



14-15 MAY 2019

SPODEK ARENA, KATOWICE

# EUROPEAN START-UP DAYS

STEP INTO THE FUTURE



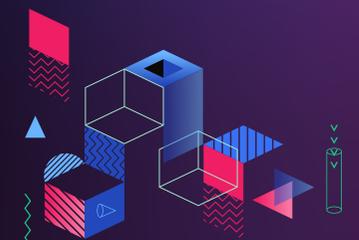
## CATALOGUE

100 most interesting start-ups  
of the Start-up Challenge competition



European  
Economic  
Congress

EVENT ACCOMPANYING  
THE 10TH EUROPEAN  
ECONOMIC  
CONGRESS 2018



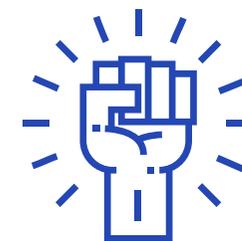
## WHO WILL BE IN THE START-UP SCALE-UP ALLEY AT THE SPODEK ARENA?

Ideas using artificial intelligence, pioneering solutions, products, applications, installations, chatbots – these are just some of the projects that among others will be presented in the Scale-up Alley of 100 start-ups at the Spodek Arena in Katowice, Poland. On 14 and 15 May 2019, alongside the themed sessions and debates of the European Start-up Days, we will witness presentations by participants in the Start-up Challenge. Eighteen selected start-ups (three in six categories) will make presentations on stages and the grand final will select the winners of the largest business event in Central Europe.

Among the 100 start-ups making presentations in the Scale-up Alley during the European Start-up Days at the Spodek Arena, will be ideas from Belarus, Germany, Poland (the largest number by far), Hungary, the United Kingdom and the US. These include ideas for business, such as, for instance, software robots, chatbots – including, for example, supporting people with addictions, solutions using drones, augmented reality, machine learning, tools for automatic data analysis, infrastructure to charge electric vehicles, as well as various ideas in the sphere of medicine, like a navigation application for the blind and the visually impaired, solutions reducing or liquidating smog, or solar solutions – and these are just random examples.

20  
19

START-UP  
CHALLENGE  
WINNER



CATEGORIES:

- BUSINESS PROCESSES** 
- CLIENT & LIFESTYLE** 
- ENVIRONMENT** 
- HEALTH & BIOTECHNOLOGY** 
- NEW INDUSTRY** 
- TRADITION & MODERNITY** 



## HERE IS THE FINAL LIST OF START-UPS IN THE START-UP CHALLENGE IN EACH CATEGORY:

### HEALTH & BIOTECHNOLOGY.

#### MEDICINE, HEALTH, MEDICAL TECHNOLOGIES, PHARMACY, BIOTECHNOLOGY

##### → FINALIST BIOCELTIX

Bioceltix is a biotechnological start-up in the veterinary sector. The company has been developing veterinary biological medications using embryonic stem cells dedicated to illnesses with a high demand for new treatment methods.

The developed technology for therapeutic application of allogeneic mesenchymal embryonic stem cells (AlloMSC) with one donor and multiple recipients supports serial manufacturing of medications without the need to obtain biological material from each patient. With the developed technology, the medication is to be readily available at veterinary clinics to shorten the treatment procedure.

The company has started an isolated technological line to manufacture veterinary biological medications.

##### → FINALIST BIOLUMO

Biolumo is a company set up to commercialise research into a new method for fast antibiotic selection on the basis of automated observations of bacteria survival in the environment of antibiotics. The medical device to be developed will expedite the testing time and can be provided to family doctors – thus, the waiting time for results of antibiogram tests will be shortened from a minimum of 48 hours to only 6 hours. Low manufacturing costs will ensure mass availability of the device to clinics that now have to send patients or samples to laboratories. At the concept development stage, the team consulted private clinics and public health care institutions so that the solution can be best suited to future customers.

##### → FINALIST NOMI BIOTECH CORPORATION

Alcorythm® is the first European innovative preparation to prevent the negative effects of ethyl alcohol consumption, mainly by reducing the

toxicity of acetaldehyde. It is available as a shot formula, i.e. as a small 100ml glass or aluminium bottle in a shrink sleeve label. It has the taste of a tropical fruit and is not associated with a medication or an energy drink. The project is focused on solving the problem of alcohol intolerance among the Asian population. About 50 percent of Asians (over 2 billion people) respond to alcohol much worse than Europeans or Americans. The reason is a genetic mutation which generates an inactive form of aldehyde 2-dehydrogenase (ALDH2). Those people respond to alcohol consumption like alcoholics. Acetaldehyde accumulates in their organism which makes their faces turn red, the heart beats faster, nausea and vomiting appear. Additionally, the inactive form of ALDH2 increases the risk of cancer and reduces the efficiency of nitroglycerin used in the treatment of coronary heart diseases. The trademark alcorythm® is pending registration with EUIPO. The company is drafting a patent application for the formula.



## HEALTH & BIOTECHNOLOGY. MEDICINE, HEALTH, MEDICAL TECHNOLOGIES, PHARMACY, BIOTECHNOLOGY

### 3CLICKS

The mobile applications "3Clicks", which are dedicated to doctors, include the know-how required to support diagnostic and therapeutic processes. The interactive algorithms in the applications are based on guidelines or European scientific associations and have been adapted to Polish conditions.

They support a fast assessment of indications for treatment, selection of an appropriate class of drugs followed by selection of a specific medication. The doctor obtains information on the dose of the medication and any corrections resulting, for instance, from kidney failure.

Currently, there are 18 applications available on the market, used by almost 9,000 doctors of various specialities.

### ADDICTIONS.AI

The addictions.ai system and the mobile application AlkyRecovery support the fight against alcohol addiction. The application will support self-assessment of symptoms that we are not able to identify on our own and will help in calling a person who may provide support.

The core innovation of the proposed system will be the use of advanced artificial intelligence

algorithms and machine learning in order to assess the likelihood of prediction to breach abstinence, commonly understood as a relapse in alcohol addiction treatment. Subject to their consent, users' data will be processed on the basis of emotions and behaviour (NLP), audio and video content, telemedical bands, as well as Facebook, Twitter and Spotify.

### AIDA DIAGNOSTICS

AIDA Diagnostics is software that is able to analyse patients' basic laboratory tests. With its AI module, the software is able to draw conclusions concerning the patient's health condition and medical procedures that may be required. Presently, the company's operations are focused on the issue of blood sales in the health service.

Focusing on low-cost routine tests, the authors of the software are able to analyse entire hospitals for the risk of transfusions of blood or similar materials. The project implements process innovation, optimising the process of blood ordering and the process of blood use at hospitals.

The software is addressed to hospital managers who manage blood banks and to doctors.

### ASSOCIATED APPS

Associated Apps is a mobile application helping the blind and those visually impaired navigate inside public buildings, such as shopping centres, office buildings, airports, railway stations, universities, public administration buildings or hospitals. The software guides users to every selected place within a facility, informs users of any obstacles on the way and any changes that may have been made to the interior. Users may reach another person using the application as long as such other persons are within the same building. Additionally, the blind may contact information/reception desks in the building. They may also call a taxi. The application can be controlled by voice or manually.



## BABYDOC24.COM

Babydoc24.com is a paediatric symptom-checker developed with the use of artificial intelligence. With the application, parents can get a preliminary diagnosis on the basis of the child's sickness symptoms.

The solution will be based on an application or a website to which the parent will input the child's sickness symptoms to receive a preliminary medical diagnosis.

Parents' interaction with the system will be in the form of a conversation with a virtual chat-bot that will interview the parents for sickness symptoms.

The product will be offered in the SaaS B2B model. The first place where the solution will be available includes insurance companies offering subscription-based medical insurance to customers. Use of the product will support insurance companies in optimising their paediatric patients' path to reduce costs.

## BIOAVLEE

Bioavlee is a biotechnological company set up in Wrocław, Poland, which develops solutions that define a new quality of laboratory equipment – the technology will automate the identification process of micro-organisms. With its own patents and developments, the company has been redefining the identification methods

of micro-organisms, which means that the work in laboratories becomes more accurate, faster, cheaper and simpler. The identification technology of Bioavlee relies on the fact that micro-organism colonies manifest specific optical and morphological properties. The properties bring about modifications to the amplitude and the phase of the light bands shed on colonies. As a result of the transformation, the bands diffract on colonies that operate as a lens and thus become information carriers.

## BIOTTS SA

Biotts is a biotechnological start-up developing medical preparations dedicated to such areas of medicine as oncology, immunology or neurology.

The technological team of Biotts has developed their own technology for generating a multifunctional transdermal therapeutic system MTC-Y (Multifunctional Transdermal Carrier-Y). With the unique properties of the system, it is possible to increase the bioavailability of active substances several times enabling active substances to penetrate via dermal barriers down to over a dozen centimetres reaching soft tissues and bones. The developed technology is applied in plasters, creams, and gels. The carriers contain substance mixes that are compatible with layers of human skin, non-irritant, non-sensitising and, most importantly, improve the absorption of medical substances.

## BRAIN CURES

Braincures is a research company the key objective of which is to develop diagnostics and treatment of psychic and neurological disorders, including Alzheimer's and Parkinson's diseases, depression, schizophrenia and others. The platform is to accelerate the development of medications that may be applied in treatment of central nervous system diseases. The entire process is carried out with precision medicine based on the code of brain functions.

Pharmaceutical companies are primarily the start-up's customers. Small and medium-sized biotechnological enterprises are the company's prospective partners.



## BRAINSCAN

Brainscan has developed a radiology atlas – software with which a radiologist selecting the brain parts of the CT image, obtains immediate access to all similar cases with suggested classification. The software relies on machine learning to analyse tests in order to discover and classify brain changes. In effect, the solution will shorten the time and improve the accuracy of test interpretation and ultimately will support early disease detection. The company is now looking for partners that are medical entities which – in exchange for free use of the application over a certain time – will provide access to their anonymised CT databases that are required for further work on AI. Additionally, partners are required that have relations with manufacturers of CT machines to implement the solutions directly on tomographs.

## EVISPINE

Evispine has been developing unique implants for adjustable spine stabilisation by applying methods from the field of robotics/mechatronics and modern biomaterials.

The implants are used for surgery treatment of persistent pain caused by spine degeneration or overload that has become increasingly visible in an ageing society.

Unlike other solutions available on the market, the surgeon may adjust spine stabilisation to various types of diseases for individual patients in line with the concept of personalised medicine. The implants may be adjusted before, during or after the surgery using wireless devices.

## HIGO SENSE

HigoSense is a telemedical system for remote diagnostics based on an innovative multi-sensor device and algorithms of automatic interpretation. At home, physical tests can be made and the results, along with a medical interview, are forwarded to the doctor. The examination includes, among others, recording images of the throat, ear, skin and registration of the sounds from an electronic stethoscope. In parallel, the project covers work on AI/Machine Learning algorithms which are to support doctors in more accurate interpretation of medical data. The company has built a functional prototype. The

final version of the device will be certified in the second half of 2019, while pilot implementations are scheduled for early 2020.

## INTELLESEQ

Intelliseq is a biomedical company specialising in genomics and bioinformatics. Its core objective is to develop innovative methods of medical diagnostics relying on the sequencing of human genomes or exons. In its research and development work, the company has been developing bioinformatic algorithms and tools used to identify clinical genetic variants.

The engineers have developed an automatic system for genome interpretation with the possibility to generate clinical reports for various diagnostic aspects. The system applies the approach of precise medicine in which doctors – who are aware of the patient's genetic predispositions – are able to propose personalised therapy, adjusted to each individual case.



## LIFE SMART

Life Smart is a personalised platform based on IoT sensors and open data, suggesting to the users the best healthy behaviour on the basis of available data and forecasts (e.g. air quality). A prototype of the air cleaner is being developed and it would constitute the first element of the entire platform for IoT devices (e.g. air quality sensors, CO2 sensors, a monitor of oxygen production by home plants). Katoluft.pl portal has been launched as a test to present numbers in a manner suggesting selection of the best suitable behaviour with the current air quality. For instance, on the basis of integration of data from personal IoT devices (e.g. air cleaner), the user may be provided with specific information – a forecast, for instance, that he/she should postpone the morning jog by 30 minutes, since the air pollution will be then 90 percent lower.

## MINDME

MindMe is the first application in Poland to ensure permanent access to online therapy with access to certified specialists. Assistance is offered to persons facing depression, fears, stress, addictions, disorders in nourishment or issues in their relationships.

The product operates on the individual open market; there are over 4,000 users registered

globally and over 100 persons have currently been undergoing therapy.

The application is used by people aged 25-35, facing problems resulting from adulthood. The other group are people aged 40+. They often fight against professional and personal problems.

The authors of the application have also initiated the social campaign #NormalnaSprawa.

## MOFEMA

MoFeMa has developed a mobile telemedical solution for remote electrocardiographic examination (eCTG) of the welfare of the foetus and the mother's condition. ZuzaMed KTG is an innovative miniaturised device for monitoring the condition of the foetus and pregnant women. ZuzaMed reads electrical potentials from the skin of a pregnant woman that are generated from the work of the hearts of the foetus and the mother – it operates using a completely different technology than traditional CTG. As a result, there are none of the erroneous measurements that are a characteristic feature of ultrasound CTGs. Electrical potentials are read by the dedicated software and the results are presented to pre-defined recipients with dedicated software or on a special telemedical platform. The tests may be performed in a medical clinic or at home.

## ONKOLABS

OnkoLABS develops formulas and markets specialist cosmetic skin care products for patients who undergo oncology treatment.

The developed formulas are characterised by a high level of safety due to their minimised content of synthetic interim products and preservatives and total absence of fragrances and pigments.

The company's business also includes education of patients, their families and medical personnel with respect to appropriate skin care during and after the end of treatment.

The potential recipients include patients during and after the end of oncology treatment (individuals, hospitals, hospices and associations). The cosmetics may also be useful for people with skin diseases (psoriasis, atopic dermatitis, rosacea), during or after dermatological or cosmetological therapies, after sunbathing or burns. .





## ORTHOFEET

Orthofeet is a manufacturer of individual prosthetic and orthotic solutions to rehabilitate the human motor system based on spatial print technologies.

The production process relies on three-dimensional designing based on direct body scans and 3D printing technology in the manufacturing process. As a result, the patient gets a customised solution. Customisation offers an opportunity to develop unique solutions in terms of aesthetic production. Therefore, the orthopaedic equipment required for daily life is acceptable to patients.

The core addressees are children with flat and misshapen feet.

## PETHELP.PL

Pethelp offers packets of veterinary care for dogs and cats for the first time in Poland. Animal owners can simply and easily subscribe to veterinary services as is done for human care (MediCover, LuxMed, or EnelMed). The company operates veterinary clinics in Warsaw, Kraków and Łódź. It continues to expand its network by adding new clinics. Pethelp addresses its offer to companies and corporations (as an employee benefit for owners of dogs and cats subsidised by the employer or in a cafeteria system, e.g. Benefits Systems), to foundations and shelters (it supports and promotes animal adoption – every person who adopts a dog or a cat receives the packet free for the first three months or a discount for the selected services) and to individual customers.

## PROTEO

Proteo is a solution implementing 3D printing in the production of pouring stentings. The technology used to manufacture a final pouring stenting is called SLS – selective laser sintering. It assures the required durability and bio-compatibility of pouring stentings.

The design process for pouring stentings is a combination of 3D scan technology and computer aided design (CAD). This minimises the errors related to the production of the key element

of the prosthesis which is the main shortcoming of the standard technology, consisting in “sculpting” in a plaster cast.

The customers (patients) of the company include people with amputated legs, aged 30-90. Currently, the company operates primarily in the province of Łódź. Due to the digitisation of many production processes, the product may be offered to people with amputated legs all over the world.

## UPMEDIC

The upmedic software is an intelligent test editor for faster collection of patients' data and for processing the data into a structured document. Radiological descriptions are made three times faster with the software. The software minimises the risk of errors in areas that may be critical to human life. The product is complete and is continually being enhanced in cooperation with partners. Work is under way on additional functions like: intelligent analysis of the descriptions searching for potential errors, illness identification with AI and intuitive dictation. The software does not have to be patented – the value of the solution relies in its support potential by specialists. .



## NEW INDUSTRY. INDUSTRY 4.0, ROBOTICS, AUTOMATION, PRODUCTION SYSTEMS, NEW MATERIALS, SPACE INDUSTRY

### ➔ FINALIST BRANDEE

Brandee plans to develop and implement a commercial photovoltaic nano-strand that may be woven into various kinds of textiles. It is then to be used at locations with limited access to electrical energy. Among others, users will be able to charge portable mobile devices like mobile phones, tablets or laptops.

The developed technology can also be used, for instance, in the production of beach umbrellas, tents or other textile products.

The project is being developed in cooperation with the Textile Research Institute in Łódź, Poland. The strand is primarily to be implemented in Brandee mobile inflated furniture.

### ➔ FINALIST OPTIMO LIGHT

Optimo Light is a special autonomous lighting fixture. Making remote measurements of lux, the fixture automatically regulates the power of lighting, compensating for external sunlight. The product guarantees the quantity of light at working places compliant with the relevant standard, reducing any excess lighting. Additionally, the fixture transmits all parameters, such as the presence of people, power of the fixture and the number of lux at the relevant working place to a network controller.

Presently, the company sells the product as a project model, which is an effect of global cooperation with architects, building administrators, supervision inspectors and investors at the MVP development and marketing stage.

### ➔ FINALIST QNA TECHNOLOGY

QNA Technology is involved in the development and manufacture of colloidal semi-conductor nano structures and modification of their surfaces. The company specialises in small scale production, offering top quality nano structures that comply with customers' varied needs in different market segments.

The company is undertaking pilot sales of several of its products (QNA.dots and QNA.inks) and continues to work on new products. The following projects are at an advanced stage: top quality synthesis of cadmium-free quantum dots, blue emitting dots and dots for radiating converters that are applied in photovoltaics and plant growing.

The project is innovative both in terms of technology and product. The company has developed a globally unique flow technology providing for repeated synthesis of large quantities of top quality quantum dots.



## NEW INDUSTRY.

### INDUSTRY 4.0, ROBOTICS, AUTOMATION, PRODUCTION SYSTEMS, NEW MATERIALS, SPACE INDUSTRY

#### ADVISERO

Advisero is a start-up that consists of three tools. The first is Wellbot – a solution dedicated to bot development and expanding its competence level. A transparent and intuitive interface makes the process easier than ever before and having no knowledge of programming languages poses no obstacle to developing artificial intelligence. The second is Humanized, with which the team fully controls the operation of bots from the very beginning of conversation with customers. In real time, it may monitor the conversation, its tone and direction and turn bot support on or off at any time. The third is Heartbot – a place that contains data on the bot that is updated every second.

#### DRONHUB INNOVATIONS SP. Z O.O.

Dronhub is an autonomous and mobile garage for drones where batteries can be replaced without human intervention. The time required to replace the batteries is about 2 minutes, the garage is air conditioned – it is resistant to extreme temperatures (from -20 to 60 degrees C). It has its own weather station to monitor weather conditions on an ongoing basis. If a hazard exists, the drones are garaged and charged at

the same time. Communication along the “drone – Dronhub – cloud” line secures drone flights and ensures precise landing which mitigates the risk of damage.

The start-up’s target customers include companies in various industries (mining, railways, construction, land survey, agriculture, power engineering, sea ports, airports, army and border control) that can support their work with drones.

#### GECKOMATICS

Geckomatics is a mobile mapping system to develop and update geospatial information. The technology can be used for fast and inexpensive scanning, mapping the infrastructure and stock-taking of existing resources. Map data is of key importance for infrastructure owners – sea ports, airports, cities, road and railway managers. As a result of cooperation with Geckomatics, companies are provided with a tool supporting regular development of their own spatial information in cloud and resource optimisation as a result of access to transparent and cohesive information. The system reduces operational costs related to damage, safety and maintenance of infrastructure. The product further supports the ability to respond to unforeseen events.

#### ITSILESIA INTERACTIVE

itSilesia Interactive is a tool for multi-position synchronic group training in VR. As a result, the students can experience things that due to safety and OH&S procedures cannot be presented in real life. The solution supports interaction with multiple users and group learning. The system, which has been developed on the basis of a wireless local network, presents the subject of the lesson to students in VR with unrestricted communication with the teacher. Using the application, the teacher is able to provide specific content to students, present that content and verify the students’ knowledge and respond to their questions. The product is in the development stage. The assumptions have been defined and the implementation has been phased out into stages. The company is entering into the production stage.





## LIVEKID

LiveKid is a management system for early schooling institutions in a simple application. The application operates as “all in one” – one system will cover all aspects of school management.

The application may be used by school managers who with LiveKid can manage the children’s attendance and meals. Parents can specify absences and on the basis of the collected information, the application calculates and issues bills that can be paid by parents immediately – in a fast and comfortable manner. Additionally, the application serves as a virtual notice board: it is provided with a dedicated communicator and a notification system.

## SPECTRAL GAMES

Spectral Games specialises in developing AR/VR applications. The company’s offer has been expanded to include applications for industrial companies (Spectral Applications). The solution is a system to support production, assembly and maintenance processes, developed in AR technology, which in an intuitive and simple manner leads employees step by step through the relevant technical procedures. A technician with goggles (AR) can observe what is going on around him/her and receive digital information and visualisations of what he/she can see. Additionally, the application provides for remote monitoring and professional support to mobile maintenance technicians in their work off site. With the image of augmented reality received with the goggles, the expert can see exactly the same things as the technicians working on the problem and may support their work live.

## THTG

Thtg is a platform integrating sales, production and customer service, as well as finances and accounting. As a result, without replacing ERP (Enterprise Resource Planning) all elements of the infrastructure will interoperate. The innovative nature of the solution consists in combining programs that do not cooperate with one system, as well as in adding automatic mechanisms, IoT technologies and AI. Therefore, customers do not have to replace their entire software – existing resources are simply tuned. Companies or institutions employing above 50 staff are potential customers of the company.



## BUSINESS PROCESSES. MANAGEMENT, ANALYSIS, ICT, CYBER SECURITY, LOGISTICS, HR.

### ➔ FINALIST AGIT SP. Z O.O.

V-administrator is an IT product addressed to managers, engineers and administration departments. This is a system relying on VR 3D technology and is destined for investment, administrative tasks and tasks related to facility protection that offers functionalities much in excess of "BIM" technology. The authors have developed a new standard of IT systems named "3I" – Interdisciplinary (on a single IT platform, a combination of construction, financial software, automation and protection), Interactive (all system operations are performed in real time and in VR 3D visualisation technology), Intuitive.

The system is used for strategic management of investment and administrative processes in large and very large enterprises. The IT tool is primarily dedicated to managers.

### ➔ FINALIST PROPERGATE

ProperGate provides innovative software in the form of a web application to manage logistics at large construction sites. It is addressed to investors (developers) and general contractors that are interested in project cost optimisation, in eliminating wasted time and improving the effectiveness of logistics. The company digitises the process of deliveries and monitoring of materials at construction sites in congested city centres. Logistics coordinators and subcontractors are provided with a tool that ensures delivering, unloading and accessing materials at the expected place and time and which is also an effective communication channel.

### ➔ FINALIST SMABBLER

Smabbler is a general artificial intelligence (OSI) which uses advanced language skills to work with text data. The combination of technology with the speed of machine work makes it usable in business processes where the time, comprehensive reading, and effectiveness are crucial. One engine performs multiple language tasks at the same time and may use multiple data sources and processes (e.g. Intelligent Assistant, autonomous analysis and interpretation of legal documents, analysis and classification of customer communication, structuring of text data).

The solution generates measurable results – min. 30% improved effectiveness in text processes, millions in value added for business, shortened handling time of text tasks by 99%.



## BUSINESS PROCESSES. MANAGEMENT, ANALYSIS, ICT, CYBER SECURITY, LOGISTICS, HR

### AI FORCE 1 SP. Z O.O.

The company offers the My Social Seller (MSS) system – a chatbot to sell products and services and to service customers via social media or a web site. The start-up has a tool to teach the bot – Trainer Panel. The teacher transfers a knowledge base to the bot, the chatbot learns on the basis of actual statements, sees the Trainer's work and memorises everything and afterwards services customers or sells on its own. MSS is a technological innovation. Artificial intelligence in the form of a neural network is used to best adapt the sales text to each target group and as a result the chatbot learns the sales process. By identifying customers' intentions and change of a natural language into data understood by algorithms, the chatbot identifies the customers' emotions and is able to react if the customer is dissatisfied. Currently, the company is making its first sales.

### DEEPBRAND

DeepBrand is a tool for automatic analysis of visual content and to acquire marketing knowledge (marketing intelligence). DeepBrand applies top class neural networks using the latest know-how of image recognition models, as well as a number of technological solutions in the field of

machine and deep learning that will fundamentally push forward the potential of data analysis. Recipients will get completely new knowledge about the content published on the web. The service is addressed at business customers – media houses, marketing, advertising, PR agencies, and handling in social media, publishers of research centres, production studios. Currently, the market version of the solution is being implemented.

### DEEPSTRIBUTED

Deepstribut is a web application that supports experts in machine learning in using their private, social or cloud resources of the graphics processing unit (GPU) and make experiments without configuration efforts. The start-up assists in finding and connecting a processor to the application which is followed by GPU configuration. The user decides what experiments he/she intends to carry out.

The costs of experiments in the application are relatively low.

### DIGITAL FINGERPRINTS

Digital Fingerprints is a safety system based on behavioural biometry which protects users in real time. Each product has its own unique model of behaviour resulting from user interaction with the computer, such as mouse moves or typing on the keyboard. The product does not require additional equipment or interaction with the system. It is enough to be oneself to be protected. The service is addressed primarily to banks and state institutions. The product is destined to the global market and the trademark Digital Fingerprints has been registered in the European Union.





### **EBNAVI**

EBnavi is the first SaaS tool on the market to measure, develop and manage the employer's brand. The algorithm developed scientifically and supported by more than a decade of experience in the industry automates the process of preparing the employer branding strategy, helps to determine the strategic direction of activities and gain a competitive advantage. EBnavi allows auditing over 250 processes building the employer's brand and generating a strategic report along with recommendations for further action. Building a strong, employer-based brand is the most effective recruitment strategy. It reduces employee turnover costs and allows you to attract the best talents.

More than 40 international brands from many business sectors have already used the software.

### **IPI COM SP. Z O.O.**

IPI COM is a special purpose vehicle of the Institute of Computer Science of the Polish Academy of Sciences. It has been set up to commercialise innovative IT technologies developed as a result of research in the field of semantic tagging and sentiment analysis on the basis of machine learning, AI, processing of natural language, or big data. IPI COM finalises work on an online tool to monitor opinions on the brand in the web and social media using specific key words

with the function of advanced analysis of sentiment and semantic tagging for the Polish language. The product supports fast searches for answers to questions about the brand, specific positive/negative opinions on the brand. The solution is addressed to individual users, advertising agencies, PR agencies, journalists, marketing specialists.

### **NO.ID**

no.ID is a reply to attempted breaches of privacy in the virtual world. With one click, the user will generate a unique service ID to protect the data in e-mail addresses, credit cards, telephone numbers and address details. Communication between the user and anonymous persons is completely encrypted.

As stressed by the authors of no.ID, the service is a direct response to marketing policies on the web (profiling, sale/purchase of data, a disclosure or breach of privacy of personal data).

The protection provided by the authors of the software covers both individual users and companies (an additional protection layer against phishing/BEC and a mechanism to detect advanced data violations).

### **PROA TECHNOLOGY SP. Z O.O.**

PROA Technology provides and adapt virtual assistants (software robots) that support business processes, autonomously performing routine tasks in interaction with IT systems, MS Office documents or databases. Virtual assistants cooperate with various IT systems via GUI (graphical user interfaces) at the same level as other system users. The robots are based on advanced artificial intelligence algorithms with which they are able to perform complicated tasks on their own – many that are currently carried out by people. Additionally, the virtual assistants are provided with communication mechanisms that support various forms of contact (messenger, text messages, e-mail, chatbot, portal), providing for fast and reliable access to information, data and documents.





## **BUSINESS SIMULATION PLATFORM AOV**

AoV Business Simulation is a web platform of business simulations offering, among others: a scalable tool for remote evaluation of executive staff and teams, a tool for recruitment and employer branding, a tool to manage the executive staff and teams for managers and HR teams.

The AoV method uses advanced business simulations that are to resemble the realism and complexity of decision processes. The simulations are performed in the form of workshops which – subject to the objectives – rely on specific scenarios tailored for individual customers. In accordance with calculations, the platform will reduce logistics costs by about 40%. The product is being developed in Polish and English.

## **SCFO**

SCFO is a FinTech offering a revolutionary solution for financial optimisation that converts obligations into additional profit and receivables into improved liquidity. The SCFO Cloud Platform offers suppliers a choice of a suitable new payment date. This is possible with a Dynamic Discount mechanism adjusting the cost to the new selected payment date. Such automated negotiations provide for full selection flexibility of new payment terms and substantial time savings by eliminating redundant e-mail and telephone negotiations. The product is ready and has been implemented with several customers.

## **WINC**

The cloud system named WinC, or Work in Cloud supervises, controls, manages employees and work in a manufacturing company in real time. On the basis of the available data, the system assigns tasks to employees. Information is input to the system via recorders located in the production area supporting active 24/7 communication by employees with the system. The applied algorithms generate dynamic dashboards for managers to identify deviations and idle time to be corrected on an ongoing basis to maximise effectiveness. The AI and ML module will automate task assignment to employees to implement an identified scenario, like reduction of manhours subject to the dynamically changing production environment – for instance, delayed deliveries of materials. The company has developed the system MVP with fundamental commercial functionalities and will support further system development with new models, including artificial intelligence.



## CLIENT & LIFESTYLE.

TRADE, CUSTOMER EXPERIENCE, E-COMMERCE, FINTECH, EDUTECH, GAMING, SPORT, LEISURE INDUSTRY

### ➔ FINALIST MATRIX DYNAMIX

The company offers a Virtual Desktop with which corporate users will be able to work with several virtual monitors. Additionally, users will be able to input text data in a comfortable and fast manner on a virtual keyboard – the product may also be controlled with gestures that are suited to the context of the operation at hand. Individual users (players) with the patented technology of “VR Preview With Finger Tracking” will be able to play, for instance, “World Scale VR”. Controllers will get the 6dof mode for the SteamVR platform. Other applications of the product include: a software gamepad for any game running on android, androidTV as a game console controlled from a smartphone or drone operator. The company holds a registered trademark and two pending patent applications.

### ➔ FINALIST MOOVLED

Moovled is a young technological and media start-up offering an advanced technology of 3D image presentation. Modern and resistant devices operating in the LED technology can create an impression of image depth which generates unique visual effects.

The company provides comprehensive solutions used in modern multimedia presentations. The applied image media in the form of devices operating in the LED technology create images with an impression of depth. Selected files can also be presented on individual media or displayed on panels of devices in any configuration.

Customers of the system include private individuals and business owners. The first group will expect impressions related to a modern gadget. The other group expect comprehensive services: from delivery of devices to consulting related to designing, performance and adequate presentation of the visual material.

### ➔ FINALIST SALESBOOK

Salesbook is a sales and presentation application for a generation of mobile salespeople whose task is to reach customers, analyse their needs and present and configure the product. The tool is offered in the SaaS model (software as a service).

A tablet with the Salesbook application will be very useful in sectors requiring direct contact with customers. The system combines elements of Sales Enablement with Configure Price Quote as a result of which a beginning salesperson is able to go through the sales process of a complex product.

The application has been used for instance by Prudential to sell life assurance policies, Mercedes to sell cars, BMW to sell motorcycles, Inogy, Fortum, Axpo to sell energy.





## CLIENT & LIFESTYLE. TRADE, CUSTOMER EXPERIENCE, E-COMMERCE, FINTECH, EDUTECH, GAMING, SPORT, LEISURE INDUSTRY

### 1KOSZYK

1koszyk automates and optimises online sales, combining all stages of a purchase process: adding products, automatic calculation of delivery costs, ordering a courier straight from the application, generation of waybills and integrated on-line payments. The platform integrates various e-commerce and m-commerce solutions. It offers absolute freedom in selecting sales channels, while assuring maximum simplicity of use. 1koszyk responds to the requirements of contemporary customers who are increasingly interested in buying over the phone and is compliant with the multichannel trend. The platform is ready and in operation on the market – it is being continuously expanded with new functionalities, also as a result of comments made by its existing users.

### UNICOACH TRAINER ASSISTANT

Unicoach Trainer Assistant is a system supporting management of football clubs, academies, teams and facilitating the work of a football coach. The system supports the planning and carrying out of sports training and the collection of all documents of the process at one location. The system includes such modules as: Club, Games,

Players, Injuries, Statistics, Calendar, Graphics and Animation Creator, Syllabus Creator, Multimedia library, Parent and Player Module. The solutions can be used not only by sports club managers or coaches. Access to the data is also provided by players and parents who can monitor the progress of training. Additionally, the Multimedia library of exercises is a vast database of training techniques in the form of graphics, animations or videos. The system can easily be used in other sports disciplines.

### CHATBOTIZE

Chatbotize is a tool to develop chatbots (e.g. for Messenger) on the basis of ready modules, without having technical know-how. The product is addressed to marketing and customer service departments. By March 2019 Chatbotize generated nearly PLN 500,000 in net revenues. The company has customers in Poland, Slovakia, the Czech Republic, Romania, Kenya and the UK. It maintains its focus on the Polish market; however, it plans fast development in South America and Africa.

### EMPATHY

Empathy is an educational platform relying on AI, dedicated to students and teachers. It is supported with artificial intelligence in the form of a digital mentor that may provide feedback and additional resources – apart from already transmitted content. It provides easy access to courses, materials and supports cooperation. The key innovation of the mentor is the fact that it is personalised and tailored to students' needs. It can be accessed with voice or text commands. The System is available 24/7. Additionally, the platform is adapted to students' interests and needs. The company already has an MVP (Minimum Viable Product).

### FALAR

FALAR is a start-up specialising in the practical use of augmented reality (AR). The company has developed an application to replace paper assembly instructions with digital instructions displayed in AR. Three-dimensional elements to be assembled are displayed in motion with 3D animation. The AR mode ensures natural and precise reception of the activities. The benefits for brands primarily include reduced handling and complaint costs, as well as distinction





among competitors and positive impact on sales. By using the application, it is possible to reduce paper consumption (ecology). The application is destined for new generation devices with Android and iOS (Apple). This year the company plans its first implementations.

### **FAMILII MEDIA**

Familii Media is the author of a modular educational robot named Boxlil. The robot teaches and entertains without distracting view, providing children with access to safe, unrestricted, and interactive digital content. One of its uses is support to children in reading books. Other applications of the robot open access to various possibilities without a screen, for instance: foreign language learning, interactive audio games and board games, interactive figures, collection cards, etc. As the authors stress, the robot is a response to the main problems faced by parents of small children, including, for example, addiction to screens and toys of single use – which is an economic and ecological issue.

The robot is addressed to children aged up to 10.

### **FRECADO SP. Z O.O.**

FiFiFo (Find Fit Food) is a smartphone application and a website supporting informed shopping in food stores. After setting of nourishment requirements and preferences (e.g. by excluding food allergies and digestive intolerances), users of the application get an analysis and assessment of food products. The application covers about 40,000 products. Application users can scan bar codes of products while shopping and have them analysed. If a product is value low, a substitute product is proposed with a better composition. The application and website primarily use people who want to or have to consume food in a knowledgeable fashion. The application also ensures product selection for vegetarians and vegans.

### **HEAVY KINEMATIC MACHINES SP. Z O.O.**

Heavy Kinematic Machines is developing a SOLO Workout Tracking System. This is a system to monitor the progress of people exercising at gyms or fitness clubs. The authors have developed a system of sensors that, when connected to the application, collect data on the completed exercise – counting series, repetitions, time or controlling the person's weight. The exercising person logs into the device for exercising/dumbbells with NFC in the telephone, wrist band,

watch or glove. They can monitor the exercise on their mobile device in real time. Currently, sensors are being developed for machines and dumbbells, as well as sensors for barbells and cardio devices. Solo Workout Tracking System is to be the first product in the world to integrate all kinds of exercises at fitness clubs using mobile devices.

### **HPROX**

The Hprox proxy network is a solution offering a settlement model of transfers between customers and providers of IT addresses with cryptocurrencies. The company is developing a high scale proof of a stake blockchain for cryptocurrency transfers between users in a fast and secure manner. The product will provide unrestricted access to content and information and ensure privacy in the web. The company claims that the solution is becoming popular due to the revolution in hosting by offering the cheapest service in the market, departure from the existing settlement models offered by competitors by selling transfer packages. The company is the only one to have developed a transactional platform for IP providers who, for the disclosure of their address, are paid in the form of a portion of profit.





## INFLUDB

InfluDB is a tool called “Wikipedia of YouTube bloggers”. This is a search engine of the most suitable vloggers for further commercial cooperation. The company is registered in the US and is able to search for youtubers over there. The project relies on lack of solutions for business people interested in promoting their products on YouTube. It is destined primarily for small companies of which 71 percent are willing to promote their products by influence marketing. InfluDB offers a possibility to see those youtubers at one place who have over 5,000 subscribers in the channel. The tool is scalable, and there are no territorial or language restrictions. In the future, bloggers will be added not only from YouTube but also from Instagram, Facebook, or even Chinese social networks of similar content and advertising mechanisms.

## NAWIGUJ.COM

Nawiguj.com is an application leading directly to plots of land with multiple additional functions (like showing plot borders in real time during presentation). The application is composed of two synchronised parts of the platform and a phone application. The first of them has been designed mainly to be operated in an office. It supports the management of properties, enhances communication with subcontractors

and makes locations of properties available to customers. A mobile addition is an application running on Android. Together they form a strong solution to face the challenges of today's sales. Nawiguj.com is used primarily by estate agents and customers looking for properties to purchase, persons offering services related to property marketing, e.g. photographers, home stagers, cleaning companies and fitter of advertising boards and banners.

## PEYT

Peyt is a mobile application to manage and pay invoices and other payment documents without the tedious copying of data. The application uses artificial intelligence algorithms and the functionality of finger movements on the smartphone display, therefore, the user will be able to input and pay for hundreds of documents within a very short time without the need to copy data. The application has been fully developed – it is pending commercial implementation. The Company has trademarks and industrial designs in the EU and all copyright to the application.

## SAVECART

SaveCart is a solution addressed to e-commerce. With the collected data, the system reaches specific recipients with a personalised marketing campaign.

The next step will be a system to search with an image to allow browsing through the assortment of all shops cooperating with the system. It will be possible to display recommendations of products on web portals and there will be a search option directly from video footage. The service recipients are primarily entities operating in the e-commerce market: web stores, entities offering services or products for e-commerce, information portals and media platforms.

## SIM FACTOR SP. Z O.O.

SIM Factor cover products using modern technologies (including virtual and augmented reality) that support specialist training. The products can also be used in daily work in professions requiring precision, know-how and decisions (e.g. holographic operating manuals of advanced devices). The core products of the company are as follows: TKSIM – the most modern railway simulator in Poland, and VISARD – a tool supporting maintenance processes of advanced devices with holographic instructions (like the mobile airport charger for F-16 fighters). In training, the use of the solutions will save money and resources. The speed and quality of the work area is improved.





## WEARFITS

WearFits is a technology for adaptation and photo realistic presentation and animation of clothes, on any type of a woman's body. It allows precise digital models of clothing to be tried online and in augmented reality. At this stage, the technology support clothing digitisation on the basis of puncher and a physical item. The application is able to develop a digital three-dimensional model body, reproducing each dimension. The simulation is presented in the form of a high quality animation. The data generated from the simulation is used to adjust and project the comfort of the use of clothing. The offer of WearFits is addressed to apparel manufacturers and online stores.

## ZWERYFIKUJFIRMĘ.PL

The company has developed a tool for automatic analysis of financial data from JPK (Standard Audit File-Tax) so that the financial reliability of enterprises can be verified in a short time. Financial statements made only by 10 percent of entities, contain obsolete data when published. The remaining 90 percent of enterprises do not publish reliable information. With ZweryfikujFirmę.pl, entrepreneurs are able to assess their counterparties and make more accurate business decisions. As a result, they will lose no money due to issues concerning collection of receivables. The solution may be implemented by banks, credit unions (SKOKs), factoring and lease companies to assess their customers. The company has completed a successful pilot study at Bank PKO BP and a factoring company.

## XOXO WIFI

XOXO WiFi is a small, simple router that user may put in their pockets and enjoy private safe Internet at any place in the world. With the patented technology, the router gets connected to the best operator in the location of the customer, providing a fast, reliable 4G LTE connection. The hotspot can be used to connect up to 5 devices such as smartphones, laptops, portable consoles. This means that the Internet can be used in over 130 directions from all over the world and to make phone calls. Since September 2017, XOXO WiFi has been generating profit from rental to retail and business customers.



## ENVIRONMENT.

### ENVIRONMENTAL PROTECTION: TECHNOLOGIES FOR THE CLIMATE, ECOLOGICAL CROPS, SMART ENERGY, USE OF RAW MATERIALS, WASTE RECYCLING

#### ➔ FINALIST MAKEGROWLAB

The product offered by MakeGrowLab is a vertical Farm SCOBY – a material that renews in a short time and is fully biodegradable that can be used to manufacture disposable packaging to replace plastic, textiles, or interior products. SCOBY can be grown on waste, in premises without sun energy which makes it stand out among the fast renewing materials like algae or bamboo. SCOBY has been sold for the first time and a project for an automated vertical farm is being researched. Additionally, MakeGrowLab offers assistance in implementing circular economy for enterprises.

#### ➔ FINALIST SYNTOIL

Syntoil has developed an economical method for processing tyres and rubber waste into industrial products operating in circular economy. This means that the processed tyres are used to manufacture rubber products. Therefore, it is possible to reduce the consumption of raw materials by using recovered materials. The solution may help in combating the burning of used tyres all over the world. Every year over one billion tyres are replaced which translates into over 13 million tons of waste annually. Only a small portion of the tyres are recycled by retreading, burning in cement plants, or used to reinforce road embankments. However, the methods are inadequate to solve the issue of waste caused by discarding used tyres.

#### ➔ FINALIST VIRTUAL-AGRO-SYSTEM

Most probably this is the first global product to manage the cycle of plant fertilising and vegetation in VR technology. Management relies on specialist agricultural drones that are used to collect information on the condition of crops, they control fertilisation and vegetation processes. Work of drones, chemical analyses, ordering of fertilisers and analysis of vegetation is performed with a special program using a telephone application. The system has been developed as a result of an analysis of the existing fertilising and vegetation monitoring technologies which have shown that the existing methods are incomplete, energy consuming and have an adverse impact on the environment. The VAS system is being prepared for automatic docking and charging of drones and for filling the tanks with fertilisers.





## ENVIRONMENT.

### ENVIRONMENTAL PROTECTION: TECHNOLOGIES FOR THE CLIMATE, ECOLOGICAL CROPS, SMART ENERGY, USE OF RAW MATERIALS, WASTE RECYCLING

#### AQUARES

AQUARes is a start-up offering a retention and energy system which allows urban environments to adapt to climate changes (such as torrential rain or drought). The system retains rain water in areas of dense urban developments.

The retained water is used to produce electrical energy which will be used for external lighting and irrigation of plants. The solutions proposed by the company are addressed to cities that have problems with storm water drainage and to developers.

#### BZB UAS

BZB UAS has developed an unmanned air system ekoSKY UAS. This is an innovative drone, a dedicated control application and software to process data. A Vertical Take Off and Landing (VTOL) aircraft ensures operations in difficult terrain conditions. It requires just 5 minutes to take off and land. Four-hour flights and the range of 40km support large area operations. To ensure safety, a special system has been developed to control the drone and signals for which a patent is pending. The BZB Planner application minimises the operator's impact on the drone's

behaviour. The software to monitor agricultural and forest areas (using multispectral maps generated in drone flights) provides for applying variable fertiliser dosing, identification of hunting damage or areas destroyed by fire, storms, or forest animals. The results are recorded as .pdf reports. In June 2019 the company plans to start selling the product. Currently, the system is tested and preparations for its sale are under way.

#### CLEAN WORLD ENERGY SYSTEMS SP. Z O. O.

Clean World Energy Systems offer solutions in the sphere of power generation, waste processing and transport.

The implemented technologies meet the most demanding environmental requirements. Until recently, the authors have been developing solutions relating to highly efficient production of electrical and heat energy; construction of generating sources of electrical energy with zero emissions of CO<sub>2</sub>, NO<sub>x</sub>, dioxins, and furans; industrial production of ammonium compounds, including artificial fertilisers in low CO<sub>2</sub> emission technologies with the use of biomass, or manufacture of modern industrial drives.

During the European Start-up Days 2019, the TBRC technology presented will be used to regasify liquefied gas (restoration of the gaseous state) with simultaneous recuperation of cold energy and electrical energy.

#### DCX

DCX is a company operating in the sector of warm direct liquid cooling with a complete portfolio of liquid cooling systems. The company has been focusing on developing and selling product lines such as: direct liquid cooling, immersion cooling in dielectric liquids (two solutions – enterprise class system and basic system); edge datacentre – systems of container server facilities with liquid cooled casings and energy storage systems. ILC DCX is a system using a vertical vat arrangement, thanks to which the density of the IT infrastructure and space use can be much higher than in the case of standard solutions. Additionally, the system can potentially use the most modern non-conductive nano coolant in the market.





## DEGRUM

The company manufactures Green Stops, or smog-free zones. The structures will provide an opportunity to stay in a smog-free atmosphere, irrespective of the air condition outside – offering actual enclaves of clean air. The technical innovation consists in a combination of filters and fans with the technical structure of stops ensuring tightness and therefore clean air is kept inside the stop despite unfavourable conditions outside. Air curtains are a specific innovative solution that ensure tightness and eliminate the door as an obstacle.

## GREEN HEAT

Green Heat is a home power cluster to heat houses and blocks of flats with electrical energy at low cost due to blockchain technologies, heat recuperation from distributed network servers and energy from renewable resources, such as home wind turbines and PV installations. A complete prototype is having its first customer tests. As a result of its R&D work, the company has developed a patented oil propeller used for cooling, muting, overclocking of electrical devices and heat recovery. Additionally, the company has been implementing a process of alternative heating of buildings with the aim to reduce low emissions and smog in agglomerations.

## GROW-SPEC

Grow-Spec is a Polish-Chinese operation in LED lighting. The offer contains fully individualised lamps and entire lighting systems for various types of plants.

The lamps can be used in growing herbs, ornamental flowers, vegetables or medical cannabis.

LED lamp systems in a fully individualised light spectre ensure not only optimised energy consumption, but also delivery of the exact light spectrum to plants, which is compliant with the user's objectives. The products are addressed to individual users, greenhouse owners and to R&D institutions.

## HEATMINER

HeatMiner is a specially designed tank with innovative propellers supporting effective oil circulation to recuperate heat and transfer it to heating systems of homes, apartments or swimming pools. The modular solution can be used to connect up to 40 tanks. HeatMiner recuperates heat from any electronic device to be transferred to the home heating system. Waste energy will be recuperated, stored and transferred for its re-use, as a result heat and hot water is obtained for free. Additionally, it extends reliable operation of electronic devices – it protects them against dust, dirt and overheating. It also

reduces the noise generated by devices by several dozen decibels, recovers heat evenly from each part of each device and supports overclocking of processors in electronic devices.

## HOP.CITY

JedenŚlad is developing a system of Bateriomats® – an infrastructure to charge light electrical vehicles: bicycles and scooters. The solution will be characterised with its universal standards – battery packs (from 24V to 72V) and connections compatible with various vehicle brands. Each bateriomat will charge a vehicle or charge a spare battery pack or offer battery swaps by inserting a discharged battery and immediately taking out another charged battery operated in the same standard. The innovative nature of the project is as follows: the universal nature of the applied battery packs and connections, implementation of a dispatch system to manage fleets for B2B customers, an innovative BMS system, an innovative software system (SaaS) to integrate and use the solution as universal package machines (product innovation).





### INEO LAB

The main product offered by the company includes precise agricultural recommendations and detailed statistical analyses of the selected areas for production potential of specified crops. The multi-module application uses various data to enhance spatial and time resolution and the accuracy and reliability of agricultural recommendations. The innovation consists in using a new method of data combination and analysis. The work is based on satellite images and continuous signals recorded by terrestrial sensors. The proposed teledetection methods are objective and not subject to subjective assessment.

### INTELLIGENTNE ULE [INTELLIGENT BEEHIVES]

Intelligentne Ule will solve the problem called Colony Collapse Disorder and the “Empty Beehive Syndrome” that occurs primarily in North America, China and many European countries. The effects are clearly visible not only for beekeepers, but indirectly for every human being. Bee dying means less pollinated flowers and therefore smaller crops of vegetables and fruits. The situation is to be resolved using the application for remote monitoring of beehive condition. The friendly interface provides for visualisation of information on the temperature at each storey inside the beehive, its weight, air contamination

level, humidity at the top of the beehive, location and alerts on any anomalies such as sicknesses, swarming or bee undernourishment. Additionally, with machine learning and on the basis of scientific research, the application analyses the collected data and offers conclusions providing for a fast response. This is a tool that will be useful for owners of large apiaries and beekeeper amateurs.

### P3T STUDIO

P3T Studio wishes to solve the problem of PET waste disposal. The product will be used to process used PET bottles into a material for 3D printers 3D (filament). It will be dedicated for schools, scientific circles, design offices and individuals. Using P3T Studio, it will be possible to reduce printing costs by processing bottles and erroneous printouts. As a result, the quantity of generated waste will be reduced. As the authors claim, there is no such device on the market. Prototypes are developed, but so far no one has decided to go into large scale production. P3T wants to be the first company on the market to do that. It assumes that it will attract customers in a simple manner and develop its idea (maintenance, accessories and in the future – devices for recycling entities).

### REI VISION

REI Solar Tracker is a device that directs receivers so that their surface is at an optimum angle to the sun. Receivers are usually photovoltaic panels, parabolic photovoltaic troughs, Fresnel reflectors, lenses or Heliostat mirrors. Rei consumes 30 percent less energy than other solar trackers of the size. The product is dedicated to owners of properties in moderate climates that have the shape, location or size preventing the installation of a number of photovoltaic modules corresponding to their needs. The property may not be shaded with high-rise buildings and the demand for energy should be higher or equal to a three-person family in medium developed countries. The estimated number of customers is about one billion interested at least in one set. The company has a patent application with the Polish Patent Office and in the PCT system. It has also estimated the related production costs.





## ROLNIKON

RolnikON is software destined for agricultural households. Currently, there are over 12,000 users of the system. The software is provided with a financial, storage module, machinery module, modules covering crops, cattle, pig, goat and sheep breeding, fertilisation and employee management.

Depending on the used model, implementation of RolnikON may be an organisational innovation (e.g. management with means of production, financial analysis with an accuracy to a single field, keeping the mandatory documentation) and a process innovation (e.g. calculation of fertiliser dosing and fee dosing for animals). At the end of 2017 the software attracted a sectoral investor – Chemirol (one of the three largest distributors of means for agricultural production in Poland). In 2018 the system was made available to the dairy cooperative OSM Koło.

## SHOWIR

ShowIR is an infrared-based solution to save energy and water. The core objective of the product is to ensure effective comfort during shower. The product uses low-energy infrared LED diodes to improve heat transfer from the body to the shower cabin. This way, consumption of hot water is reduced. It is worth adding that heating and hot water account for 60 percent of

annual expenditures. Water used for bathing accounts for 30 percent of water consumed in households. With ShowIR it is possible to reduce costs and care about ecology.

## SMARTTA

Smarttta manufactures solar devices fuelled with solar energy. The products are addressed primarily to cities that follow the Smart City idea. The core functions of the “Green products” developed by the Smarttta team include: charging of electronic devices, AudioGuide, Internet, repair stations with compressors, weather stations or mosquito deterrents. The devices have embedded batteries which – combined with a photovoltaic panel – may power devices without using energy from the panel. Each product has been provided with an opinion on its innovative nature issued by the Jan Długosz University in Częstochowa, Poland. The company offers: Green Charger Prestige, which looks like a tree, and the Green Bench.

## SMOGBUSTERS

Air Filter by Smogbusters is an accessory to air conditioners with an additional function of air cleaning. This is an innovative way to fight PM2.5, PM10, bacteria and other contaminants. The retail price is to be several times less than the cost of an air cleaner. Its additional advantage is the

fact that it does not require an additional power source or additional space. The product may also be customised in terms of design or colour so that it can suit any interior. Additionally, the product may encourage customers to use air conditioners to heat their apartments in winter time, thus contributing to reducing emissions.

## SOLHOTAIR

Solhotair is a solar technology that offers effective heat generation by converting solar energy into heat energy in air collectors. The solar panel heats premises in winter time and provides process heat required in industrial processes. The panels may be fixed on walls or roofs of buildings, they may constitute an element of autonomous solar biomass dryers, as well as grain, hop, fruit, champignon mushrooms, herb, coffee dryers. In the opinion of the Institute of Heat Engineering of the Warsaw University of Technology, the technology applied to develop the panels is a product innovation which opens the heating market to solar technologies. The panels use technological innovations, e.g.: turbulent flow and an innovative insulation material.

## “SUBZERO” SMART METERING SYSTEM

SubZero is an intelligent readout system. It supports the implementation of the service in a fast and inexpensive manner, irrespective of the





existing measurement infrastructure. As calculated by the authors, the implementation of SubZero will generate savings for each Pole or foreign user.

Additionally, the system provides new functionalities: multiple tariff application, cost simulation, alert notification, reduced energy and utility consumption by improving ecological awareness.

SubZero provides customers with a tool for independent management of consumption and readouts at one's own facilities (housing communities, hotels, leased premises, closed communities).

### TECHNOLOGY OF CLEAN BURNING OF SOLID FUELS

The idea of the start-up is to develop a device and clean burning technology for solid fuels. The start-up is to be treated in two aspects. The technology and a prototype of devices up to 300kW powered with pellets have already been developed. Currently, further development is under way. The other sphere is combustion of coal dust in industrial power engineering. The technology applied for high powers is based on an extension of primary measures. The pure combustion technology of solid fuels, as well as the device used in furnaces, boilers, heaters and other devices (with and without diaphragms) are patent-protected in Poland.

### TRASH TECH

Trash Tech is a start-up offering waste sensors based on image analysis. The key element of the system is an algorithm that calculates the filling up of containers or automatically identifies containers. With Business Intelligence software, it is possible to analyse optimum routes or calculate the time by which the container may be filled up. The plans include the development of a combination of waste sensors with specialist sensors to monitor hazardous waste. The authors claim that the sensors will reduce "idle transports" which will reduce CO<sup>2</sup> emissions and costs. A possibility to monitor hazardous waste will reduce and finally liquidate illegal storage of such waste. The system can successfully be used in other sectors, like logistics, collection of clothing, etc.

### WAAM

Waam is a Polish Reverse Vending Machine to collect returnable packaging. The device is characterised with innovative mechanical solutions that support better waste collection. Additionally, an unconventional combination of a dedicated application offering games with the machine, creates the first world game console in which the collected waste is used as a virtual currency. With the collected currency, users will be able to make their dreams come true in a virtual world

– all that as a result of collecting waste and depositing it in our device. The profit generation system for investors is also revolutionary – selected products or machine locations can be awarded points, while increasing sales of goods. Furthermore, valuable marketing information can be collected.

### WBH-A STASZÓR SP.J.

WBH-a Staszór has developed an innovative wind turbine for prosumers and small companies.

The wind turbine has 97 percent aerodynamic efficiency (Betz limit). Additionally, 90 percent of the value is reached at very low wind speeds. Due to its efficiency, it is a more compact structure that may compete against much larger units. The core customers of the product include households and enterprises that expect higher power products than those currently offered in the market, while ensuring higher product quality.





## TRADITION & MODERNITY.

### TRADITIONAL INDUSTRY, POWER GENERATION, TELECOMMUNICATIONS, TRANSPORT, CONSTRUCTION INDUSTRY

#### → FINALIST HYPER POLAND

Hyper Poland is a start-up offering a new means of transportation to carry people or cargo at very high speeds, based on a sustainable transport concept. The developed Hyperloop is a combination of a train and aircraft (as calculated, the trip from Kraków to Gdańsk will last 35 minutes at a speed close to the speed of sound). The vehicle capsule travels in a special pipe with very low pressure inside as it is at the height of 10 kilometres – air resistance is much reduced. The vehicle travels without contacting the surface, using magnetic levitation and air bearings. The technology provides for upgrades of the existing railway infrastructure up to the speed of 300km/h with reasonable costs (cost estimates in Central and Eastern Europe begin at about EUR 6m per 1 kilometre of such infrastructure).

#### → FINALIST SGPR.TECH

Spectral Georadar (SGPR) – with a broad range of frequencies within one cycle – provides for much more accurate and comprehensive information on the structure of the examined soil or facilities. The effect is similar to multi-colour perception of the visible spectrum of light. The perceived colours provide for recognition of light reflecting facilities and deliver much more information on the nature of the perceived facilities. The developed software will support information analysis and modelling of such data. So far the company has not patented its deliverables, but intends to do so. The target market of the solution covers large international corporations to small enterprises.

#### → FINALIST TALK-A-BOT

The company provides chatbots (chat robots) that fill in the communication gap between employers and employees or between companies and customers. They are adapted to users' needs – the offer is made in 100 languages. At the moment, the company operates on a local market – it has 30 Hungarian customers from various sectors: banking, production, health care, e-commerce, marketing and insurance. The company cooperates with large corporations: Microsoft, Viber/Rakuten, techStars, PayPal. Outside Europe, the company operates a branch in Singapore. The company plans to expand to other markets.



## TRADITION & MODERNITY. TRADITIONAL INDUSTRY, POWER GENERATION, TELECOMMUNICATIONS, TRANSPORT, CONSTRUCTION INDUSTRY

### BIGCON

BigCon is an idea providing for the development of an innovative form of transport. This is a concept of unmanned trucks driven by drivers using VR goggles, 360° cameras and a system of satellite connections. The project is addressed to transport companies that are looking for innovative solutions and willing to use unconventional fuels. The authors want to launch a system that will support drivers in driving trucks in a remote manner from their base. The company will offer premises at their site from which drivers can control real vehicles. The idea was appreciated at the League of Young Logisticians organised by the University of Economics in Katowice, Poland.

### KOM-STAL TRADE SP. Z O.O.

Kom-Stal Trade means the implementation of innovative monitoring of connections of conveyor belts. The core objective of the project is to project the potential of breakage of connections of glued belts. The customers include entrepreneurs that use various types of belts: mining, metallurgy, ports, cement plants. The developed monitoring system notifies in advance of the need to repair the connections in order

to avoid unexpected rupture of belts and damage to conveyors, as well as costly and time-consuming interruptions to production.

### NEW WALL

New Wall is a system of wall coverings that is composed of supporting elements and decorative panels. An innovative aspect of the system is the fixing process thanks to which it is possible, at any time, to change the appearance of the walls: each panel may be installed at various distances from the wall, panels may be transferred to other places – when several colours are ordered, the possibilities to change the appearance of walls are unlimited. The system is modifiable which means that panels may be dismantled and used at another place. The panels look like large bricks. The panels are not glued to the wall, but fixed in systemic clamps so that they can be removed at any time and replaced with other ones, for instance, in a different colour.

### T-3S IMPLEMENTATION

With the T-3S technology, facilities can be constructed within a competitive time and in large numbers. Elements of the T-3S system are rectangular and flat, fitting for seamless connections. Assembled as a wall or floor, they provide fitting reinforcements inside in compliance with the standard requirements concerning spacing and encasement. The innovative nature of the project consists in an innovatory modification to the shape of constructed elements and reinforcement so that the installation requires less human work and equipment. The anticipated results include reduced labour by minimum 80 percent in the construction of the developer stage, a reduction of mortar and plaster by almost 100 percent and reduced quantities of materials to manufacture system elements – overall resulting in a minimum three times shorter construction of buildings. It will reduce the costs by a total of more than one third.

