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INTERRUPT
INSIDE

A technology magazine by Data Respons

Brain Capture

When a smartphone can detect epilepsy

DEFA
SETTING NEW
STANDARDS FOR INTELLIGENT
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The Exciting Future
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with poor Wi-Fi connectivity

What´s INSIDE?

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EDITORIAL

Kenneth Ragnvaldsen

CEO DATA RESPONS

Enjoy a new edition with tech heavy content.

The Power of Innovation

In our ever-evolving world, technological innovation emerges as the driving force behind conquering complex challenges. From healthcare to electrification and to digitalization, it serves as the catalyst that brings together a myriad of solutions across diverse industries. Join us in this edition of our tech magazine as we deep dive into some of the extraordinary innovations our tech specialists are working on. Because it really makes me proud to see the transformative power of technology in fostering a more sustainable world.

Transforming Healthcare with Technology

At the intersection of technology and healthcare, something amazing has happened: the integration of epilepsy scanning with smartphones. This innovation has the potential to completely change medical diagnostics, especially for neurological disorders like epilepsy.

Just imagine, a nurse armed with only a smartphone and a silicone cap can capture and analyze crucial epilepsy data in remote and underprivileged areas. By using the sensors and computing capabilities of smartphones, this development allows real-time monitoring and precise analysis. It provides incredible insights into seizure patterns and triggers, empowering individuals to take an active role in their healthcare while also easing the pressure on healthcare systems.

As a company we are very proud to have contributed to enabling revolutionizing healthcare technology. And enabling new products and services is Data Respons passion!

Electrifying the Future: Smart Charging

Speaking about new products and services, in the world of sustainable transportation, innovative Electric Vehicle (EV) charging technologies are revolutionizing the landscape. The old-fashioned charging stations are being replaced by smart, efficient, and adaptable solutions that cater to different user needs. These advancements include fast-charging, wireless options, and bidirectional capabilities, marking an important moment in the evolution of electric mobility.

Leading this electric revolution is smart charging, a game-changing concept that is driving widespread adoption of EVs for a sustainable future. By using data, connectivity, and automation, smart charging optimizes the charging process. These intelligent systems take into account factors like energy demand, grid stability, and real-time pricing, allowing for dynamic adjustment of charging rates and schedules.

The result? Efficient use of resources and reduced environmental impact. Smart charging intelligently manages the grid load and maximizes the use of renewable energy, making sustainable transportation an eco-friendly cornerstone. As intelligent charging solutions become more prevalent, it becomes clear that smart charging is not just an innovation, but a crucial enabler on our journey towards a cleaner, greener, and more sustainable tomorrow.

The new car charger we have worked on together with our customer DEFA embodies all the technologies and possibilities mentioned above. In our article on that story, you will get a much better understanding of how to make a world leading EV charger.

Why and How Developers Become Product Owners

As software development evolves, developers often find themselves at a career crossroad. This article explores one common path: transitioning into a product owner role. Product owners play a vital role in agile teams, driving product design and implementation.

While developers primarily focus on code and technical problem-solving, product owners handle product specifications, feature prioritization, and stakeholder communication. This article dives into the transformation process, from contemplating the switch to making the decision, the challenges faced, and personal growth.

The piece showcases how developers evolve into visionaries, enhancing their skills and perspectives. It emphasizes the adaptability required in the agile world, crafting software solutions for the future.

Improving Automotive Production with a Tailor-Made Project Management Tool

On developing the software tools for the future, EPOS CAT, a subsidiary of Data Respons, has developed FAHST, a specialized project management tool for an international automotive OEM. FAHST brings transparency and collaboration to the complex workflow of designing and manufacturing automotive components, specifically on-board control units.

With FAHST, teams across different brands can seamlessly work together and comply with regulatory standards. The tool streamlines documentation processes, reducing paperwork and ensuring version control. Its customization features provide flexibility without the need for extensive coding. Overall, FAHST acts as a central platform for project management, enhancing efficiency, communication, and adherence to quality standards throughout the automotive production process. Its digitalization of processes in its purest form.

Coding for 24 hours straight to help street children in Nepal

The annual Data Respons Hackathon in Stockholm brought together six dedicated teams. This year, Eva Holmberg Tedert from the NGO Gatubarn i Nepal (Street Children in Nepal) presented the challenge: how can we develop digital solutions to combat poverty, reduce trafficking, and enhance the lives of children in Nepal?
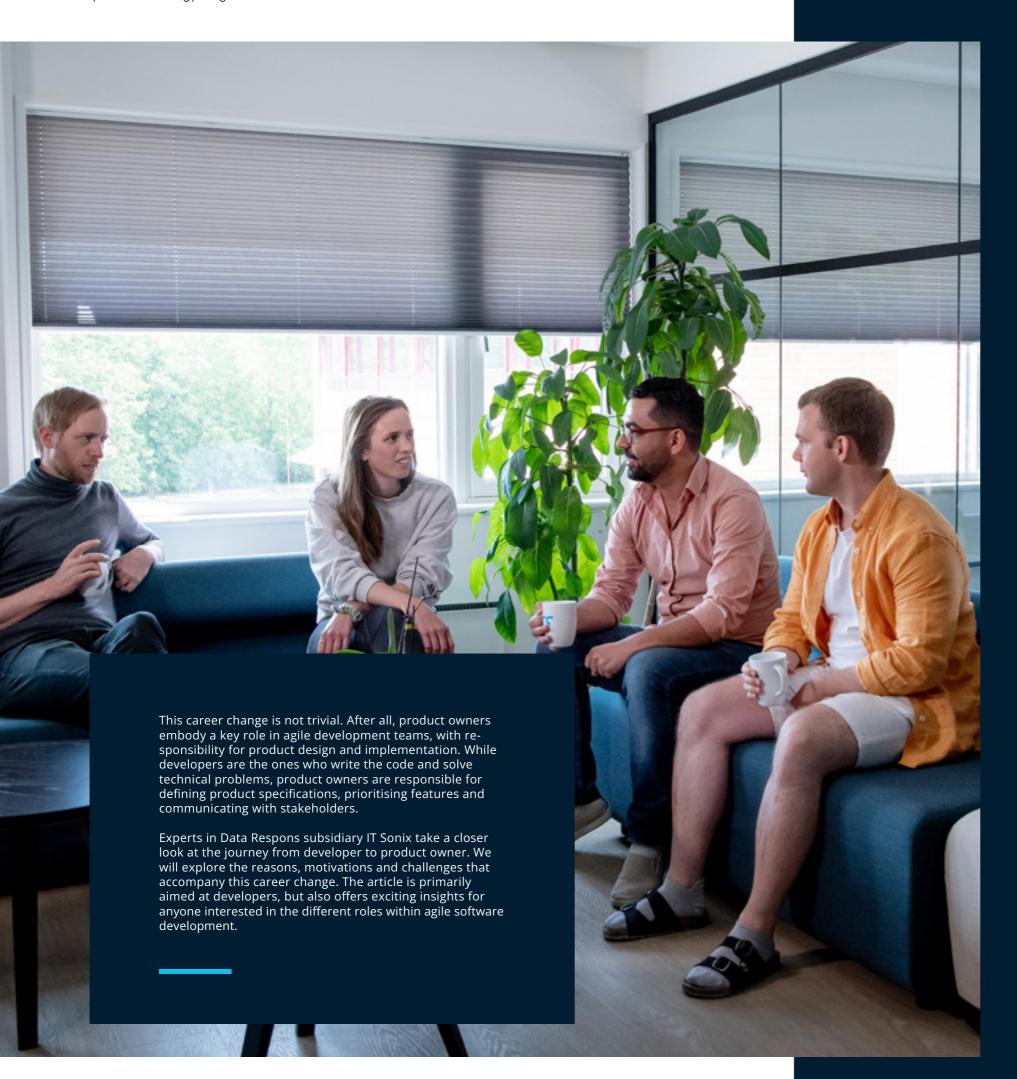
It is always a highlight for me to witness our best and brightest individuals giving their all for a noble cause. Our hackathon serves as a powerful testament to how technology fosters sustainability. By leveraging digital skills and knowledge with purpose, we can achieve remarkable results that truly make a difference.

In my mind, our hackathons are a triple win. Not only do we challenge ourselves and perform at our best, but we also have a lot of fun solving complex problems, all for the greater good.

I absolutely love it! I hope you enjoy this edition of our tech magazine as much as I do.

Why & How

Developers become Product Owners

In a branch like ours, change is a constant. New technologies, shifting customer needs and constantly evolving work methods are the fuel of this industry. And for some developers, there also comes a time when they start thinking about where their career should go next. Here Data Respons subsidiary IT Sonix takes a closer look at one path that is chosen again and again by developers is the transformation into a product owner.

This career change is not trivial. After all, product owners embody a key role in agile development teams, with responsibility for product design and implementation. While developers are the ones who write the code and solve technical problems, product owners are responsible for defining product specifications, prioritising features and communicating with stakeholders.

Experts in Data Respons subsidiary IT Sonix take a closer look at the journey from developer to product owner. We will explore the reasons, motivations and challenges that accompany this career change. The article is primarily aimed at developers, but also offers exciting insights for anyone interested in the different roles within agile software development.

Phase 1:

Before the Decision

Developers are confronted with situations in everyday project work that fall in to the area of responsibility of a product owner. It happens time and again that developers drive topics forward, moderate meetings or provide conceptual input for technical decisions. In addition, there are unclearly formulated requirements and technical stalemates that require a consensual solution.

Despite its closed nature, the Scrum process also offers open flanks that confront development teams with the time-quality-cost-target conflict. To meet these challenges, skills are often needed that go beyond software development. Communication plays a key role here.

Developers slip into these situations because they bring a certain skillset with them. In addition to their technical skills, they are interested in the big picture and usually have a better overview of the project than the team scope dictates. They also think outside the box, inform themselves about the current situation in other teams and, above all, have the motivation to get involved and push things forward.
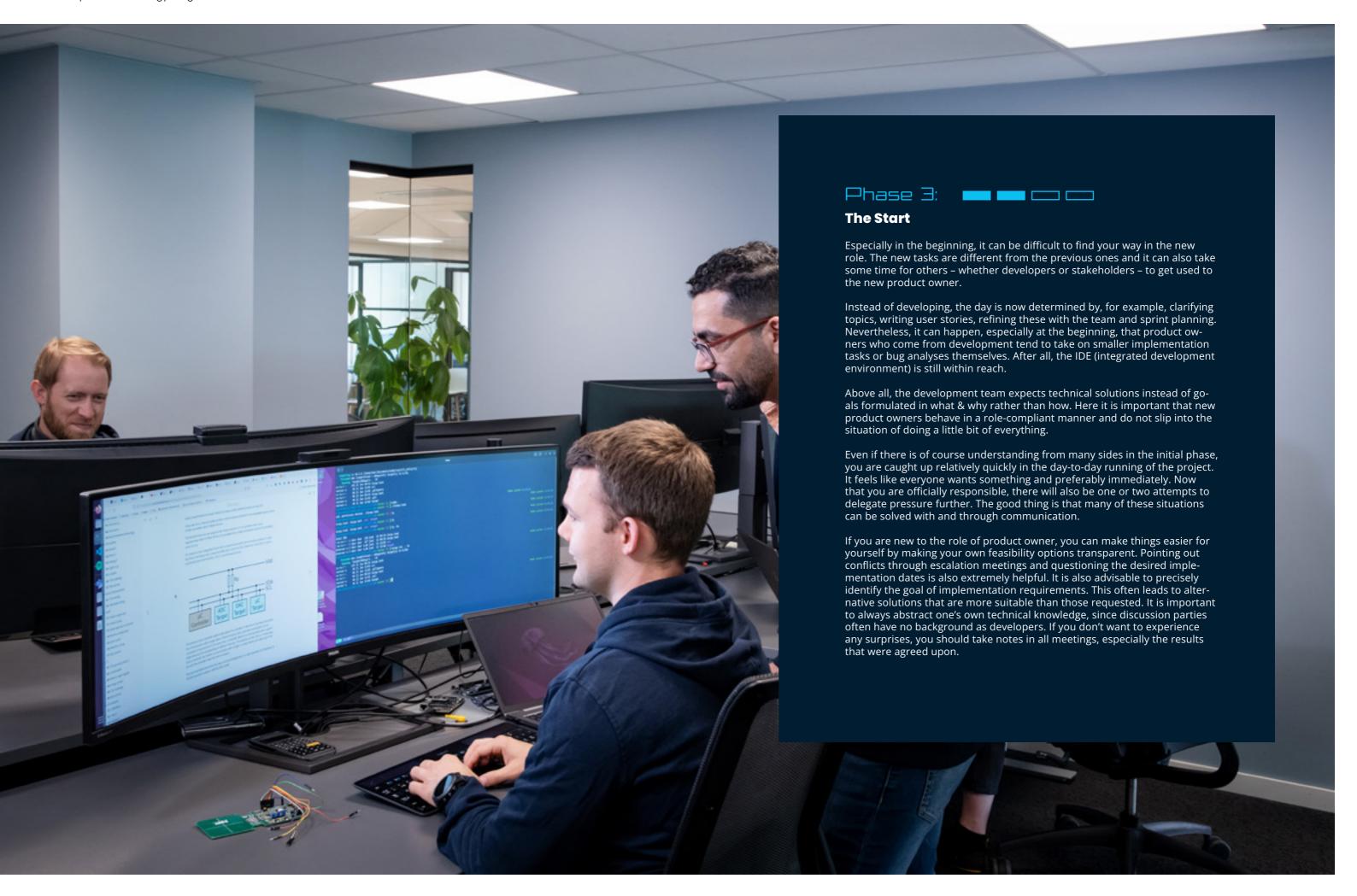
Phase 2:

The Decision

The path from developer to product owner is varied. If developers already have the above-mentioned qualities, they may already be thinking about a career change themselves. Often, however, the initiative comes from the employer, as the developers in question have handled conflict situations extremely well in the past.

However, the decision to become a product owner means a major break in your career path. The job that one has being doing up until now, namely developing, is not a part of the product owner role. In principle, however, it should be possible to switch back to software development. Anyone who feels like becoming a product owner should definitely give it a try; only then can there be clarity about the decision.

It is not only important to clarify the terms of the contract and the duration of the probationary period, but also the chance to get used to the new role. Here, for example, an assistant to the current product owner as well as various work-sharing models are possible.

Phase 3: ■ ■ □ □

The Start

Especially in the beginning, it can be difficult to find your way in the new role. The new tasks are different from the previous ones and it can also take some time for others – whether developers or stakeholders – to get used to the new product owner.

Instead of developing, the day is now determined by, for example, clarifying topics, writing user stories, refining these with the team and sprint planning. Nevertheless, it can happen, especially at the beginning, that product owners who come from development tend to take on smaller implementation tasks or bug analyses themselves. After all, the IDE (integrated development environment) is still within reach.

Above all, the development team expects technical solutions instead of goals formulated in what & why rather than how. Here it is important that new product owners behave in a role-compliant manner and do not slip into the situation of doing a little bit of everything.

Even if there is of course understanding from many sides in the initial phase, you are caught up relatively quickly in the day-to-day running of the project. It feels like everyone wants something and preferably immediately. Now that you are officially responsible, there will also be one or two attempts to delegate pressure further. The good thing is that many of these situations can be solved with and through communication.

If you are new to the role of product owner, you can make things easier for yourself by making your own feasibility options transparent. Pointing out conflicts through escalation meetings and questioning the desired implementation dates is also extremely helpful. It is also advisable to precisely identify the goal of implementation requirements. This often leads to alternative solutions that are more suitable than those requested. It is important to always abstract one's own technical knowledge, since discussion parties often have no background as developers. If you don't want to experience any surprises, you should take notes in all meetings, especially the results that were agreed upon.

Phase 4: ▬ ▬ ▬ ▬

The maturity phase

Once the period of getting used to the new role is over, the maturity phase begins. This phase is crucial for the development of a product owner and ultimately shapes them into what this role is all about.

Every project is structured differently and has its own characteristics in terms of the size/number of teams and the degree of agility. The organisational type of the teams (horizontal vs. vertical) also affects decisions and requires flexible approaches from the product owner. Smaller and larger adjustments to one's own way of working are inevitable in this phase. This is the only way to make progress in the role and to exercise it successfully.

Even though Scrum is an agile process, as a product owner you will be confronted again and again with processes that are more reminiscent of waterfall models. These often manifest themselves in additional quarterly planning to the sprint planning or in release planning (especially in the area of embedded development). One also encounters these in the form of calculations (e.g. effort + timeline) of larger implementation topics as well as the effort measured in person days instead of story points or the delivery of net capacities.
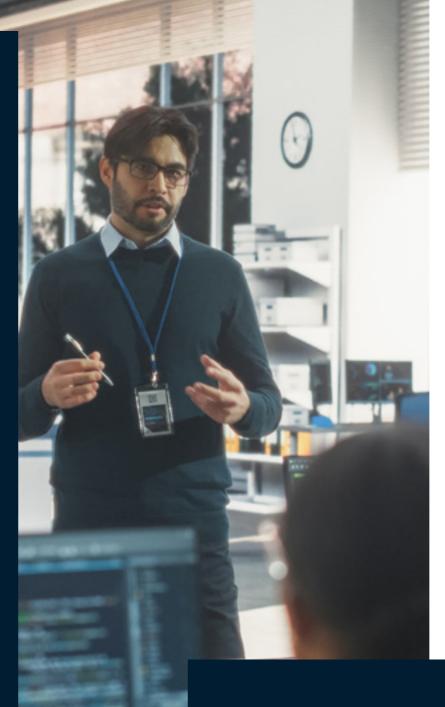
Overall, as a product owner, a lot of coordination work is required, and not only within your own team. Some topics require cross-team cooperation, such as adjustments to the way of working and the sequences or dependencies of the individual topics.
Working according to Scrum means working according to a certain principle. A valuable tool here is the determination of velocity. However, in order to maintain the Scrum process in an everyday project life, that is characterised by waterfall processes, a high degree of creativity is often required. The determination of conversion factors for the calculation of story points in person days, the splitting of velocity according to types of work for quarterly planning as well as the addition of implementation time for cross-team topics require unorthodox approaches now and then in order to integrate them successfully into Scrum.

Although there is little difference in development between product owners with and without a technical background in this phase, there are nevertheless small differences. It is more common for product owners with technical experience to focus more on those aspects of software development that go beyond pure feature development. Examples of this are: Test automation, logging, build/deployment processes, monitoring/alerting, technical refactorings and technical concepts.

Even if the empirical values here are only visible after some invested time, it can be rewarding to remain steadfast on these points. It valuable to be able to plan ahead more, something that also affects the accuracy of the estimates. Errors are not avoidable, but it saves time not to produce a bug in the first place or to be able to analyse its cause more quickly. Another aspect that should not be underestimated is the stability of the plan. Since the preventive measures are always part of the effort of each user story, the stories can be better estimated in terms of references. At the same time, there is less unexpected rework, which represents unplanned effort and disrupts ongoing sprints.

In principle, however, it can be assumed that product owners with development experience are just as well suited to supervising a non-technical product as product owners without a development background for a technical product.

Conclusion ▬▬▬

In this exciting journey we have seen how developers become visionaries, better themselves and expand their own skills and perspectives. The path from pure coding to product vision and the associated tasks may be demanding, but it can be very rewarding for some. Product owners maximise the value of the product and thus support the achievement of the company's strategic goals.

The path from developer to product owner illustrates how versatile and changeable careers in agile software development can be. It shows that it is never too late to take new paths and develop further. Something that also applies to us as a company. In a world characterised by speed and agility, it is important to remain adaptable in order to develop future-proof software solutions for the world of tomorrow.

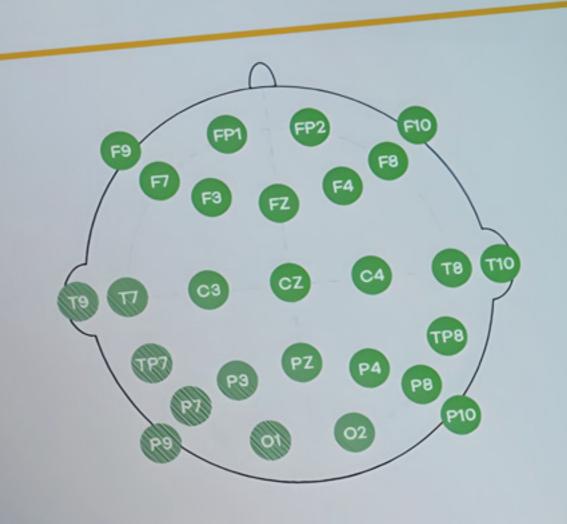**This article was originally posted by Data Respons Subsidiary IT Sonix.**

THIS IS IT SONIX

IT Sonix GmbH, located in Leipzig Germany, is an IT company who specialises in developing bespoke software and customising standard software and are one of the leading consulting and service companies for automotive. They also advise on processes and conduct research in collaboration with renowned universities.

The foundation of IT Sonix' success story is strongly linked to the way they work with customers and employees. The values are very important and reflected in the opportunities they offer to our employees beyond their actual work.

Brain
Capture

When a smartphone
can detect epilepsy

According to the World Health Organization, an estimated 50 million people worldwide are living with epilepsy, making it one of the most prevalent neurological disorders globally.

Nearly 80% of these individuals reside in low and middle-income countries, underscoring the urgent need for improved diagnosis, treatment, and access to care in these regions. Brain Capture, a Danish company and a TechPeople[1] client, is trying to address the problem with new smart technology.

Started as university research project

Originally the idea that ended up as BrainCapture was to just build a system with off-the-shelf modules and code an app so you could see your brain waves spinning around on the phone. And the whole thing started as a research project in 2014 at DTU (The Danish Technical University) with the name: "The Smartphone Brain Scanner: A Portable Real-Time Neuroimaging System", with Tue Lehn-Schiøler as the project manager.

Tue Lehn-Schiøler and the research team travelled the world demonstrating the brain scanner at conferences around the world, and at one of them they met the American doctor, Farrah Mateen. She believed that the scanner could be used to diagnose epilepsy in 3rd world countries, where one typically does not have measuring equipment to measure EEG signals. She asked the DTU researchers to build several prototypes for her, which she subsequently tested, among other things, in Guinea and Bhutan.
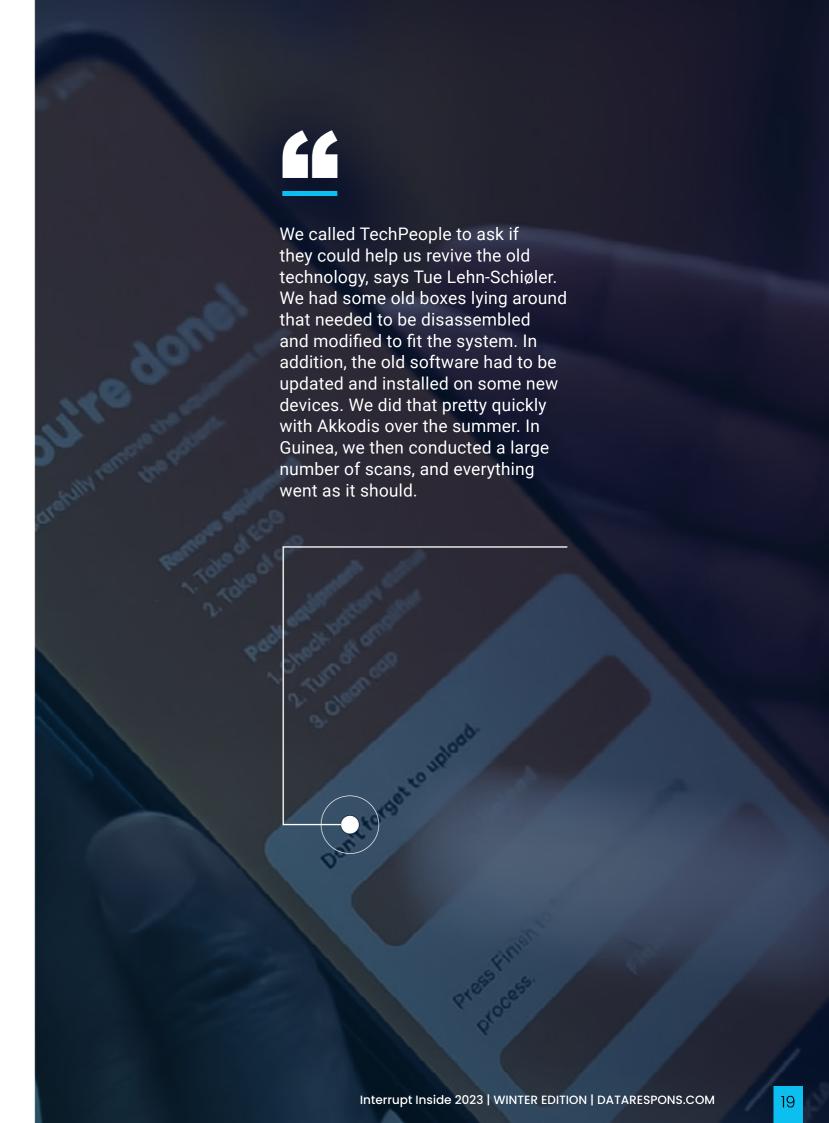
Photo: Tue Lehn-Schiøler
CEO in BrainCapture

Taking a leap of faith

In the spring of 2018, Mateen went back to Tue and his team at DTU. The original idea and equipment were now four years old, and about to be worn out. Also, the original research project had expired. Believing in their technology and its potential Tue and the research team quit their jobs at the university and started BrainCapture.

First thing on the agenda was to update the hardware and make it future ready. Tue Lehn-Schiøler and his colleagues had to build some new scanners, then travel to Guinea in August to meet Farah Mateen and perform scans on local patients with suspected epilepsy.

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We called TechPeople to ask if they could help us revive the old technology, says Tue Lehn-Schiøler. We had some old boxes lying around that needed to be disassembled and modified to fit the system. In addition, the old software had to be updated and installed on some new devices. We did that pretty quickly with Akkodis over the summer. In Guinea, we then conducted a large number of scans, and everything went as it should.

Four years of testing and development

BrainCapture's project manager Tue Lehn-Schiøler and Harvard researcher Farrah J. Mateen were welcomed with open arms when they travelled to Guinea's capital Conacry in 2018 to test their epilepsy scanner at the local Ignace Deen hospital. The BrainCapture system is affordable and mobile, unlike the stationary, advanced and expensive EEG scanners that only a few low- and middle-income countries can afford. In many countries there is at most one, in others there are none. Therefore, the WHO estimates that 2 million new cases of epilepsy annually are not diagnosed.

In Conacry, the researchers scanned 400 patients in two weeks, to test five BrainCapture prototypes, and to present the system to local neurologists. Tue Lehn-Schiøler and his colleagues confirmed that the need for a low-cost EEG solution is enormous: in sub-Saharan Africa alone, there is a need for around 1 million scans, annual.
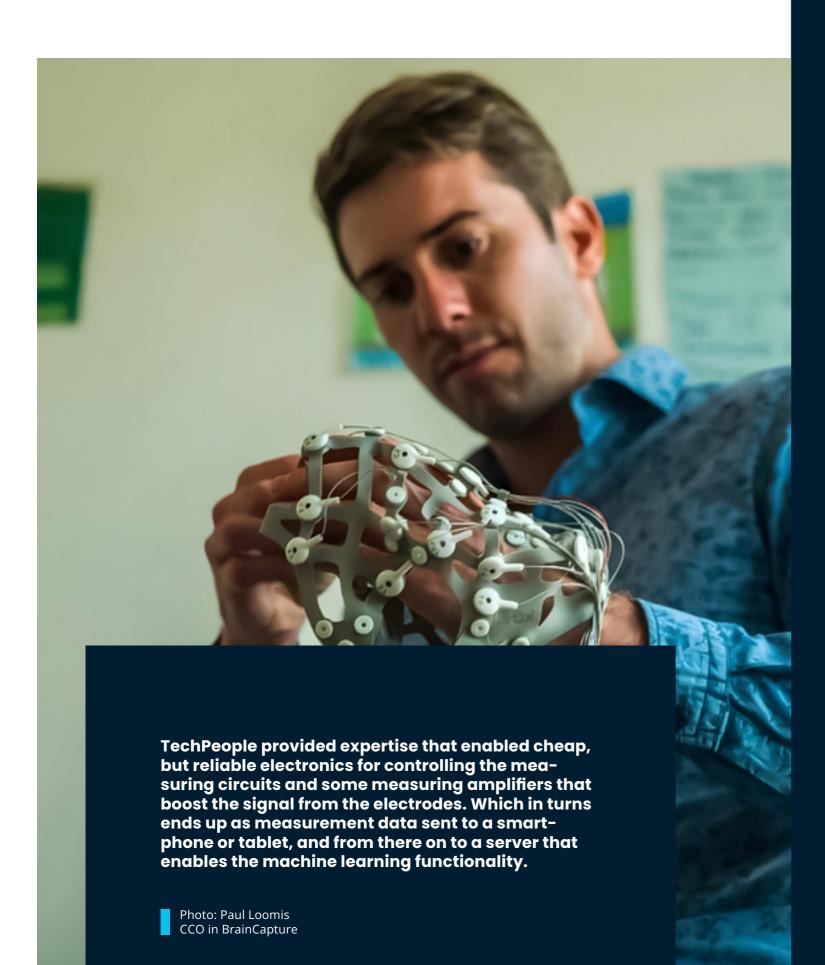
Now BrainCapture has developed a new version of its mobile scanning equipment. The system consists of a "bathing cap" with sensors, a recorder the size of a matchbox, a smartphone app and cloud-based diagnostic software. Instead of the patients having to travel to a remote neuro-clinic, the BrainCapture system can perform scans at the local health center. After the scan, data is sent to the experts, who can make a diagnosis at a distance. Typically, one in three scans shows a positive result.

Cheaper and better architecture

For the BrainCapture solution to work it needed to be both cheap and robust, and rare combination. Also, since the solution is defined as "medtech" it must meet strict standards and regulations. Any software or hardware failures stops the process of getting certified, which is a necessity in order to reach a commercial stage.ypically, one in three scans shows a positive result.

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> When we got home, we decided to make ourselves independent of the off-the-shelf modules we had used until then. For the system to work in the long run, we needed a cheaper and better version, with some hardware that we could control ourselves. Here we again asked Akkodis to help us, explains Tue. TechPeople helped us early on to develop electronic architecture that would allow a low-cost amplifier that still delivered really high quality, adds Paul Loomis, Chief Commercial Officer in BrainCapture.

TechPeople provided expertise that enabled cheap, but reliable electronics for controlling the measuring circuits and some measuring amplifiers that boost the signal from the electrodes. Which in turns ends up as measurement data sent to a smartphone or tablet, and from there on to a server that enables the machine learning functionality.

Photo: Paul Loomis
CCO in BrainCapture

Tapping into the smartphone potential

One of BrainCapture's clever moves is to use the smart phone as key component in their product. Smartphones, with their widespread availability and diverse capabilities, have the potential to revolutionize healthcare delivery in impoverished nations.

Firstly, health-related applications can facilitate remote consultations, enabling patients in remote areas to connect with healthcare providers without the need for expensive and time-consuming travel.

Secondly, smartphones can serve as educational tools, providing access to videos, infographics, and interactive apps that help individuals learn about various health conditions, including epilepsy. By dispelling myths and reducing stigma, these resources contribute to greater awareness and understanding. Additionally, smartphones can aid in medication management, allowing users to set reminders for regular intake, log side effects or seizure episodes, and share this information with healthcare providers to optimize treatment.

Finally, in regions where access to specialists is limited, smartphones can support telemedicine. Healthcare workers in rural settings can capture and transmit data to specialists who can then provide expert guidance on diagnosis and treatment.

In addition to BrainCapture's own app other mobile applications have the potential to transform epilepsy diagnostics, particularly in impoverished regions where traditional healthcare resources are limited. Firstly, seizure tracking apps can enable users to record seizure episodes, their frequency, duration, and associated symptoms. This data can then be shared with healthcare professionals, aiding in diagnosing the type of epilepsy.

Mobile apps can use machine learning algorithms to analyze real-time data, such as video or sensor input, to detect seizures. For example, there are apps capable of analyzing video feed to detect unusual movement patterns or changes in facial expressions indicative of a seizure. These data can be invaluable in establishing a diagnosis, particularly in the absence of a healthcare professional.

Additionally, some apps can use wearable sensor data, like heartbeat or sweat gland activity, to detect possible seizure events. Mobile apps may also facilitate genetic testing for epilepsy, where users can order home testing kits and receive results via the app, further aiding in diagnosis and the selection of appropriate treatments.

Closing the treatment gap

Securing a proper diagnosis for individuals with epilepsy in impoverished nations is not just important, but crucial for several compelling reasons. Firstly, an accurate diagnosis lays the foundation for appropriate treatment, reducing the risk of debilitating seizures and potentially fatal consequences. Without the correct diagnosis, effective management becomes unattainable.

Secondly, it plays a pivotal role in diminishing the social stigma associated with epilepsy, which is unfortunately prevalent in such societies. By highlighting that epilepsy is a medical condition and not a supernatural affliction or a sign of mental impairment, a correct diagnosis helps dispel misconceptions and foster understanding. Lastly, a proper diagnosis can enhance access to support services, improving the overall quality of life for affected individuals.

Accessing treatment for epilepsy in less affluent countries can pose significant challenges. The scarcity of medical resources, including trained healthcare professionals and essential antiepileptic drugs, creates formidable obstacles. Furthermore, the high cost of medical care and travel to healthcare facilities, often located in urban centers, may be prohibitive for many. Consequently, the treatment gap in these regions remains substantial, with numerous affected individuals unable to access the necessary care.

The availability of healthcare workers specialized in epilepsy in impoverished nations is extremely limited. The scarcity of qualified neurologists and other healthcare professionals specializing in epilepsy presents a critical issue that significantly contributes to the treatment gap. In many low and middle-income countries, the neurologist-to-population ratio is alarmingly low, with some regions having as few as one neurologist for every one million people.

Furthermore, these professionals are often concentrated in urban areas, leaving rural populations underserved. Training programs for healthcare workers in epilepsy care are scarce, and the lack of standardized and culturally appropriate training materials further exacerbates the issue. This shortage of specialized healthcare providers underscores the urgent need for enhanced training and resource allocation to improve epilepsy care in these regions.

Procedures and potential

There is still some way to go before the BrainCapture system can be produced on a large scale. Before then, the new BrainCapture equipment must be tested at epilepsy hospitals in Denmark and the USA to document that they provide reliable data. In addition, the system must go through a series of medical approval procedures.

But the potential is great. According to Tue Lehn-Schiøler, the new version of the system will help to spread effective epilepsy diagnostics to a huge population group who currently do not have the opportunity to have their disease treated.

The primary market remains low- and middle-income countries. But in the long run, BrainCapture also anticipates use in the industrialized world where e.g. 24-hour measurements on children or the disabled are necessary, but more appropriate to monitor at home than in the hospital. Needless to say, the technology has the potential help anyone suffering from epilepsy, regardless of where they live.

[1] **TechPeople is Data Respons subsidiary based in Copenhagen, Denmark**

Join us on a journey to Kenya, East Africa to meet photographer, Ramadan 'Ramskie' Duevela. [link to full article]

As someone with epilepsy, Ramskie shares the many barriers that he has overcome and the transformative role technology is playing in his life and the lives of millions of others.

Transforming Healthcare through Tech

WATCH VIDEO

KNOWING THE BUSINESS
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TechPeople is a leading technology partner – from system architecture, mechanical and HW design to software and application development and communication solutions for embedded and IoT solutions.

DEFA

SETTING NEW STANDARDS FOR INTELLIGENT

EV CHARGING

With a strong focus on user-friendliness and newest techno-logy, DEFA Power, the new EV charging station from DEFA is ready to conquer the world. Data Respons subsidiary Data Respons R&D Services is a trusted development partner.

The electric vehicle market is growing – and consequently the market for charging stations. DEFA wants to be at the forefront and has extensive experience to draw from. For over 60 years they have connected vehicles to the electricity grid. Now DEFA has launched its perhaps most complex and sophisticated product, DEFA Power. The EV charger offers its user simple and intuitive handling, while its technical design meets the newest and most future-oriented standards in the charging domain. The goal is to market DEFA Power internationally.

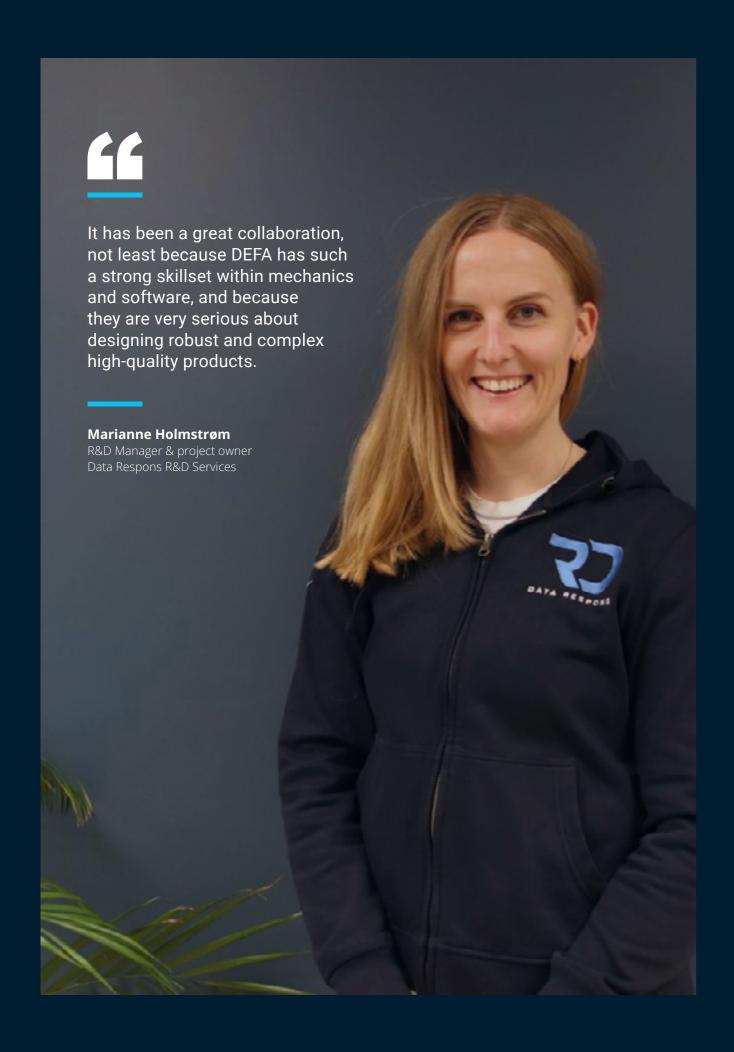## Close cooperation between developer teams

The work was done in close collaboration with DEFA's own developer team. The project was technically demanding, especially because DEFA had decided from the outset to develop a whole new product generation from scratch and on a future-proof technical platform ready to handle all the new functionality needed in the coming years. At the same time, the complex tech should under no circumstance complicate the user experience. In fact, the goal was exactly the opposite: To make the charger as easy to operate as possible.

– We saw a demand in the market for a more intuitive and seamless charging experience than other chargers provide, says Ann Katrine Strømquist, DEFA's project lead.

– Previously it was people with a special interest in technology that bought an EV. Now they have become so widespread that a charger is used by many other target groups than just the tech-savvy. Therefore, it was important for us to design it for ease-of-use. It has an integrated display giving the user step-by-step information about the charging process. Moreover, we've developed an app which among other things calculates the optimal charging procedure to save both time and money.

State-of-the-art

Charging an electric vehicle is vastly more complex than putting a plug into a power socket. Especially, when you are considering a state-of-the-art charger like DEFA Power. Taking a closer look at the tech, you meet specialist terms like derating, load balancing, vehicle-to-grid, together with number and letter combinations like ISO 15118 and OCPP 2.0.1.

They describe the technical complexity that follows, when a charger is part of something bigger – on many levels. To fully function it must integrate seamlessly into a number of technical and digital infrastructures, from the local electricity grid to centralized billing systems and the user's own mobile phone.

Making this complex integration work requires great expertise and specialized developer resources. As an expert in embedded electronics and complex development projects, Data Respons subsidiary Data Respons R&D Services could deliver exactly that.

Expertise within Data Respons R&D Services

At the same time, DEFA wanted to design a charging station based on the newest standards, to make it future proof. And it was to function across most of the world. To carry out this huge development project DEFA needed external resources, and it chose Data Respons subsidiary Data Respons R&D Services because of its extensive expertise in the field.

– They were responsible for delivering the basic code for the charger, according to our specifications. They built a prototype and test software for it as well. It was done within the agreed time frame and there was much excitement and applause the day we plugged in a car for the first time and began charging. It has been an efficient and well-functioning collaboration, and our competencies have supplemented each other perfectly.

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> It has been a great collaboration, not least because DEFA has such a strong skillset within mechanics and software, and because they are very serious about designing robust and complex high-quality products.

Marianne Holmstrøm
R&D Manager & project owner
Data Respons R&D Services

Electronics and mechanics

Marianne Holmstrøm, R&D Manager and project owner at Data Respons R&D Services, confirms. She praises the DEFA team for its high level of ambition and for its will to both work closely together with the Data Respons team and to give its development partner the responsibility to develop the most optimal solutions.

– Such a project requires close collaboration between electronics and mechanics. In the first phase of the project, we've contributed to the electronics, while DEFA has worked with the mechanics. Afterwards we've worked together writing the high-level application code that lets the charger communicate with the backend systems it interacts with.

Security and performance

Security and high performance have been important parameters while developing DEFA Power. The charging station complies with all current standards for electronics safety and is secured against hacking, preventing unauthorized charging. Furthermore, it is designed to deliver its maximum charging capacity of 22 kW.

It is a well-known problem with many of the existing chargers on the market, that they derate in warm weather or in direct sunlight. When the outside temperature adds to the heat generated while charging, the charger automatically reduces the current to avoid overheating, thus charging at a lower speed.

DEFA wanted to eliminate that problem, so that the customer always would be able to charge at max capacity of 22 kW. DEFA's engineers developed a thermic design ensuring that the charger could dispose of excess heat, even in direct sunlight on a hot day, for instance in Spain. Instead of encapsulating its electronics in plastic DEFA's engineers chose to let the charger remain open in the back, to deflect heat away from the device.

International launch

This feature makes DEFA Power unique on the market and is an important element in DEFA's plan to introduce the charger to markets outside Norway.

According to Ann Katrine Strømquist, DEFA starts with Finland, Sweden, and Norway, expanding from there to other European countries. The company has also set its sights on Australia and North America. These are huge markets with currently minimal EV penetration compared to Norway, which gives a state-of-the-art EV charging station a big market potential.

International launch

The collaboration between Data Respons R&D Services and DEFA has been defined by the very high ambitions DEFA has had for future proofing its new charging station. Consequently, the developers from Data Respons have made sure it complies with ISO 15118, an international standard defining the communication interface between vehicle and grid. It enables future use cases, like vehicle-to-grid, in which the EV's battery is used for storing energy from solar power systems or wind turbines. In these use cases, the battery feeds energy back into the grid and as such becomes a part of the decentralized Smart Grid of the future, in which a large number of small energy sources and storage media interact, controlled by complex software.

The charger also runs the OCPP2.0.1 communication protocol enabling advanced monitoring and diagnostics, price optimization and automated access control between vehicle and charging station.

High ambitions

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Focusing on software

Within software development the two partners have worked closely together – and are still doing so.

– Software controls the interaction between a group of chargers, when they are part of a larger installation at a shopping center or a residential area, Marianne Holmstrøm explains.

– Here Load Balancing becomes important, which means that the current available locally is distributed evenly between chargers. In this way you optimize the use of the local network. Load Balancing is an example of the technical logic a charger is part of. Other types of logic are access to billing systems and communication with the app that is connected to the charger.

– The Data Respons team has been tightly involved and we feel that we really have contributed to this project, both in electronics design and software. It has been a great collaboration, not least because DEFA has such a strong skillset within mechanics and software, and because they are very serious about designing robust and complex high-quality products.

The charger also runs the OCPP2.0.1 communication protocol enabling advanced monitoring and diagnostics, price optimization and automated access control between vehicle and charging station.

Collaboration is a great advantage

Ann Katrine Strømquist elaborates:

– Data Respons R&D Services developed the basic functionality of the charger and gave us a platform we could build upon. To work together with them in this way has been a great advantage for us because it means we own the product entirely. That gives us complete control over all components, and thus a shorter route to the customer. That is essential for us.

DEFA Power was launched in April. Currently, Data Respons is contributing to additional software development related to the charger, and with helping DEFA Power comply with regulations in new markets, such as the UK and US, which have different types of electrical grid than the Nordics.mechanics and software, and because they are very serious about designing robust and complex high-quality products.

The charger also runs the OCPP2.0.1 communication protocol enabling advanced monitoring and diagnostics, price optimization and automated access control between vehicle and charging station.

> "
>
> Data Respons R&D Services developed the basic functionality of the charger and gave us a platform we could build upon. To work together with them in this way has been a great advantage for us because it means we own the product entirely.

Ann Katrine Strømquist
Project Manager, DEFA Power

Product development as a service – that is when we create the highest value for our customers

It is in projects like DEFA Power we really can make a difference, says Data Respons R&D Services CEO Ivar A. Melhuus Sehm.

Investing in competences and facilities

Data Respons R&D Services is investing significantly in lab facilities, test equipment, workshops for prototyping and other infrastructure necessary for carrying out projects from start to finish.

– Moreover, we invest in developing the competences of our staff. We are focusing on methodologies, checklists, procedures, certifications etc. That is a very dynamic process, in which we e.g., work with pairing senior staff with graduates fresh from university. In this way we combine the experience of mature employees with the energy and curiosity of young people.

Trust is essential

The business model of Data Respons R&D Services demands not only investment in equipment, facilities, and competences. It also requires the building of strong trust between customer and provider, Ivar Sehm explains.

– We're at our best, when we take responsibility for the complete project and the whole value chain. Typically, we begin with a feasibility study to find the technologies most suitable for the job, and we do risk analysis and describe high-level system requirements. Then we carry out the project, including for instance mechanics, printed circuit board layout, software and integration.

All this demands, according to Sehm, equal collaboration and strong trust between the two parties. The customer contributes with domain knowledge and Data Respons R&D Services contributes with high-level knowledge of the technologies suited to solve the task at hand. You learn from each other, and this type of project becomes almost a symbiosis between the two organizations.

– That is how I'd like to describe the collaboration between us and DEFA. We work together with high integrity and strong trust. That is where we do our best for our clients, and that is where we provide the highest value-add to them.

The Exciting Future

7 TRENDS IN ELECTRICAL SYSTEMS

In the quest for a greener and more efficient future, changes are happening in the world of electrical systems. Technology advancements and a growing focus on the environment are driving the adoption of innovative trends that will shape how we generate, distribute, and use electricity.

In this article, they'll explore key trends in electrical systems that are shaping our energy future.

1st

Renewable
Energy Integration

A significant trend is the integration of renewable energy sources like solar, wind, hydro, and geothermal power. These eco-friendly sources are being added to the grid, providing alternatives to fossil fuels. Advances in energy storage allow excess energy to be saved for low-generation times.

2nd

Smart Grid Technology

Smart grid tech is transforming electricity distribution. These grids use advanced communication and control systems to optimize power flow, detect issues, and balance real-time supply and demand. This improves stability, efficiency, and the incorporation of resources like solar panels and electric vehicles.

3rd

Energy Storage Solutions

With more intermittent renewable energy, energy storage is vital for grid stability. Battery tech like lithium-ion and flow batteries lead in large-scale storage. Innovations in other storage systems are also making storage more sustainable and efficient.

4th

Electric Vehicles (EVs) & Charging

The move to electric transport requires extensive charging infrastructure. Public stations and home systems are becoming common, supporting EV adoption. Bidirectional charging lets EVs give back to the grid during peak demand.

5th

Decentralization & Microgrids

Energy generation is decentralizing, with microgrids gaining popularity. These smaller systems can work alone or with the main grid, adding resilience, especially in remote areas. They integrate various energy resources and enable local energy trading.

6th

IoT & Energy Management

The Internet of Things (IoT) is transforming energy management by connecting devices and systems. IoT devices can monitor electricity use, enabling load balancing and optimized energy consumption. IoT-equipped homes empower users to manage energy and cut carbon footprints.

7th

Electrification of Industries

A significant trend is the integration of renewable energy sources like solar, wind, hydro, and geothermal power. These eco-friendly sources are being added to the grid, providing alternatives to fossil fuels. Advances in energy storage allow excess energy to be saved for low-generation times.

To sum up

The future of electrical systems is bright, focusing on sustainability, efficiency, and smart tech.
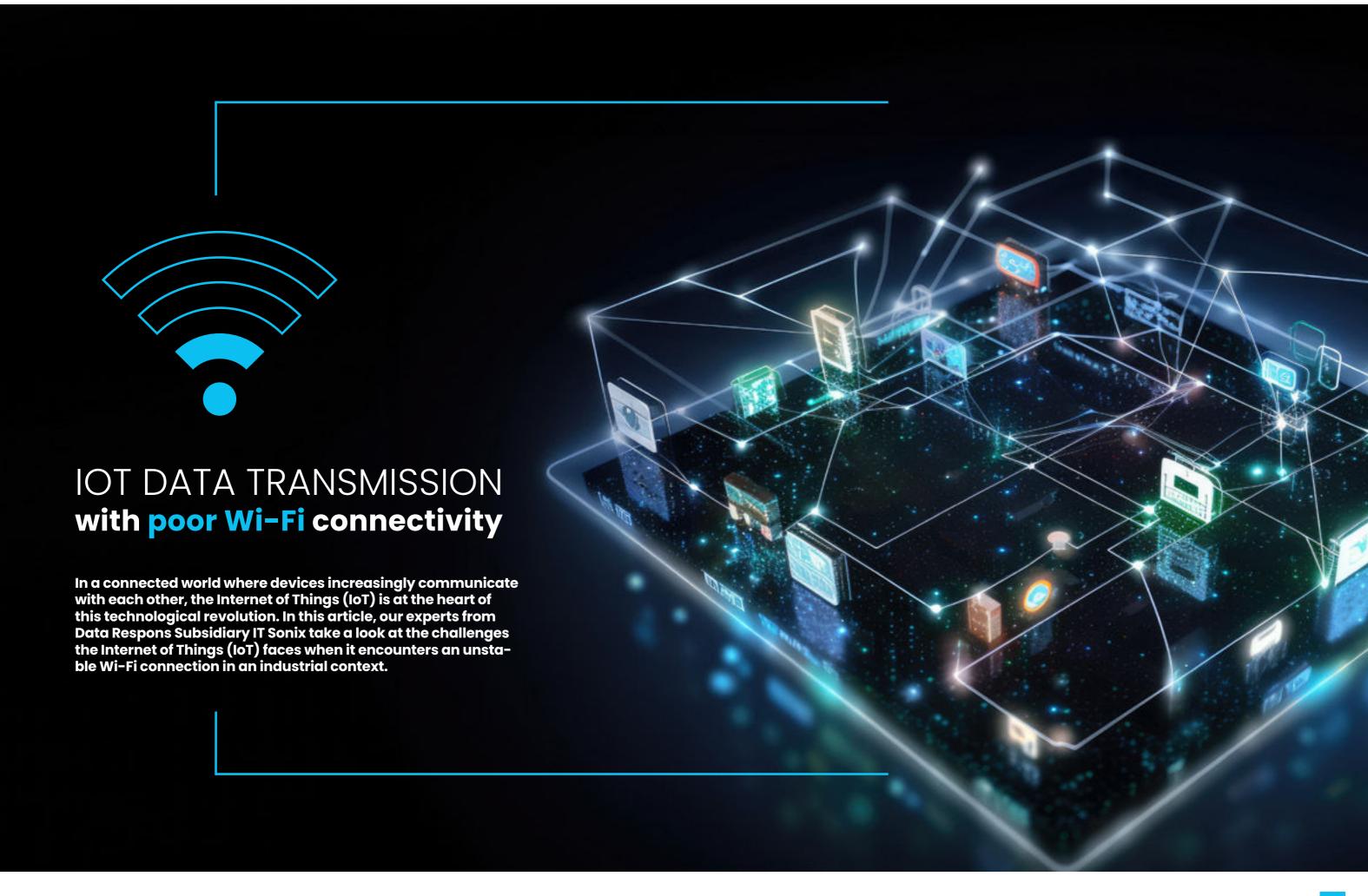
As we explore new ways to generate, store, and distribute electricity, these trends will shape our energy landscape. The shift toward renewable energy, smart grids, energy storage, electric transport, decentralization, IoT integration, and industrial electrification will lead to a greener and more resilient energy future.

Embracing these trends will benefit the environment, the economy, and future generations' quality of life.

———————

This article was originally posted by Data Respons Subsidiary inContext.

THIS IS INCONTEXT

We provide engineering services within the Electrical Equipment, Complete Electrical Systems, Mechatronics Design and Project Management. Both on-site and in-house. We also pride ourselves in always making sure the projects and assignments meet targets and deadlines. Because execution and commitment matters.
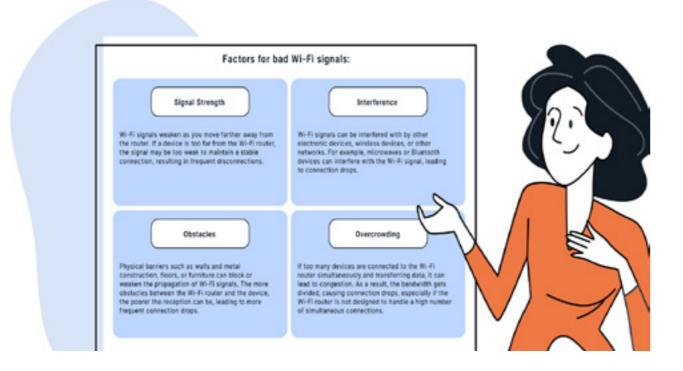
IOT DATA TRANSMISSION
with poor Wi-Fi connectivity

In a connected world where devices increasingly communicate with each other, the Internet of Things (IoT) is at the heart of this technological revolution. In this article, our experts from Data Respons Subsidiary IT Sonix take a look at the challenges the Internet of Things (IoT) faces when it encounters an unstable Wi-Fi connection in an industrial context.

An excellent summary of IoT comes from McKinsey:

„The Internet of Things (IoT) describes physical objects embedded with sensors and actuators that communicate with computing systems via wired or wireless networks allowing the physical world to be digitally monitored or even controlled."

IoT devices have diverse applications across various industries and sectors. For example, common use cases include smart automation, industrial monitoring and control, transporta tion and logistics and energy management.

Monitoring plays a crucial role in many of these applications, where IoT devices are often installed near the data source to be monitored. However, this positioning may not always be optimal for a strong Wi-Fi reception. Various factors contribute to poor Wi-Fi signals.

Factors for bad Wi-Fi signals:

Signal Strength
Wi-Fi signals weaken as you move farther away from the router. If a device is too far from the Wi-Fi router, the signal may be too weak to maintain a stable connection, resulting in frequent disconnections.

Interference
Wi-Fi signals can be interfered with by other electronic devices, wireless devices, or other networks. For example, microwaves or Bluetooth devices can interfere with the Wi-Fi signal, leading to connection drops.

Obstacles
Physical barriers such as walls and metal construction, floors, or furniture can block or weaken the propagation of Wi-Fi signals. The more obstacles between the Wi-Fi router and the device, the poorer the reception can be, leading to more frequent connection drops.

Overcrowding
If too many devices are connected to the Wi-Fi router simultaneously and transferring data, it can lead to congestion. As a result, the bandwidth gets divided, causing connection drops, especially if the Wi-Fi router is not designed to handle a high number of simultaneous connections.

While it's possible to address these problems with solutions like additional routers, better hardware, or mobile network connections, such measures would increase hardware costs. The scalability of an IoT application heavily depends on keeping hardware costs in check. Therefore, a more efficient approach is to focus on transmitting monitored data reliably. To achieve an efficient implementation, the computational power of the IoT device and the type of data being transmitted must be considered.

Problem description

We have different causes for connection problems. Our IoT devices are installed in large halls with various metal infrastructures. These metal infrastructures can weaken the Wi-Fi signals. In addition, there are other interfering factors such as other Wi-Fi networks, electronic devices and machines. Another factor for possible connection problems can be the number of installed IoT devices.

Traditional solutions like more routers or better hardware are costly and may not fully resolve the connectivity issues. The IoT devices are installed in suboptimal positions for good Wi-Fi connectivity due to the need to capture sound data while keeping background noise to a minimum.

We have developed an IoT device that records sounds and sends this sound data to a computing system for the purpose of predictive maintenance. The IoT device includes standard microcontroller components like CPU, RAM, and different interfaces. It is equipped with a sound chip, microphone, and light barrier. The device's purpose is to record the sound of a conveyor belt or a sorter and transmit the data to a cloud system using MQTT. In the cloud, we aim to calculate maintenance predictions for the respective parts of the conveyor belt/sorter.

The light barrier is used to identify the start of the conveyor belt/sorter and map the recorded sound data to the corresponding machine part. While this adds additional data to be transferred to the cloud, it consists of only one timestamp every few minutes.

The recorded raw sound data amounts to several gigabytes per day, making it impractical to send the complete raw data to the computing system. Price considerations and message limitations imposed by the cloud system necessitate a reduction in data volume. The cloud system imposes a message size limit of 4kB, as well as a limit on the number of messages.

However, it is crucial to minimize the loss of sound data during transmission, as the maintenance prediction algorithm heavily relies on it.

To ensure cost-effective scalability, we need an innovative data transmission approach. By optimizing data compression, managing transmission frequency, and tracking messages efficiently, we can overcome these challenges. This way, we deliver sound data reliably to the cloud for maintenance predictions, even in demanding environments.

Solution

Given the challenging installation locations of our IoT devices, as well as the fragile Wi-Fi connection and limited budget for MQTT messages, we are highly motivated to reduce the amount of data to be transferred. Fortunately, this is achievable by utilizing the Fast Fourier Transformation (FFT) on the recorded sound data and further compressing it. We were able to compress the data enough to reduce the message frequency to one message per device per minute.

The FFT and further compressions are performed exclusively on one core of the IoT device. With only two CPU cores, the second core handles other essential tasks such as managing the Wi-Fi connection, constructing MQTT messages for the cloud system, time synchronization, task supervision, and more:

1. Limited Device Resources:
Our IoT device operates within confined computational power and memory boundaries

2. Location-Induced Disruptions:
Regular connection interruptions arise due to suboptimal device placements within the environment

3. Network Congestion:
The presence of similar IoT devices running on the same Wi-Fi network can contribute to connectivity congestion

4. Message Tracking:
Minimizing unnecessary retransmissions of successfully transmitted data is paramount to optimizing overall transmission efficiency

5. Data Volume Impact:
High-volume data transmissions raise the likelihood of connection disruptions

6. Stability Through Consistency:
Consistent data transmissions curtail the likelihood of connection hiccups

While the first three points are non-negotiable due to budgetary considerations and environmental constraints, we can harness our transmission algorithm's design to diminish the odds of connection disruptions.

The cloud system acknowledges the receipt of messages, enabling straightforward tracking of received messages on the IoT device. Our tests indicate that out-of-order acknowledgments are almost never received, making message tracking computationally inexpensive.

To buffer messages, we adopt a ring buffer (circular buffer) structure. This architecture adeptly stores a fixed-size element set, facilitating efficient insertions and removals by overwriting the oldest data when the buffer reaches its capacity. In our context, this buffer accommodates 5 minutes' worth of data – a sufficient size confirmed through experimentation. Should this buffer prove inadequate during connection disconnections, it indicates a larger environmental issue. In such cases, it's preferable to acknowledge the data loss and initiate a new transmission. Attempting to recover the missing data in such scenarios is unlikely to yield success.

We mitigate the likelihood of connection interruptions by orchestrating a steady data transmission rhythm. Consider two closely located sensors; if one experiences a disconnection and subsequently attempts to send accumulated data immediately upon reconnection, the risk of triggering another disconnection heightens. This situation can also cascade into causing connectivity issues for nearby sensors. This challenge is effectively sidestepped by employing continuous transmission with a consistent data quantum. This approach stabilizes Wi-Fi connections and drastically reduces the probability of connection losses. Thus, we opt to transmit two messages in succession instead of one, ensuring a uniform data volume and elevating the prospects of uninterrupted data transmission. After the data stored during the disconnect has been transferred, the transfer rate drops back to one message per second.

With this strategy for transmitting our recorded data to the cloud system, we achieve minimal data loss and can analyse the data to provide reliable maintenance predictions.

Conclusion

An effective solution is attained by thoroughly analysing the problem at hand. In our case, we recognize the potential for data compression and the constant nature of the data output. Leveraging these factors, we design an algorithm for data transmission that reduces the probability of connection interruptions while preventing task overload of the IoT device.

This article was originally posted by Data Respons Subsidiary IT Sonix.

THIS IS IT SONIX

IT Sonix GmbH, located in Leipzig Germany, is an IT company who specialises in developing bespoke software and customising standard software and are one of the leading consulting and service companies for automotive. The foundation of IT Sonix' success story is strongly linked to the way they work with customers and employees. The values are very important and reflected in the opportunities they offer to our employees beyond their actual work.

All the way from design to manufacture, a project management tool purpose-built by Data Respons subsidiary, EPOS CAT, secures transparency, collaboration, and reliability across an entire workflow.

Clarity in
Complex Workflows

Building a Digital Management Tool for Automotive Production

For a large international automotive OEM with numerous brands under its umbrella, an EPOS team led by Stephan Hentschel and Manuel Zhou is developing a tailor-made tool for bringing clarity to complex workflows and facilitating collaboration in engineering.

The tool was originally developed by collaboration Factory together with EPOS developers. But about 2 years ago, EPOS took over the sole responsibility for the ongoing development from collaboration Factory.

cplace, which is a product of collaboration Factory, is a powerful project and portfolio management platform providing a scalable framework for custom web applications. The platform itself already comes with certain ready-to-use features designed to meet the requirements of today's project world, such as a Gantt chart, a Kanban board, and maturity and risk management tools.

But it can also be extended to any need via custom pro-code modules, called plugins.

The tool was built to mirror the specialized process of building an on-board control unit, which is a complex and valuable component to control vital car functions.

Smart tool needed

It is a complex endeavor to bring automotive components from the drawing board to production. They go through numerous stages of meticulous development, testing, and redesign, before they are finally declared ready for volume production. Needless to say, a great many people are involved, and adding to this complexity is the fact that regulators require extensive documentation of the complete process, to secure component quality and reliability.

All this calls for a strong project management tool to guide everybody involved and to guarantee overall compliance. collaboration Factory and EPOS have created such a tool.

- The tool was built to mirror the specialized process of building an on-board control unit, which is a complex and valuable component to control vital car functions, says project manager Stephan Hentschel.

- The people involved in taking such a control unit from the first design all the way to manufacture use our tool for the management of schedules and necessary tests that must be completed as well as for the documentation of results.

According to Stephan Hentschel, the tool defines a fixed workflow, that takes the component through various stages of maturity. At each milestone several tests and other procedures must be completed, before the tool gives the component a green light to move to the next phase. The tool is based on a permission concept, regulating what each person involved is allowed to do, depending on his or her role.

Several benefits

Software engineer Manuel Zhou elaborates:

The tool gives its users several significant benefits. For one thing, it facilitates collaboration, not only between the people involved in one specific control unit, but also across the different brands of the automotive OEM.

-Moreover, it secures a transparent representation of deadlines, tests, and development stages, as well as provides a means for documenting obstacles and how they are being addressed.

Another very important aspect is that the control units must match certain standards set up by the authorities. The tool stores the data required to document that the device lives up to these standards.

##

> *It gives people a common platform to work on. It provides its users with a fixed stage model to go from prototype to finished product. People do their job inside the application, and when they need to reach a certain state, they just request to go to the next workflow stage.*

Knotty name

The tool uses an acronym that bundles all the application's functionality into a single word.

And it has proven to be a success. Initially developed for only one of the brands under the OEM's umbrella, and only for one specific control unit, it has grown popular indeed. It is now used by development teams across almost all the OEM's brands, and for other types of control units as well.

There are several reasons for it becoming so widely used, Stephan Hentschel explains:

- It gives people a common platform to work on. It provides its users with a fixed stage model to go from prototype to finished product. People do their job inside the application, and when they need to reach a certain state, they just request to go to the next workflow stage.

- Also, it digitalizes a lot of paperwork and thus makes documentation much easier. People don't have to take care of the versioning of documentation. The application does it for them.

- Moreover, it offers standard templates for reporting. If you require a status report, you can download a pdf document providing a complete overview of the status of a project.

Extensible by users

Software engineer Manuel Zhou highlights another important feature contributing to the popularity of the tool: Users can customize it easily to their specific requirements, without necessarily having to involve a software developer. As mentioned above, the tool is built on the cplace platform, and utilizes cplace's option to customize it with no-code or low-code features.

-Basically, you can build your own data model without writing a single line of code. For instance, you can define the parameters of a car in the user interface, and you can add various workflows and states, like a car that is standing still or moving, and you can transfer workflows between different states. You can build these transitions without coding anything. On a more sophisticated level, you can extend it even further by using special Javascript code. If you have just a small knowledge of scripting – and the required permissions (security) –, you can do it yourself without assistance from a software developer, just programming that functionality by using the API provided by cplace. You don't need a development environment or source code.

Java and Angular

Even though the tool gives its users access to low-code and no-code building blocks, the application itself is pro-code. It is developed in Java backend code in an IntelliJ development environment. The frontend framework was upgraded recently from Angular 1 to Angular 14, with typescript as the used script language. The development team works in an Nx environment, using Storybook for visualization of the components being developed within the frontend. For unit and e2e testing Jest and Cypress are used.

Never done

When you ask Manuel Zhou and Stephan Hentschel when they'll finish working on the tool, their answer is short and clear: Probably never. There will always be new requirements from regulators or from users, which must be integrated into the project management tool.

Currently, they are in the middle of refactoring a core feature of the tool, to make it more flexible and less complicated. Back when it was first developed, too many functionalities were put into one component. Now the team is working on splitting it up, removing hard-coded parameters and thus enabling users to work more flexible with it.

–There is always something to change and to improve. That's the fun of it, Manuel Zhou and Stephan Hentschel agree.

THIS IS EPOS CAT

EPOS CAT GmbH is one of the leading consulting and service companies for automotive IT and CAT based in Ingolstadt and Neckarsulm. CAT is the abbreviation for Computer Aided Testing and stands for the support of measuring and testing facilities in automotive research and development.

The annual Data Respons Hackathon brought together six dedicated teams in Stockholm. This year's challenge was given to them by Eva Holmberg Tedert from the NGO Gatubarn i Nepal (Street Children in Nepal).

Hacking
Sustainability

Hackathon with the goal to help street children in Nepal

"Please put your great technology skills to use to develop digital solutions to combat poverty, reduce trafficking, and enhance the lives of children in Nepal. You have 24 hours!"

The challenge posed by Eva Holmberg Tedert on behalf of Nepalese street children was willingly accepted by the six teams, coming from the Data Respons subsidiaries: Sylog, YABS, EPOS CAT, Microdoc, IT Sonix and Frobese.

Before sending them off to their computers for an all-nighter, Eva Holmberg Tedert gave them a thorough introduction to the NGO she founded in 2010, to help the thousands of homeless children in Katmandu and elsewhere in Nepal. Among other things, Gatubarn I Nepal supports three child help and care centers, it finances the education of local Health Assistants, engineers, and teachers, and it assists local initiatives to combat human trafficking. Data Respons has supported the NGO for years through its Enabling The Young initiative.

In her introduction to the charity hackathon Eva reminded the 28 participants not to think too big, and to develop solutions that could be implemented by a small NGO run primarily by volunteers, and in a country where you cannot take the access to high-speed connectivity and complex technology for granted – often not even telephone services.

In her introduction to the charity hackathon Eva reminded the 28 participants not to think too big, and to develop solutions that could be implemented by a small NGO run primarily by volunteers, and in a country where you cannot take the access to high-speed connectivity and complex technology for granted – often not even telephone services.

- Eva did a fantastic presentation of their work. It was really captivating, says Madeleine Mellström from YABS who together with her colleague Maja Jonsson organized the event, located at the Sylog headquarters in Stockholm.

- Also, she stayed behind to answer questions from the teams. Most teams had prepared some ideas in advance. But learning more in detail about the work of Gatubarn I Nepal, and about the technical and human resources available to it, I think some of them tweaked their idea a bit.

Starting out at 10 in the morning, the teams worked hard to develop their projects as much as possible before presenting it to the Hackathon jury 24 hours later.

The six projects had very diverse focus areas. The five young developers from EPOS CAT chose to design an app named "Help Me Study", with which Nepalese school children can train English pronunciation. As one of the team members, Moritz Reindl, explains, the children learn English in school, but only written, not spoken English. With the new app they can use their mobile phone as a training tool for pronunciation, somewhat similar to the well-known Duolingo app.

In fact, Help Me Study is actually a 2-in-1 app. Apart from training pronunciation it has a "Help Me" functionality, as human trafficking and child prostitution is a huge issue in Nepal. Children can push the "Help Me" button when approached by criminals, sending an alert to local police.

It was great fun working on the app, although none of us had any experience in app development. But we found what we needed on the Internet and managed to present the concept the next morning, getting lots of positive feedback from the jury, says Moritz Reindl.

The team from Microdoc also chose a mobile phone app, but with an altogether different focus. Their project was a mobile game, not for Nepalese children but designed for people in developed countries to raise awareness about the Gatubarn I Nepal NGO and to attract donations to its work.

- We developed a small game showing the conditions many children live under, says Vithya Jeyachandran from the Microdoc team.

- Online we found a 2D game engine and a number of rea- dymade design elements and put them together to create a game, in which a Nepalese child is given a task. If the player competes the task he or she goes to the next level.

The game consists of three levels, the first one having the child overcoming a number of challenges on its way to school, the next focusing on human trafficking and abuse, and the third level concentrating on the dangers around water supply and poor water quality.

Donations were also at the center of the app developed by the YABS team of five programmers. Not money however but donating knowledge instead. YABS software developer Charlie Kotro explains:

- Education is extremely important, and getting access to it is not easy in Nepal. For a child, it is difficult to even find information about what you can become when you grow up, for instance a doctor, an engineer, or a schoolteacher. Our idea was to create a data base where people can upload information about different profes- sions, to inspire the children to decide what their future education could be. As there is no steady access to the internet, we figured it was best to create a mobile app with which you can download educational information to your phone, when you have internet access, to store it for later reading.

According to Charlie Kotro the app can be seen as an alternative to donating money to a charity, allowing you to donate your knowledge as well.

Hackathon Impressions from left to right:

1. picture: The winner team from Frobese
2. picture: The teams present their solutions
3. picture: Pizza to power the hackers

The team from Sylog Vest chose to focus on education as well, and programming in particular. They developed a ga- ming-based concept for Nepalese teachers and schoolchildren to learn the basics of programming.

The IT Sonix team took a different approach. They looked at ways to improve the internal collaboration inside the Gatubarn I Nepal organization, as well as externally with other NGOs. They designed an open source based, networked management portal to optimize communication and collaboration, including functionality for social media post genera- tion, resource management and accounting.

After 24 hours, at 10 in the morning on the 27th of October, the jury of the charity Hackathon jury arrived to see the six teams' presentations and to find a winner.

The jury, consisting of Eva Holmberg Tedert from Gatubarn I Nepal, and Johan Jacobsson, Jonas Tillander and Niclas Fredriksson from Sylog decided on the Frobese project named "Digital art gallery for the unseen".

Inspired by an art exhibition in Kathmandu in March 2023, showing artwork by children supported by the NGO, the Frobese team chose to create a digital platform. At the original exhibition, visitors and tourists could view and purchase the images. They could also be purchased through social media via direct message.

To make the artwork produced by the children more visible and accessible, the team decided to create a website where people can see and buy the images, with the proceedings going to the children and to the organization.

- We wanted to build a platform to promote the children and their creativity, while finding new ways to generate donations, Frobese team lead Stephan Bogansky explains.

- In the beginning, our idea was rather huge. But, after talking to Eva, we decided to scale it down, to make it work within the scope of a small NGO, and to create something that would be useable in the short term, while allowing it to be expanded along the way.

- We took a few open-source building blocks to develop the web application, which in short is a small content management system. It has a backend where you can upload the artwork and allow customers to buy it. The system is designed with simplicity and ease-of-use in mind, to enable it to be run by volunteers.

According to Eva Holmberg Tedert, manageability and easy implementation were two important factors in the jury's choice of the Frobese project as a winner.

- Many of the children we are working with have a creative streak. The Digital Art Gallery For The Unseen is an obvious way to promote their work, and in a format that is feasible for us. We can quite easily launch such a website, and I believe it has the potential to do a significant difference in our work.

According to Stephan Bogansky from Frobese, his team is now contemplating how to develop their project further into a finished product for Eva and her colleagues to implement.

> *It has been a real pleasure to witness the energy and dedication of the six Hackathon teams. I am deeply impressed by what they achieved in just 24 hours. Their energy was just incredible, and on behalf of Gatubarn I Nepal I would like to express my gratitude for their incredible work and commitment.*

Says Eva Holmberg Tedert

The winning solution
"Digital art gallery for the unseen"

The challenges we tried to fix can be summarizes with these questions:

How can we take that and make it better?

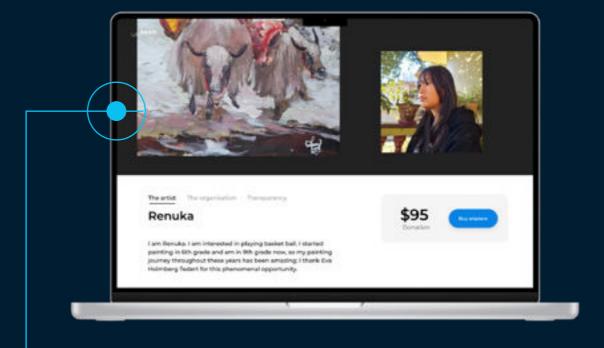How can we make the art more accessible?

What do you think of these pictures?

These are the people behind them. Would you have guessed it?

The solution:

A website where individuals can purchase artworks created by the children in Nepal. The proceeds from these sales will contribute to funding the NGO.

The artist   The organisation   Transparency

Renuka

I am Renuka. I am interested in playing basket ball. I started painting in 6th grade and am in 9th grade now, so my painting journey throughout these years has been amazing. I thank Eva Holmberg Tedert for this phenomenal opportunity.

$95
Donation

Buy original

Prototype of the solution: An online store for art purchasing

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ENABLING A
DIGITAL FUTURE

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