
- The aim is to show refugees and students career prospects in the field of technology

Messe München International

WIR ZUSAMMEN

Die Bundesregierung

Voices:

„Inspiring young people to be interested in technology and then connecting them with the latest technologies of automation is the goal of the foundation "Technik macht Spaß!" and also the aim of the education network of B&R. For this reason, we enjoy supporting innovative projects such as the Smart4i Next Generation Demonstrator, but also Makeathons such as the one on Gran Canaria. In both cases, it is a lot of fun to accompany and support the students in the realization of innovative tasks. I am always amazed by the high level of self-motivation and the resulting commitment of the students when it comes to realizing THEIR project. So the strategy of „technology is fun," to create enthusiasm and motivation with cool hands-on projects is just the way to reach kids, teens and young adults. We are already looking forward to the next events and projects, because it is exactly this kind of motivated students that we need as a company, but also within the entire industry."

Dr.-Ing. Patrick Haberstroh
Head of Education Network
B&R Industrie-Elektronik GmbH

„The workshop we did together with Hussein & Friends expanded the view regarding their possibilities and opportunities in the future of the young refugees living in Salesianum. Interest and diligence in an exciting professional field make it possible. Thank you for this exciting and sensitively accompanied day."

Ingo Greß
Dipl. Sozialpäd. (FH)
Salesianum

„Unfortunately, the shortage of skilled workers is nowadays a daily reality in industry and mid tier. In order to address this problem, Messe München is increasingly involved in the promotion of young talent. In cooperation with ITQ GmbH, automatica, the leading trade fair for intelligent automation and robotics, has successfully introduced and developed the Makeathon and Integration Islands formats. At the trade fair in June 2018, more than 120 Makeathon participants and 200 students brought a breath of fresh air into the industry. The topics: „Industry 4.0" and „Smart Automation and Robotics." With their new ideas and technical understanding, young people make an important contribution to technological progress in our society. With its expertise in the organisation of international events and with a great portion of passion for the promotion of young talent, ITQ GmbH has made a significant contribution to the success of the automatica trade fair 2018. I am already looking forward to continuing our work together at the automatica trade fair 2020!"

Falk Senger
Managing Director
Messe München GmbH

„Digitalization drives IT technologies into automation and leads to new qualification profiles. For Mitsubishi Electric, it's important to support initiatives like the Mi5 and Smart Green Island. They promote an intensive dialogue between universities, students and industry in an appealing way and offer young engineers the right skills."

Manfred Hilger
Global Key Account Manager F&B
Mitsubishi Electric Europe B.V.

Voices:

„As a teacher at the ORI („Städtische Orientierungsstufe“), a school that keeps all types of schools open to its students beyond primary school for two more years, and as a girls´ appointee in charge of the Girls Day 2018, I visited, together with the boys´ appointee and his boys, the research center in Garching. There, the “Gerda Stetter Foundation” invites children and adults to join them at the ITQ headquarters, aiming to evoke both an understanding and enthusiasm for technology.
And indeed: Computer-controlled robots, dancing electronic animals and cars catch even such children – including their teacher – who initially appear as if there are in another world. Professional skills, pedagogical skills and patience of the IT students and their team leader conjure up a double highlight for our sixth graders: A glimpse into the future – and this with the highest fun factor!“

Landeshauptstadt München
Referat für Bildung und Sport

Diane Weber
Teacher at Städtische Orientierungsstufe München-Neuperlach

„Mechanical engineering is changing – Industry 4.0 and digitalization require a rethink of development methods and processes. Software, simulation and intelligent data analysis to artificial intelligence will dominate the mechanical engineering of tomorrow. But to do this, the industry also needs suitably trained engineers. ITQ is doing an impressive job in this area. Among other things, at the Makeathons organized by Dr. Rainer Stetter and ITQ in Germany and Gran Canaria, I was able to witness live how young people solved complex technical challenges within a few days just with the help of creative thinking, innovative development methods and a decent dose of enthusiasm. Mechanical engineering in Germany and Austria needs pioneers like Dr. Rainer Stetter, who bring a breath of fresh air into partly encrusted structures and inspire young people for technology.“

MathWorks

Philipp H. F. Wallner
Industry Manager
The MathWorks GmbH

„Since I took part in the Makeathon in Gran Canaria, I loved the idea and organisation of the event. That‘s why I adapted the model here in Colombia to a very locally concise subject: The application of engineering in agriculture. Students loved the event and increasingly developed a keen interest in Dr. Stetter and his activities. One Colombian student is currently working for ITQ and another is currently in his internship. We look forward to further cooperation, because Dr.. Stetter is an inspiration for us and we hope to welcome European students for an effective bilateral exchange in the future.“

Universidad de los Andes
Colombia

Prof. Giacomo Barbieri
Universität de los Andes
in Kolumbien

„Digitalization and Industry 4.0 are of central importance for the preservation and strengthening of Germany as a business location. We are pleased to be able to actively drive this change, especially as a mid tier company: With smart measuring devices, innovative services as well as fully connected and resource-efficient production, we are shaping the digitization of water supply significantly. In our own transformation from classic manufacturing operations to award-winning pioneers for Industry 4.0, it was and is essential to have found a strong partner in ITQ. The core competencies of ITQ and the concerns of the Gerda-Stetter-Foundation are more important than ever.“

Lorenz

Wilhelm Mauß
Managing Director
Lorenz GmbH & Co. KG

Our Training Concept:

Inspiring youth for technology is the basis for ensuring qualified junior staff of German companies. The teaching of technical knowledge should be prepared in such a way that young people enjoy it and discover the technology for themselves.

The objective of the foundation is a comprehensive modular training concept. Inspiring youth for technology is the basis for this. Industry-related projects with universities and colleges of all kinds are suitable for bringing industry and education closer together.

Combining interdisciplinary lecture concepts and practice-oriented semester papers in collaboration with industry, students experience both project management and interdisciplinary knowledge.

Our activities focus on dealing with technical knowledge, practice with technical projects and their successful realisation. That's why we start with our technology courses at nursery school age.

With our Lego Mindstorms projects, as many young people as possible should be enthusiastic about science and technology at an early stage. Furthermore fears of complex technology could be reduced. The students being coached by students autonomously build acting robots, consisting of sensors, motors and many colorful Lego bricks. The foundation acts according to the top-down principle, that is, the students supervise projects where they pass on their knowledge to secondary school students. In the next step, students who have been trained in a Lego team then supervise elementary students.

Modular Training Concept

Management

- The basics and meaning of systems engineering
- Understanding of mechatronical projects and processes

Trainees

- Foster fascination for technology
- Practical professional training

Engineers

- Improve knowledge about interdisciplinary work
- Enhance the use of software

Pupils

- Understand cause-effect relationships
- Foster team work and independent thinking

Students

- Soft skills and experience in project management
- Enhanced understanding of software

Children

- Learning with fun and fascination for technology
- First experience with mechatronics

Our Concept in Schools:

To spread our ideas even better, we have developed the concept of student Lego Coaches for students, initially at the Technical University of Munich, and have since established them at several other universities. As part of the „Soft Skills Internship“, we offer students the opportunity to learn and apply the necessary soft skills using the example of a real interdisciplinary development task. To be able to deepen their knowledge, students coach students and also pave the way for them to be able to enter robot competition.

We pursue the goal of having motivated and well qualified students. We train students as technical coaches who pass on their acquired knowledge to other students. Through this approach, we try to get as many other colleges and universities on board as possible.

When linking universities, we are getting a good deal closer to our goal of providing schools with motivated and well-trained coaches.

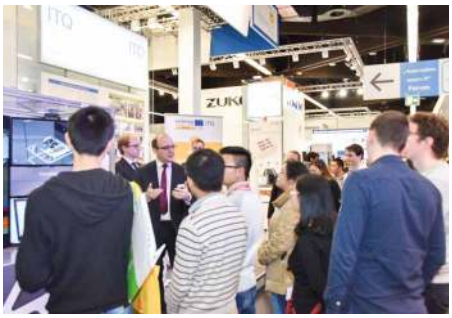
Review of 2017

November 2017: Think in Innovation

Lopesan Think in Innovation event on Gran Canaria, November 13-17

November 2017: SPS IPC Drives

Presentation of the „smart4i Digital Twin Demonstrators“ at the fair in Nürnberg, November 28-30



November 2017: 17th Scientific Days in Munich

Scientific Days at the Bavariasaal in the Alte Kongresshalle, November 28

December 2017: Lego WeDo Workshop

Lego WeDo workshop at primary school Oberföhring, December 13

December 2017: State Teaching Award Ceremony Stuttgart

UAS Aalen wins State Teaching Award 2017 with ITQ Education Projects, December 6

December 2017: Mini Hackathon OTH Amberg-Weiden

„Automation Engineering meets Barbecue" mini Hackathon at OTH Amberg-Weiden, December 19

December 2017: Hackathon at Siemens

SIEMENS

„Digital Collaboration" Hackathon at Siemens in Erlangen, December 20

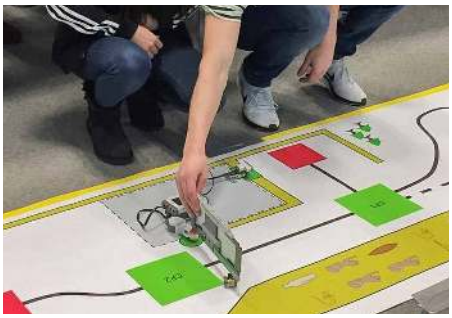
2018 in Pictures

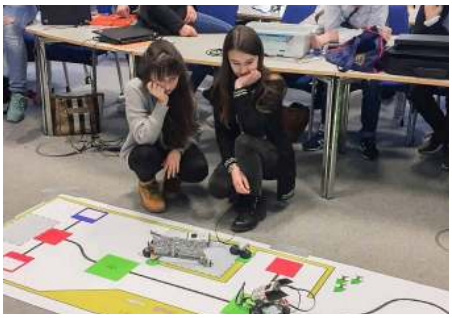
January 2018: Woodturning Workshop with Children

Woodturning workshop at primary school Oberföhring, January 24

February 2018: Robot Contest TUM

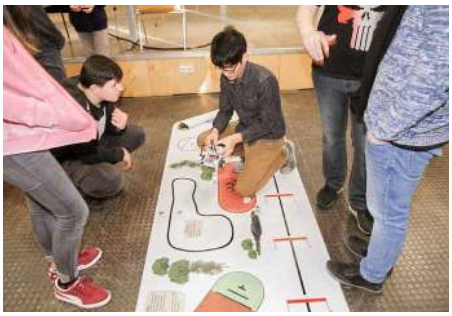
Robot contest at Quantum TUM in Garching, February 5





February 2018: Final Contest at Duisburg University

Robot contest and final event at Duisburg University, February 1



2018 in Pictures

February 2018: Makeathon on Gran Canaria

Smart Green Island Makeathon in Las Palmas, February 23-26

Makeathon TV-Report
www.youtube.com/ITQInfo

February 2018: Makeathon on Gran Canaria

Smart Green Island Makeathon in Las Palmas, February 23-26

Makeathon Aftermovie
www.youtube.com/ITQInfo

2018 in Pictures

March 2018: My Science Project with Students

Science Day with tech contests at secondary school Ottobrunn, March 8

March 2018: Tech Workshop with Refugees

Technological workshop with refugees at Salesianum in Munich, March 8

March 2018: IoT Makeathon Salamanca

IoT Makeathon together with the University of Salamanca in Spain, March 10-11

March 2018: Makeathon at Phoenix Contact

Makeathon at Phoenix Contact in Schieder-Schwalenberg, March 15

2018 in Pictures

March 2018: Cleaning Robot Course Landshut

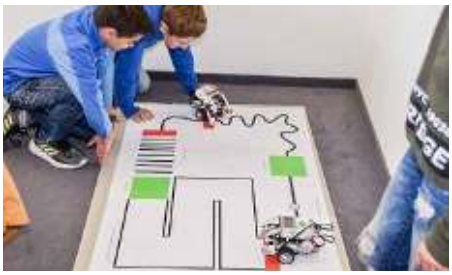
Cleaning robot course with students at economic school in Landshut, March 23

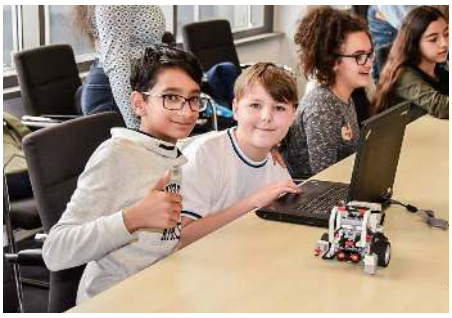
April 2018: Cleaning Robot Course

Cleaning robot course with children at adult education centre in Unterschleißheim, April 14

April 2018: Girls´ & Boys´ Tech Days

Get to know technology in a fun way - "Girls´ & Boys´ Tech Days 2018" at ITQ, April 26





2018 in Pictures

April 2018: Lego Mindstorms Workshop

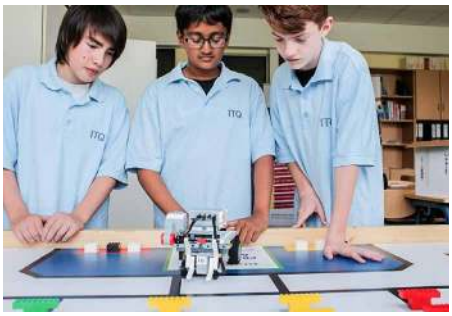
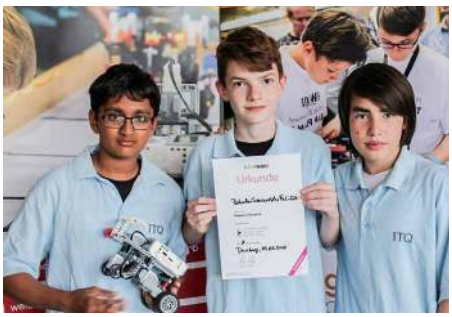
Lego Mindstorms workshop at adult education centre in Unterschleißheim, April 21

May 2018: Tech Workshop with Dorst

Technological workshop with Dorst at ITQ in Garching, May 2

Mai 2018: World Robot Olympiad Duisburg

World Robot Olympiad at Reinhard-und-Max-Mannesmann-Gymnasium in Duisburg, May 5

May 2018: Recruiting 4.0

Exchange of experience regarding recruiting4.0 together with VDMA, May 9

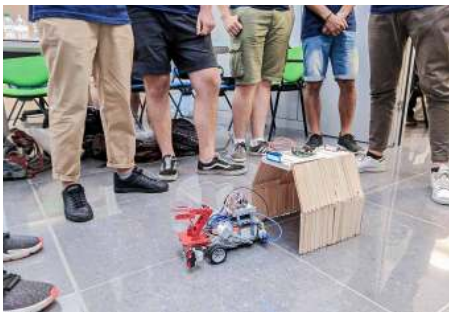
2018 in Pictures

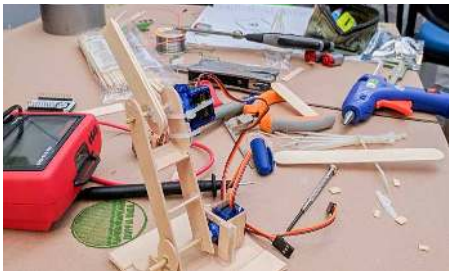
May 2018: Munich Tech Days 2018

Lego WeDo and Lego Mindstorms workshops with children in Munich, May 14

May 2018: Makethon with CRIT in Modena

Makeathon with Italian students together with CRIT S.R.L. in Modena, May 26





CRIT Makeathon Video
www.youtube.com/ITQInfo

2018 in Pictures

July 2018: Integration Islands at automatica

Integration Islands

Tech workshop stations for students and refugees in Munich, July 19-20

July 2018: smart4i *Next Generation* at automatica

Presentation of the new Industry 4.0 Demonstrator in Munich, July 19-22

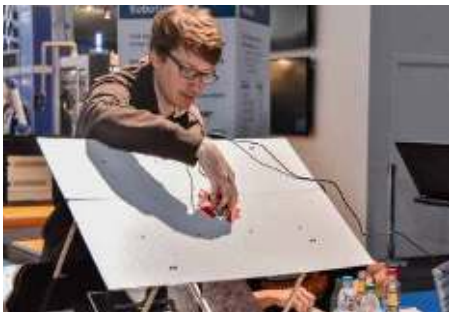
As part of the automatic trade fair 2018, we presented our new exhibition demonstrator „Smart4i Next Generation." In this innovative student project, 25 students of three universities created in just 6 months an Industry 4.0 demonstrator for the production of individualized miniature vehicles in an interdisciplinary manner. With the help of the demonstrator, visitors to the trade fair were able to order their own personalised miniature vehicle and take them home immediately. Other highlights of the automatica trade fair 2018 included the Integration Islands and the international Makeathon.

Demo Video „Smart4i"
www.youtube.com/ITQInfo

2018 in Pictures

July 2018: automatica Makeathon 2018

"MAKE, CREATE & HAVE FUN" Makeathon with Messe München , July 21-22



Aftermovie „automatica Makeathon"
www.youtube.com/ AUTOMATICAmunich

June 2018: Robotics Competition at Landshut University

Robtics competition at Landshut University of Applied Sciences, July 29

July 2018: Robot Contest Training TUM

Robot contest at Quantum Technical University Munich in Garching, July 17

2018 in Pictures

July 2018: DFB Tech Workshop

DFB technology workshop with young football players at MittelstandsCampus in Sauerlach, July 13

July 2018: Lego Mindstorms Workshop

Technology workshop at Realschule Freising, July 24

July 2018: Tech Workshop Hansen Family Day

Technology workshop at Hansen Family Day in Waiblingen, July 27

July 2018: Girls Do Technology

Technology workshop at Technical University Munich in Garching, July 30-31

August 2018: Open Day at the German Government

ITQ visits the German Federal Government, August 25-26

Bundesministerium für Bildung und Forschung

On 25th and 26th August 2018 we presented ourselves with our Smart Airhockey Demonstrator at the Federal Press Office in Berlin. There, visitors experienced live demonstrations of the intelligent Airhockey and were able to expand their knowledge on digitization and Education4.0. In addition to the Smart Airhockey, visitors also had the opportunity to experience our digital zoo4.0, which - regardless whether you are young or old - gets you hooked up with technology. Our visit to the Federal Press Office was a successful event that shows how future projects already work today.

Demo Video "Smart Air Hockey"
www.youtube.com/ITQInfo

September 2018: Production4.0 Makeathon with Zeiss

Production4.0 Makeathon with Zeiss at Make Ostwürttemberg fair, September 21

October 2018: Motivation Coaching Gran Canaria

"Big Five for Life" motivation coaching on Gran Canaria, Oktober 3-7

October 2018: Open Day at Lorenz

Celebration of new facilities at their location at Schelkingen, Oktober 12

October 2018: Cleaning Robot Course

Cleaning robot course with children at adult education centre Unterschleißheim, October 20

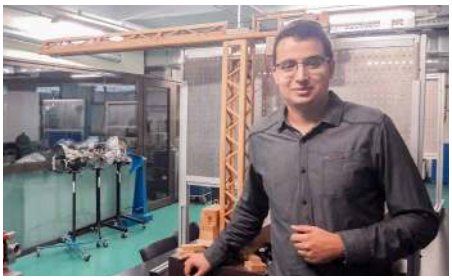
Messe München International

October 2018: Press conference with Messe München

Presentation of Integration Islands concept ahead of automatica trade fair, October 24

October 2018: Smart IoT Makeathon in Barcelona

Smart IoT Makeathon together with MULTIVAC and IQS in Barcelona, October 26-27



November 2018: Recruiting4.0

New series of events at ITQ in Garching, November 6

In cooperation with VDMA as well as our university and industry network, we have initiated a new event format on "Recruiting4.0." In doing so, we have provided insights into Recruiting4.0 and together we have explored how companies can shape a successful collaboration with young talents. In addition to the exchange of experiences with renowned companies, innovative professors and young talents, the participants received interesting insights into many topics of the future through practical project presentations as well as an exhibition tour at ITQ´s headquarters in Garching.

November 2018: Recruiting4.0

New series of events at ITQ in Garching, November 6

Our Activities in Duisburg

1ST MARCH
LEGO COACH TRAINING

In cooperation with the Mülheim Saarn school, interested high school students were trained to become Lego coaches during a two-day workshop. The aim of this Lego Coach training is to further spread this knowledge to many young students and to attract new coaches. The future Lego Coaches can thus organise Lego courses themselves at primary schools and teach children technology with a lot of fun.

25TH & 26TH AUGUST
OPEN DOOR AT THE FEDERAL PRESS OFFICE

Under the slogan "Hello, Politics" the Federal Chancellery, the Federal Ministries and the Federal Press Office invited to the Open Day in Berlin on 25 and 26 August. As in 2016, we were part of the event with the digital zoo4.0 and this year for the first time with the Smart Airhockey Demonstrator. Children, teenagers and adults were able to get interesting insights into technology in a playful way and were able to expand their knowledge on digitization and education4.0. In addition, we were able to show the public our commitment to school Lego-projects as well as our commitment for refugees.

1ST FEBRUARY
LECTURE AT THE UNIVERSITY DUISBURG-ESSEN

As part of the mechanical engineering lecture at the University of Duisburg-Essen, 30 students supervised a total of 128 students from 8 different schools as part of their Robotik AG. On the one hand, the students learned new things from the fields of project management, soft skills and Lego Mindstorms and on the other hand, the students had the task of attracting interest in technology among the students as well as improve the understanding for the logic of programming.
As part of a closing event, there was a "Robolympics"-technology competition at the University of Duisburg-Essen, in which the students had their self-programmed Lego Mindstorms robots compete against each other in four different disciplines.

PLANNING AND DEVELOPMENT OF MACHATRONICAL PRODUCTS

Under the motto "Smart Green Challenge," 54 master students of the Mechanical Engineering for Mechatronics program had the task of developing creative solutions as well as ideas regarding the interaction of people, technology and nature during this event.
The basis for this special event was the lecture for the planning and development of mechatronic products. The lecture allows students to gain in-depth knowledge of the implementation of a mechatronic development process as well as creativity to acquire techniques for innovative idea-making. The aim of the event was to develop a mechatronic prototype with a budget of 500 euros.
A total of 6 prototypes have been developed, including an intelligent solar panel aligned with the sun and an intelligent suction robot for collecting cigarette butts. All these ideas make it possible to raise awareness for a green future and develop it further.

Our Activities in Erlangen

19TH DECEMBER
HACKATHON AT OTH AMBERG

At the end of the year, together with Phoenix Contact, we held a mini hackathon at OTH Amberg-Weiden under the motto "Automation Technology meets Barbecue." The task was, among other things, the digital order and management via smartphone using the example of a barbecue evening. The 23 students were supervised by three ITQ coaches and two Phoenix Contact employees.

08TH MARCH
IOT MAKEATHON IN SALAMANCA

As part of the 800th anniversary celebration of the University of Salamanca in Spain, we held an IoT Makeathon with a total of 40 students from the Universities of Salamanca and Valladolid. Divided into 4 teams, the young students were able to share their experiences and ideas on the topics of smart home, smart body and smart machine as well as to develop innovative, smart prototypes.

27TH SEPTEMBER
STUDENTS INFORMATION DAY

On this day, technology-loving students at FAU Erlangen-Nürnberg are able to educate themselves out about the wide range of courses the university offers.
For six years now, our branch manager from Erlangen, Dr. Kausler, has played an important role at the student information day. With his lecture "Engineers in Industry," he inspires the students to join the technical branches of the university every year.

6TH FEBRUARY
LEGO MINDSTORMS WORKSHOP

Together with the Goethe-Gymnasium in Regensburg, we organized a Lego Mindstorms workshop for technology interested high school students.
At the workshop, after a brief introduction to the development environment of a robot based on a kit of the Lego Mindstorms System NXT, the participants programme a graphical user interface themselves. For additional support, this workshop was also attended by a coach from the Reinhausen machine factory.

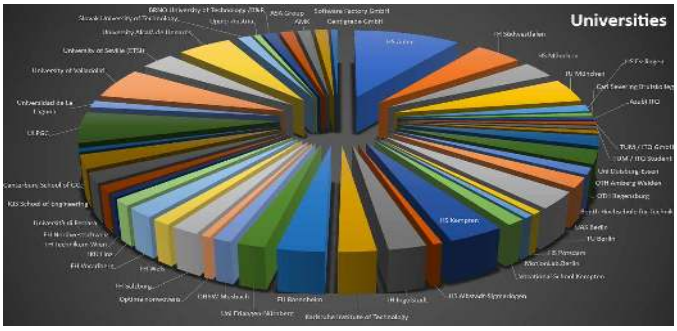
27TH JULY
FAMILY DAY HANSEN

On the Family Day of the Entrepreneur Family Hansen, we have been invited to present technology in a fun way to the visitors onsite. With the help of our popular cleaning robots as well as Lego WeDo and Lego Mindstorms, we were able to give the young and old participants interesting insights into the world of technology.

Dr. Stetter ITQ Report 2018

As it entered its second business year, Dr Stetter ITQ began 2018 energised and raring to go. The year began with a bang as we held the third Smart Green Island Makeathon. Based on the Canary Islands, this event provides a unique opportunity - for politicians, researchers, industry representatives and students, from both the local area and abroad - to network and collaborate on new and innovative technological ventures.

ITQ is steadfastly committed to the education of young people around the world, and it is our mission to help prepare them for the challenges they face as up-and-coming technologies and accelerated development processes take hold in modern life. Part of this commitment involves celebrating and facilitating technological events like our Makeathons, where we give teams the opportunity to develop prototypes for new product concepts. In just a few short days, teams can develop stunning products, thereby giving testament to the pace and effectiveness of current development and manufacturing equipment.



Universities

In 2018, our ITQ Smart Green Island Makeathon involved:

- More than 200 participants
- 167 talented youths from 39 universities in 7 countries
- 60 guests from industry, politics and research
- An opening speech given by the President of Gran Canaria, Antonio Morales Méndez
- 20 representatives from companies, including managers, senior engineers and directors
- 18 sponsors, from 14 German and Italian companies and 4 Spanish companies, and
- 3 locations, namely CDTIC SPEGC, Lopesan Baobab Resort and ITQ Smart Villa.

Sponsors

This year, in addition to the Makeathon itself, an exclusive high-end networking event was held in the ITQ Smart Villa. A pivotal step on the path to transforming Gran Canaria into a new Silicon Valley, this superb event allowed Gran Canaria to serve as an example of the kind of harmonious, multicultural community which can develop from technological innovation.

Makeathon participants

What we have done so far

smart green innovative

We at Dr Stetter ITQ constantly develop new ideas and form new contacts in all fields of Smart Living. Another of this year's highlights was the key-note opening speech on Smart Mobility by our CEO, Dr Rainer Stetter, at Gran Canaria´s premier Transport and Logistics Summit in October 2018.

Furthermore, in October we held an immersive internal weekend programme for our engineers working overseas, in our headquarters in Munich and elsewhere. An amazing success, this event offered attendees an opportunity to experience the way of life in Gran Canaria and to receive professional training in an exclusive environment in the ITQ Smart Villa. The programme featured workshops about Management, Project Coordination, Agile Methodologies and Presentations, as well as extensive discussion about the unique spirit of ITQ as a company without a formal hierarchy.

Throughout the year, we were also able to bring on board our junior, Gran Canaria-educated engineers' projects with our international clients, and they have managed them capably, independently and with great success in their objectives.

On the whole, 2018 has been a very productive year. From constant company growth, training and skill development to success on the highest level in complex industrial projects, Dr Stetter ITQ is well on its way to realising a Smart Green Island future and we are looking forward to a promising, exciting and even more successful year 2019.

Kooperationsprojekt mit der Gerda-Stetter-Stiftung

Technik macht Spaß!

Nach den Osterferien durfte unsere Technik-AG einen Putzroboter bauen. In Kooperation mit der Gerda-Stetter-Stiftung, die mit ihrer Initiative „Technik macht Spaß!" versucht, Schülerinnen und Schülern Technik spielerisch näherzubringen, wurde dieses Projekt durchgeführt.

Der Spaß im Umgang mit Technik und das spielerische Erfahren von technischer Projektarbeit soll dabei im Vordergrund stehen. Die AG-Leitung, Frau Renate Lehner, hatte bereits im September letzten Jahres den Termin in Garching mit Herrn Felix Rhöse, Senior Consultant bei der ITQ GmbH, vereinbart. Zwei Maschinenbaustudenten der TU München besuchten uns Anfang April d. J. und hatten 13 Bausätze des „Putzroboters 3.2" im Gepäck.

Felix Rhöse und Renate Lehner bei der Terminvereinbarung

Gar nicht so einfach war es und „Fingerspitzengefühl" gefragt, die 44 Teile (kleine Schrauben, Drähte etc.) an der richtigen Stelle zusammenzusetzen. Mit Eifer und Begeisterung wollte der eine oder die andere die Bauteile zum „fertigen Produkt" schnellstmöglich zusammensetzen. Sitzt aber eine Schraube an der falschen Stelle bzw. ist andersseitig angebracht, funktioniert die Maschine „Putzroboter" nicht und alles muss wieder auseinandergebaut werden. Das war einigen Teilnehmern dann schnell bewusst. Fazit: Zuerst Einzelteile genau ordnen, Anleitung Schritt für Schritt beachten und den Bausatz nacheinander zusammenfügen. Eine sehr lehrreiche Aufgabe, die zeigte, dass man Projekte erst in Angriff nehmen sollte, wenn die Planung steht (hier die detaillierte Anleitung zu lesen) bzw. der Projektplan festgelegt und die Reihenfolge genau beachtet wird. Umso größer war die Freude und Stolz bei allen TeilnehmerInnen, als die „Putzmaschinen" ihren Dienst taten.

Viele Einzelteile ...

... zusammengefügt!

Renate Lehner

Quelle: Jahresbericht 2017/2018 Wirtschaftsschule Seligenthal

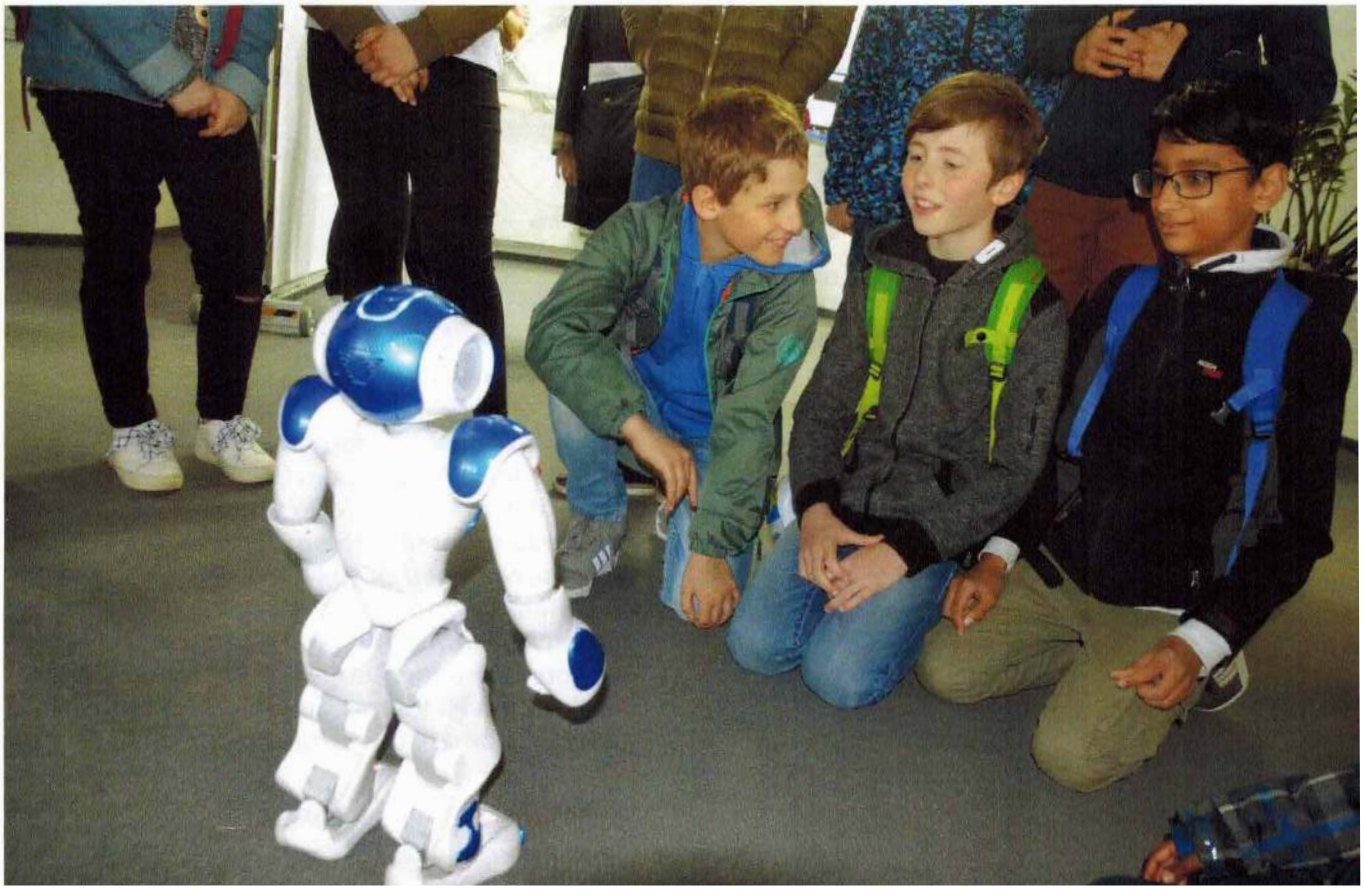
„Technik macht Spaß"

Der Girls' & Boys' Day am bayerischen „Silicon-Valley"

Am 26. April 2018 war es wieder so weit. Die Idee für den „Girls' & Boys' Day" war rechtzeitig publik gemacht worden: Die Girls und die Boys werden etwas gemeinsam machen. Jede 6. Klasse war so doppelt vertreten: jeweils durch ein Mädchen und einen Jungen.

So machten sich also 20 Schülerinnen und Schüler auf den Weg, natürlich in Begleitung ihres Jungenbeauftragten Herrn Kaiser und ihrer Mädchenbeauftragten Frau Weber. Und nachdem dieser Tag ein „Zukunftstag" ist, führte der Weg per U-Bahn tatsächlich in die Zukunft und zwar ins Forschungszentrum nach Garching, sozusagen ins bayerische „Silicon-Valley". Dort lud die Gerda-Stettner-Stiftung im „ITQ" zu einem Programm für Kinder und Jugendliche ein, das Begeisterung auslösen kann.

Schon die Begrüßung durch NAO war dem Ereignis angemessen. NAO ist schließlich ein Roboter. Ein sehr geliebter Roboter, wie man sehen konnte, wenn er von seinem Besitzer gelobt, gestreichelt und geküsst wurde, sobald er die Gäste begrüßt und ihnen zum Song „Gangnam Style" einen Tanz vorgeführt hatte.



Quelle: Jahresbericht 2017/2018 Städt. Schulartunabhängige Orientierungsstufe

Es folgte ein Dartspiel. Ein Computer berechnet da mit Blick auf die Zielscheibe die Flugbahn des Pfeils. Schon wollten sich die Mädchen zurückhalten: nichts für Mädchen??? Nein, das geht am Girls'-Day gerade überhaupt nicht. Die Mädels begriffen es schließlich - und wie sie es begriffen. Drei von ihnen trafen ins Schwarze und gingen als Siegerinnen vom Platz!

Die Dartchampions vor der magischen Dartscheibe

Und dann lagen da am Boden überdimensionale Tasten eines Klaviers, die mit den Füßen zu spielen waren: Ein Lichtimpuls zeigte die Taste, und eine Melodie entstand: Zum Beispiel „Alle meine Entchen" oder „Hänschen klein ging allein".

Roboterkampf mit den Händen

Und dann kam der Höhepunkt: Es galt, ein Roboter-Auto mit der Hand zu steuern. Du kannst mit ihm Kontakt aufnehmen – fast wie mit einem Menschen. Du stehst vor einem Bildschirm und winkst ihm mit der Hand zu. Plötzlich hat er es „begriffen" und ist ganz „bei dir", und dann folgt er dir auf jeden Wink, vorwärts, rückwärts, rechts und links.

Schüler oder schon Student?

In einem Workshop warteten noch eine Menge weiterer Aufgaben auf die Girls und Boys: Es galt, Autos mit Lego WeDo und Lego Mindstorms zu programmieren, sodass man mit ihnen sowohl geradeaus als auch Schlangenlinien fahren konnte und sie sich um 180 Grad drehen ließen... Schließlich konnte auch noch der Parcours darauf abgestimmt werden, dass das Auto ein Hindernis umfahren und an Farbfeldern automatisch stoppen konnte.

Programmiererinnen und Mädchenbeauftragte Frau Weber

Längst hatte sich Begeisterung ausgebreitet, bei den Boys, die sich wie in einem Heimspiel fühlten; denn sie hatten in dieser Domäne schon einige Erfahrungen. Aber die Begeisterung steckte auch die Mädchen an, die sich zunächst wie in einer anderen Welt vorkamen - und dann darin so richtig heimisch wurden. Sie beeindruckten besonders durch ihre Zähigkeit beim Programmieren des Fahrzeugs.

Technik verstehen – sich für Technik begeistern. Das war das Ziel dieses Ausflugs in die IT-Welt, ein Ziel, das voll erreicht wurde. Es war ein „mega"-gelungener Tag!

Ein ganz besonderer Dank geht vor allem an die Adresse von Herrn Kossentini für die Planung und Koordination und an seine drei Kollegen, an die Herren Tuncer, Hohmann und Bos, für ihre Geduld und ihr pädagogisches Geschick.

Diane Weber und Florian Kaiser

Die Gruppe jubelt mit Nao

MyScience

In diesem Schuljahr gab es erstmals ein großes Wissenschaftsprojekt in den Klassen des naturwissenschaftlich, technologischen Zweigs 10b, 10c, 10d, 10e statt: Die Übungsstunden des ersten Halbjahres in Physik und Chemie wurden dahingehend umstrukturiert, dass nicht einzelne kleine Übungen stattfinden, sondern die Schülerinnen und Schüler an einem selbst gewählten naturwissenschaftlichen Thema forschen. Ein Vorteil dieses Vorgehens ist, dass die Themen nach Interesse selbst gesucht werden können. Weiterhin wird durch diese Unterrichtsstruktur deutlich, dass aktuelle technische Herausforderungen nicht durch ein einzelnes Fach bewältigt werden können, sondern fächerübergreifende Ansätze erforderlich sind. Nicht zuletzt erhoffen wir uns, durch selbstverantwortliches praktisches Arbeiten die Begeisterung für die Naturwissenschaften zu verstärken und das eigene Projekt als Herausforderung anzunehmen: *My Science*.

My Science hatte drei wichtige Stationen

- die „Auditions“ in denen die Gruppen ihr Thema vorstellen und sich um einen Lehrer als Betreuer bemühen.
- eine Exkursion zu den Münchner Wissenschaftstagen, um beispielhaft zu sehen, wie eine Ausstellung bzw. eine Präsentation technischer Themen funktioniert, und
- die Science Fair, eine Forschungsausstellung, in der die Ergebnisse der Gruppenarbeit vorgestellt werden.

Die Auditions fanden vier Wochen nach der Themenwahl statt. Die Schülerinnen und Schüler konnten in ihrer Gruppe auf einer Bühne ihr Vorhaben für die Forschungsphase erläutern und dadurch (ähnlich einer bekannten Fernsehshow) um die Unterstützung einer Lehrkraft werben. Diese insgesamt acht „Unterstützer“ bzw. „Coaches“ mussten dann mit guten Argumenten die Gruppe überzeugen, sich für den jeweiligen Coach zu entscheiden. In einer abschließenden, mitreißenden Publikumsabstimmung haben die besten Redner zusätzlich einen Preis erhalten.

Die Exkursion zu den Wissenschaftstagen fand am 28.11.18 statt. Neben Vorträgen über Themen wie „Stammzellforschung – wie lassen sich zerstörte Nervenzellen ersetzen?“ und „Xenotransplantation – Verwendung tierischer Organe als Transplantate für den Menschen“ gab es zahlreiche Marktstände, bei denen man sich über aktuelle technische Entwicklungen informieren konnte, z. B. „Mit Bionik in eine bessere Zukunft!“, „Bauer 4.0 – unser täglich Brot“, „Kühlen und Entfeuchten mit dem Klimabrunnen“ und „Elektrisch und autonom im Rennsport“.

Quelle: Jahresbericht 2017/2018 Gymnasium Ottobrunn

Krönender Abschluss war dann die Science Fair am 8.3., in der über 30 Gruppen im gesamten MINT Bereich verteilt Ihre Forschungsergebnisse vorstellten. Eingeladen waren alle Eltern der Klassen 10b-d und Klassen mit MINT Unterricht an diesem Nachmittag. Da an diesem Tag zusätzlich noch Tag der Offnen Tür war, konnten sich viele Besucher von den durchweg interessant gestalteten Ständen und Attraktionen rund um die Ausstellung überzeugen.

Dank großzügiger Spenden der Gerda Stetter Stiftung und der Firma ASM konnten wir das Engagement nicht nur mit einem Zertifikat auszeichnen, sondern auch mit tollen Preisen wertschätzen: Für die Preise in Bronze gab es Kinogutscheine, für die in Silber Kinogutscheine und Sachpreise und für die in Gold einen kleinen „Scheck“. Und natürlich sollen die Preisträger in Gold des Schuljahres 17/18 hier noch vorgestellt werden:

Den Zukunftspreis erhielten mit Ihrem Thema „Kryostase“ Simona Hanuliakova, Natalie Rusz, Caroline Herfurtner, Ylva Hirschmann und Caren Fredereck.
Der Medienpreis ging an Jana Esser und Anna Steinberger für eine „Animierte Ozeanszene“.
In der Grundlagenforschung machten sich Tim Nielen und Benjamin Gretz verdient durch die Untersuchung zum Thema „Perpetuum Mobile“. Mit dem Thema „Climate Engineering“ leisteten Paloma Ziegler und Katharina Siegert einen Beitrag zur Aufklärung durch Wissenschaft.
Und den Preis für „Herausragendes Wissenschaftliches Arbeiten“ erhielten Una Schneider, Sophia Konwitschny und Lea Bross, da sie bei der Entwicklung und dem Bau eines „Kühlschranks ohne Strom“ sehr schön zeigten, wie man sukzessive auf Grund von fundierten Messungen seine Ideen und sein System Prototyp für Prototyp weiterentwickeln muss, um am Ende zu einem qualitativ hochwertigen Ergebnis zu kommen.

An alle herzliche Gratulation!

Philip Albert und Peter Brichzin im Namen aller beteiligten Kolleginnen und Kollegen: Jayne Ashworth-Rohleder, Felix Brüstle, Melanie Chaabane, Mechthild Kirchhoff, Eva Lochner, Sonja Müllern von Schönbach, Sebastian Schmuck

The foundation's bodies

The managing board:

„Being an entrepreneur also means taking on social responsibility. With our foundation, we want to promote the technical education of children, students and refugees with fun projects. Because „childish" curiosity and a free-lived drive form the basis for constant renewal and innovation."
Dr. Rainer Stetter,
Managing Director ITQ and Founder of the Foundation

„With our broad, modular training concept, we want to counteract the digital shortage of skilled workers at an early stage and thus sustainably promote and train young talents. And do this with fun, joy and enthusiasm at all levels, because that is the biggest motivation for sustainable learning."
Sandra Fritsch, Marketing and Communication ITQ

We are happy to announce that we are expanding our foundation council by three new members in October 2018. With Prof. Eichinger, Matthias Weidmann and Martina Zrenner, we gained dedicated and qualified digitization partners from the industry and teaching. A big thank you to Prof. Fritze and Mr. Ostermayer, who left at the end of October, for their founding work.

The foundation council:

„Companies must ensure the qualification of young talent on their own. Inspiring the youth for technology is the basis for this. Industry-close projects with universities and colleges of all kinds are suitable to bring the industry and education closer."
Paul Kho, Free journalist

„Digital transformation is having a major impact on engineering training. Only with new innovative teaching concepts, we can keep up with the rapid development of new technologies. At the same time, we can inspire students to study and prepare them well for the demands of the world of work while teaching practical and personality-building skills with attractive formats."
Prof. Dr. Peter Eichinger, Hochschule Aalen

The foundation council:

„To be able to contribute something, to bring young people closer to technology. In the future, society will be be more dependent than ever on technology-loving fellow human beings – that is why it is important to apply the seeds."
Meinrad Happacher, Editor at Large, Computer & Automation

„Inspiring for science and technology is our motivation. For me, bringing this closer to children in a playful and natural way, with modern and tangible learning methods, means entrepreneurially forward-looking thinking and acting. Just do it!."
Martina Zrenner, Managing Director team::mt GmbH

„Children and young people in particular benefit from the countless possibilities that the current rapid development in digitization offers. In order to be able to use them effectively, projects that inspire for technology and are fun are required. To help these young people optimally, to use those perspectives is my task as a member of the foundation council."
Matthias Weidmann, Lawyer and Tax Consultant

„Making a contribution to the earliest practice-oriented training possible is my personal motivation. By communicating technology in a playful way, we can at the same time contribute to an improvement of the image of technical occupational profiles."
Andreas Baumüller, Managing Director Baumüller

Get on Board!

Sponsors wanted:

Share and take our vision to the next level: By 2021, we aim to establish a technology working group in every kindergarten and in every school in Germany! Through our "Lego Mindstorms project" we have already been able to visit numerous schools and to playfully teach young students basic technological skills in order to generate enthusiasm for research and technology at an early stage. Thus, we are looking for sponsors, companies as well as private individuals to support other schools and kindergartens.

Our concept is based on a high-tech kit called Lego Mindstorms that we use to playfully introduce teams of pupils to technical problems. Led and supervised by some of our students, youngsters can focus and concentrate on their individual work and will not just "play around". Finally, they might also enter some of the well-known contests, e.g. First Lego League or World Robot Olympiad.

We are looking for companies that want to build new school teams who attend special competitions in this field – either together with us or by themselves.

We are happy about any engagement!

If you would like to support us with a donation, we will gladly issue a donation receipt. The foundation is officially recognised as non-profit organisation by the Government of Upper Bavaria (Foundation No. 12.1-1222.1 M/T 24).

HypoVereinsbank
Subject "Technik macht Spaß"
IBAN DE03700202700010181498
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Excerpt from our list of sponsors:

THANKS!

We would like to thank our platinum sponsor AMK Group

中鼎集团
ZHONGDING GROUP
AMK

Puck&Play

Bei modularen Verpackungsmaschinen steht die Losgröße 1 als Maß der Dinge. Ein Mittel zum Zweck sind dezentrale Steuerungskonzepte mit hoher Datendurchgängigkeit. Bei AMK demonstriert man mit Smart Airhockey spielerisch Analogien, die im Packaging fingerzeigend sind – damit Modularität und Flexibilität im Maschinenbau vom Antrieb über die Steuerung bis hin zu Predictive Maintenance anschaulich gezeigt und begriffen werden können.

Modularisierung im Packaging bedeutet, eine Maschine in standardisierbare Funktionseinheiten zu zerlegen. Flexibilität heißt, kleine Losgrößen zu Konditionen einer industriellen Großserienfertigung zu verpacken. Erreicht man im Maschinenbau beides, so lassen sich die Engineering-Kosten und -Zeiten signifikant senken. Die im Verpackungswesen üblichen, kurzen Produktwechselzeiten brauchen eine Achsvereinzelung sowie automatisierte Formatverstellung, wobei die Maschinen immer kompakter werden. Das schnelle Umkonfigurieren gewährleistet ein Baukastensystem, basierend auf standardisierten Hardware- und Softwaremodulschnittstellen, das sich einfach kombinieren lässt.

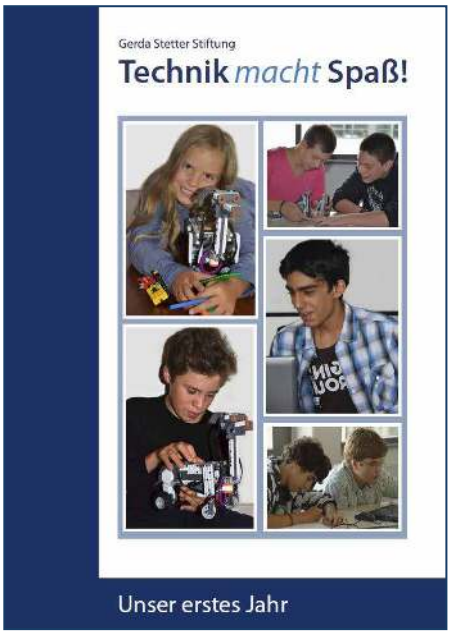
Produktivität und Individualisierung

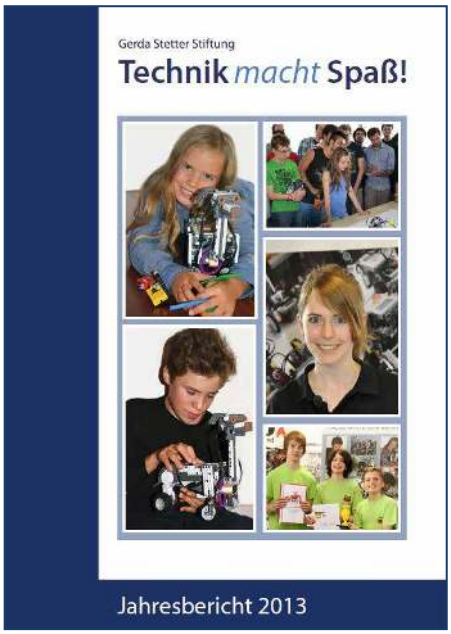
Darüber hinaus geben zwei Trends die Richtung vor: steigende Maschinenproduktivität und die zunehmende Individualisierung der Produkte. Damit werden dezentrale Steuerungskonzepte im Packaging immer wichtiger. Entsprechende Automatisierungslösungen umfassen echtzeitfähige Busse, ins Maschinenbett integrierte I/O-Systeme, kleine, in der Anlage verteilte Schaltkästen sowie dezentrale, kompakte Servoantriebstechnik. Bezüglich der passenden Antriebslösungen montiert man Antriebsregler nicht länger im Schaltschrank, sondern direkt auf dem Motor in der Maschine. So bleibt der Anlagenbauer flexibel, da er einen kompakteren Schaltschrank konfigurieren und sich zudem den Platz und den Umbau für zusätzliche Antriebsregler sparen kann. Der Wandel im Packaging setzt sich auch in der Struktur der klassischen Automatisierungspyramide fort: Mehr und mehr setzt sich das intelligente Automatisierungsnetzwerk mit Cloud-Funktionalität durch, wobei der Antriebstechnik als Bewegungsexekutive eine tragende Rolle zugeschrieben wird.

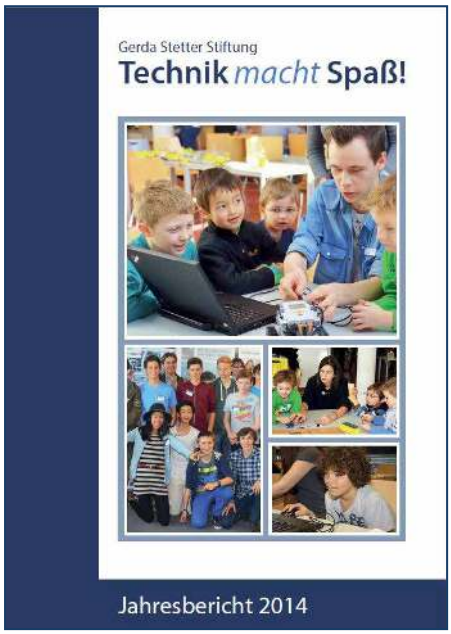
Quelle: sps magazin

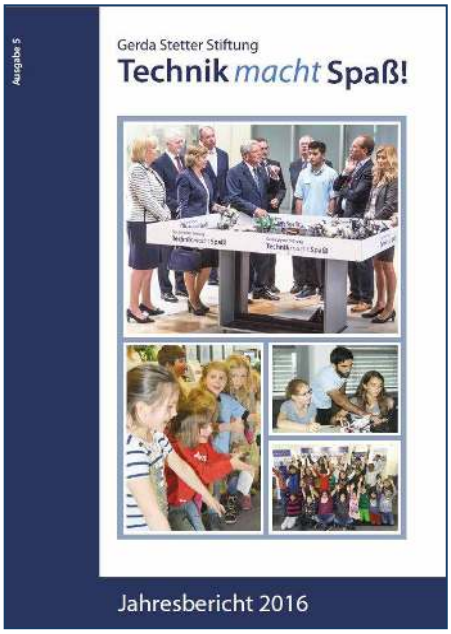
Edition Review - What we did so far

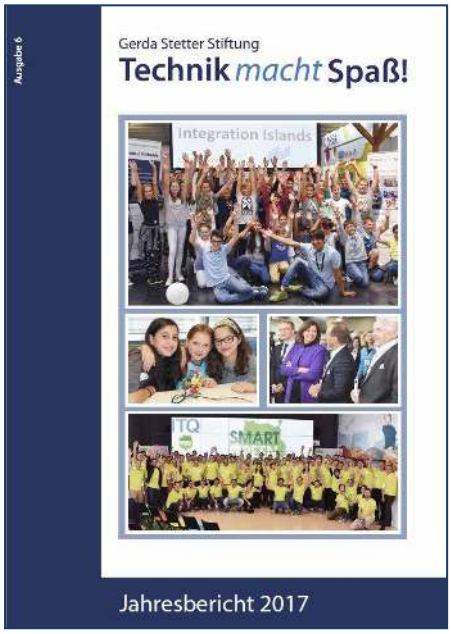
Our goal is to promote education ...





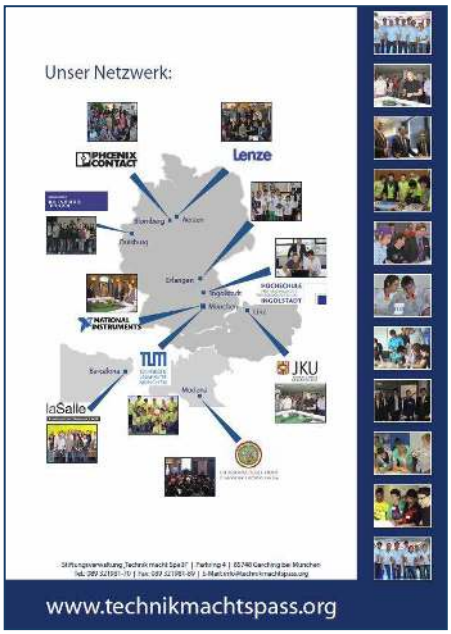






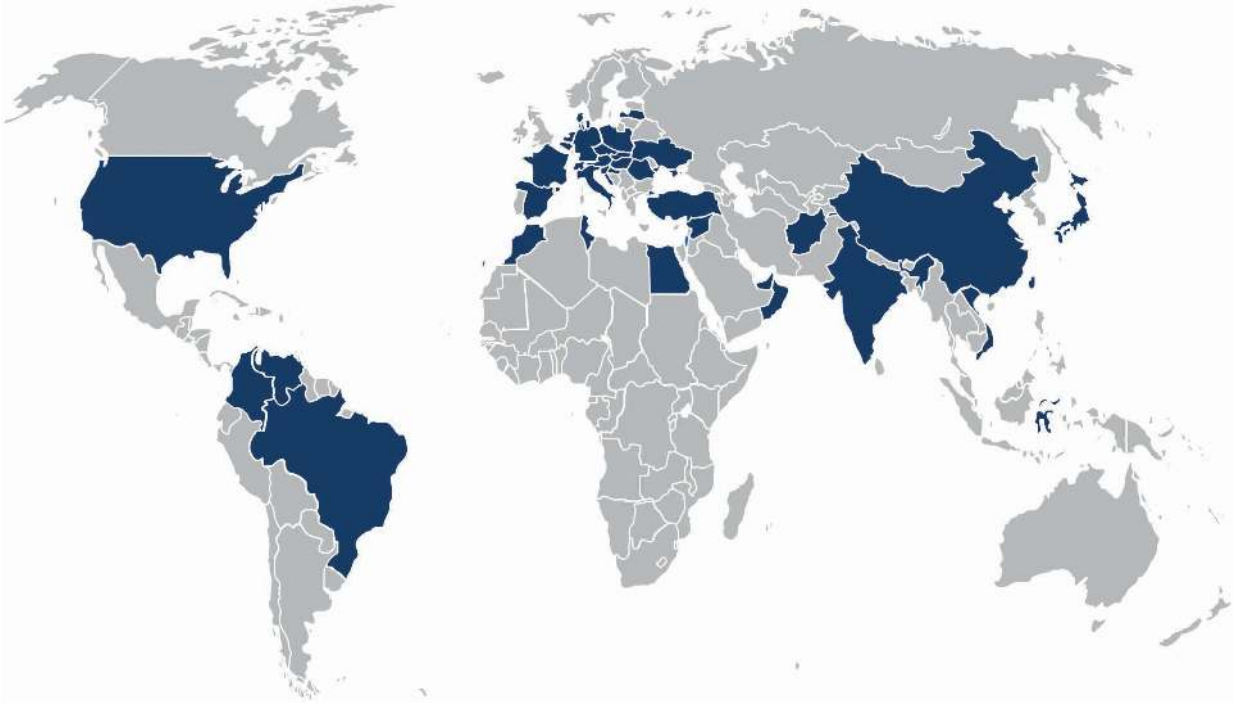
Front Cover - Highlights of Events 2012 - 2017

... and we have already achieved a lot



Networking 2012 - 2017

Our Network:



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