THE FUTURE OF THE CONSTRUCTION INDUSTRY – INNOVATIONS IN FOUNDATION ENGINEERING

An innovative foundation system for single-family homes and small structures.

The system combines labeled prefabricated components, standardized technology, and a modular design suitable for mass production.

The system will also include standardized data and procedures for the survey, design, and cost estimation of each specific project, which will significantly standardize and streamline the entire process of initiating construction projects.

Unique Selling Points:

- Reliability and Speed
- CO2 Savings
- Thermal Insulation
- Intuitiveness

Product

Building Foundation System

Technology readiness

Development

Proof of concept

Prototype

First implementation

▶ Extensive implementation

1/2025 B2B B2C

www.zakladyryc.cz

SOLENE CLOUD

Product

Software as a Service (SaaS)

Technology readiness

Development

Proof of concept

▶ Prototype

First implementation

Extensive implementation

A Cloud-Based Platform for Simulating Outdoor Thermal Comfort in Cities

ECOTEN digital solutions manages and develops a software tool used for virtual simulations of outdoor thermal comfort in cities. It can work with both existing and planned urban developments, thereby helping architects adapt cities to climate change. SOLENE-cloud will be a new cloud platform that makes certain features of this simulation tool accessible to anyone, anywhere. This will allow architects in every city around the world to virtually assess outdoor thermal comfort in their urban planning projects.

Unique Selling Points:

- Simulation of a complex set of physical phenomena.
- Any time frame.
- Global availability.

1/2025 B2B B2G

solene-cloud.eu

INEF BIOP

Organic Plant Protection for Every Home Gardener, Gardener, and Farmer

NEF BioP is a company focused on research and development in the field of biological plant protection products. It was established at the Biology Center of the Czech Academy of Sciences with support from JVTP in České Budějovice to facilitate the commercialization of our research results. The company has now had three nematode- and fungus-based soil products on the market for three years and is currently working on the development of several others. The incubation program focuses on two new products: one based on nematodes and the other on entomopathogenic fungi, which will effectively expand the current portfolio.

Unique Selling Points:

- Not only manufacturing and sales, but also consulting services for the public.
- We are the only ones in the EU who use nematodes to control slugs.
- We offer comprehensive solutions for diseases and pests.
- Our products are based on the research findings of Czech scientists.

Product

Biological Plant Protection

Technology readiness

Development

Proof of concept

Prototype

▶ First implementation

Extensive implementation

1/2025 B2B B2C

PLASTIC GUYS

A new furniture brand with recycled materials.

Plastic Guys is a Brno-based company founded by architects Ondřej Venclík and Marc Aulisá, which produces sustainable, design-oriented boards and products (furniture, tiles, accessories) from recycled plastic waste, thus showing the value of plastic and avoiding its disposable use. It creates unique materials with different textures from locally collected plastics that are further recycled.

Unique Selling Points:

- A new material in the furniture industry and architecture.
- A new sustainable material that is 100% recyclable as it is only plastic.
- As Plastic gys, we have the largest production format in the world.
- We can save the planet from plastic waste.

2/2024 B2B B2C

plasticguys.cz

Product

Furniture made from recycled materials

Technology readiness

Development

Proof of concept

▶ Prototype

First implementation

Extensive implementation



WASTE DIGITAL

Product

IoT hardware / Applications

Technology readiness

Development

Proof of concept

Prototype

▶ First implementation

Extensive implementation

Waste collection optimization based on IoT sensor data

Waste Digital is an IoT startup focused on smart waste management, founded in 2023. We design and manufacture our own hardware and software – in particular, fill sensors that are installed in waste containers and continuously measure how full they are. The data collected is translated into practical outputs for collection planning in the platform: helping to optimise routes, reduce unnecessary trips and keep costs under control. The solution is used by municipalities, waste management companies, as well as plants and production sites.

Unique Selling Points:

- Up to 30% lower collection costs thanks to planning according to actual container capacity.
- Prevention of overfilling – early warning and prioritisation of collection of problem areas.
- We develop and manufacture our own hardware and software – sensors, platform and other modules in-house.
- Container data → action plan – automatic recommendations of routes, trips and priorities in the platform.

2/2024 B2B B2G

wastedigital.cz

GLOBAL WATER NANOTECHNOLOGIES

Optimized formulation with iron nanoparticles for very fast and effective purification of contaminated water

Global Water Nanotechnologies is a spin-out of Palacký University in Olomouc, using a formulation for the unique application of highly reactive iron nanoparticles in the treatment of highly contaminated industrial/wastewater. The chosen approach enhances and especially accelerates the effect of iron nanoparticles and is highly suitable for very fast and effective removal of dissolved contamination: toxic metals and organic substances (micropollutants based on drug residues, pesticides, etc.). The resulting technology will be suitable for process plants or for dealing with industrial accidents and the consequences of natural disasters.

Unique Selling Points:

- A new product that extends the use of iron nanoparticles into new areas.
- A product optimized for fast and highly efficient purification of polluted waters.
- A global solution applicable to the treatment of a wide range of waters and the removal of different types of contaminants without geographical limitations.

Product

Materials for water remediation

Technology readiness

Development

Proof of concept

▶ Prototype

First implementation

Extensive implementation

2/2024 B2B B2G

www.gwnano.com

COOLTIVATION

COOLTIVATION

Controlled cultivation of special medicinal herbs

At Cooltivation, we develop and test the optimal way to grow medicinal herbs. Our solution emphasizes quality, high active ingredient content and year-round production in a vertical, substrate-free system. It allows the cultivation of herbs that are rare and unavailable in this country and in Europe, thus solving the problem of the difficult availability of these herbs, which are often adulterated or imported in low quality. We bring an innovation in the control of an automated closed CoCoS system using an algorithm that monitors online the current environmental parameters and uses a control unit to implement the desired values given by the unique cultivation formulas developed for a specific medicinal herb.

Unique Selling Points:

Modular closed system with automated environmental control. Production of special medicinal herbs for use in nutraceuticals, cosmetics and phytopharmacy. Cultivation recipes optimized for the content of desired active ingredients. Guaranteed origin, year-round availability, freshness.

Product

CoCoS module controller

Technology readiness

Development

Proof of concept

▶ Prototype

First implementation

Extensive implementation

2/2024

B2B

www.cooltivation.com

ELISOT

Innovative material for use in various industries (automotive, construction, etc.)

Elisot was founded to monetize a completely new process for the production of natural rubber by the cold process for 3D printing. The result is a solution that greatly simplifies the standard production process for natural rubber. It has been used unchanged since the time of Charles Goodyear and Thomas Hancock, i.e. since the mid-19th century. The new technology is therefore completely revolutionary in the polymer industry and unique in the world context.

Unique Selling Points:

- Replacing traditional building materials can make a significant contribution to reducing the concentration of CO_2 in the atmosphere.
- Conventional rubber vulcanisation takes place at 150-160 °C, is energy intensive and produces odorous organic emissions.
- There is no technology to 3D print from natural rubber – it cannot be moulded and degrades at high temperature.
- Conventional vulcanization does not allow the production of large parts, such as building components.

Product

Cold 3D printing of rubber

Technology readiness

- ▶ Development
- Proof of concept
- Prototype
- First implementation
- Extensive implementation

1/2024 B2B B2C

REFRAMED

Automatic design of optimal photovoltaics for your buildings and community

Reframed simplifies the design of photovoltaics on historic and complex roofs. Using AI, it automatically detects roofs from drone photos, optimizes panel placement, stringers, inverters and batteries, and creates photorealistic visualizations. The output includes economic analysis and export to PDF and CAD, speeding up decision-making and preservationist approvals. The solution is designed for cities, businesses and community energy.

Unique Selling Points:

- Automatic PV design from drone photos for historic and complex roofs.
- Photorealistic visualization for easier approval by conservationists and investors.
- Exporting to CAD and PDF speeds up documentation and project implementation.
- The only service offering allocation key calculation for community energy.

2/2024 B2B B2G

www.reframed.cz

Product

Web application

Technology readiness

Development

Proof of concept

▶ Prototype

First implementation

Extensive implementation

TREETINO

A tree that generates a large amount of renewable energy on a built-up area of 1 m².

TREETINO – a smart “energy tree” that combines technology and nature to generate clean energy in cities. The futuristic design saves space and promotes sustainable energy. TREETINO uses a patented winding system, 300 solar blades and silent wind turbines to produce energy from the sun and wind simultaneously. It occupies only 1 m², but replaces a 400 m² photovoltaic array and can power up to 60 homes with an output of 49 kW. Thanks to AI and blockchain, the trees communicate with each other, optimising production by up to 30%, enabling predictive maintenance and storm protection. Control is provided by an intuitive mobile app. TREETINO brings a new era of elegant urban energy.

Unique Selling Points:

- It maximises energy yield in a minimum area and saves up to 700 m² compared to conventional solar arrays.
- It combines solar panels and wind turbines to produce energy from the sun and wind, even at night.
- AI and blockchain increase efficiency by up to 30% and enable predictive maintenance. Futuristic design fits the urban environment and saves space.
- Quiet and transparent turbines allow for undisturbed integration in the city.

2/2024 B2B B2G

Product

Futuristic hardware with innovative software

Technology readiness

- Development
- Proof of concept
- Prototype
- First implementation
- Extensive implementation

BIOREA

A reactor for generating high-value carbon from waste sources.

BioreX technology is a process for converting contaminated wood into high value-added carbon for use in a number of highly specialised industries (e.g. battery production, supercapacitors, etc.). In the Czech Republic alone, up to 10 thousand tonnes of contaminated wood mass is produced annually in the form of wood sleepers, which are very difficult to process with significant environmental impacts through burning. It is therefore no longer possible to landfill sleepers. Our technology aims for waste-free processability and recoverability with high economic returns. Furthermore, we intend to test other waste streams, as over 50% of all newly generated waste can be reused with our technology. We see the technology as a breakthrough solution with significant international potential and the possibility of setting a new standard in the circular economy.

Unique selling points:

- Unique technology.
- High yield.
- Excellent end product characteristics.
- Patented solution.

Product

Hydrothermal reactor

Technology readiness

Development

▶ Proof of concept

Prototype

First implementation

Extensive implementation

1/2024 B2B B2G

RECOMPO

ReCompo is a technology for the physical-chemical decomposition of composite materials with the recovery of reusable raw materials.

CTF Technology develops advanced engineering technologies. The current ReCompo project addresses the recyclability of composite and difficult-to-process materials. The main vision is the application of engineering R&D knowledge, technology and know-how in the field of physicochemical degradation to engineering technologies for the return of raw materials to the production chain. The aim is to solve the current problem of recycling composite materials and other heterogeneous (hydrocarbon, mostly polymer) production surpluses. The technology has the potential not only to solve recycling with the output of valuable raw materials, but also to operate without additional energy inputs.

Unique selling points:

- Technology turns unnecessary surpluses into valuable raw materials.
- Saves costs on production input materials.
- It is able to operate without additional energy inputs.
- The technology is highly scalable to other types of input materials.

Product

Technology of physicochemical processing of residual materials

Technology readiness

- Development
- Proof of concept
- Prototype
- First implementation
- Extensive implementation

1/2024

B2B

ENTITY SYSTEMS

Entity Systems

A tool for managing environmental data and digital product passports.

Entity Systems makes it easy for companies to comply with the incoming digital product passport requirements. It also allows them to communicate this information to end customers by storing the information in a verifiable way on the blockchain. End customers will be able to scan the QR code or NFC tag on each individual item and get detailed information about the item's ecological footprint, origin, and other information useful for the circular economy.

Unique selling points:

- Track and trace each item using a custom QR code.
- Calculation of sustainability information at item level.
- Compliance with EU requirements for a digital product passport.
- Sharing this information internally and with customers.

Product

ESG Sustainability and Traceability Platform.

Technology readiness

Development

Proof of concept

▶ Prototype

First implementation

Extensive implementation

1/2024

B2B

www.entitysys.eu/cs

MY SMART SOCKET / MOJE CHYTRÁ ZÁSUVKA

Moje chytrá zásuvka

Smart management of electricity consumption in households with regard to the integration of renewable electricity sources.

My Smart Socket allows households without their own PV to consume large amounts of electricity at times when it is cheapest on the energy market. This saves customers' wallets while hundreds of thousands of households optimised in this way can make a significant contribution to smoothing out fluctuations in the grid. Today, this role is played by coal or gas-fired power plants or artificially built electricity meters. Yet only boilers in Czech households offer the same grid balancing capacity as the entire Temelín nuclear power plant.

Unique selling points:

- Plug&play solution, fully automated.
- The initial cost of connecting one household starts from CZK 490.
- Possibility to control non-IoT devices (conventional boilers, boilers, direct-fired boilers, heat pumps).
- Aimed at households without their own photovoltaics.

1/2024 B2B B2C

mojechytrazasuvka.cz

Product

AI cloud service using smart hardware

Technology readiness

Development

Proof of concept

▶ Prototype

First implementation

Extensive implementation

SMARTBASELINE

A platform for managing, trading and controlling decentralised energy portfolios.

Terraverse is the creator of a software platform for the management of decentralized energy portfolios that maximizes the profit from portfolio operations and facilitates portfolio management by automating the processes associated with portfolio management, trading and governance.

Unique selling points:

- B2B2C user portal for energy equipment management.
- A wide range of supported technologies on the generation, consumption and storage side.
- Combination of monetization streams to exploit energy flexibility.

Product

Energy portfolio management software

Technology readiness

- Development
- Proof of concept
- Prototype
- First implementation
- ▶ Extensive implementation

1/2024

B2B

www.terraverse.info

CIRCUPARTS

A tool for digitalisation of scrap yards and inventory management.

CircuParts provides innovative solutions for the efficient recycling and reuse of automotive parts. It focuses on digitizing scrap yards, enabling accurate inventory management and improving communication with other partners in the circular economy. Our goal is to promote sustainability, reduce CO2 emissions and increase the availability of remanufactured parts, which brings significant economic and environmental benefits.

Unique selling points:

- A unique way to digitise: automated vehicle identification and digitisation for the highest accuracy and speed on the market using AI.
- Comprehensive digitized inventory: a standardized and fully digitized catalog of auto parts, making it easy to find and trade them.
- An integrated platform for the circular economy: one-stop connectivity promotes efficient collaboration and saves time and resources.

1/2024 B2B B2C

www.circuparts.cz/

Product

Applications for digitization and inventory

Technology readiness

Development

Proof of concept

▶ Prototype

First implementation

Extensive implementation

FYTOLASER S.R.O.

A physical, non-chemical method of laser seed stimulation that promotes healthy and vigorous crop development.

Fytolaser technology brings growers an innovative solution to the physical (non-chemical) treatment of seeds and seedlings using a laser beam that has a significant and proven stimulating effect that accelerates biological processes within the seed in the early stages of growth. Compared to untreated plants, Fytolaser-treated plants are stronger, more resistant to frost and pests and have a more robust root system. The plants have a higher chlorophyll content, faster field emergence and ultimately bring farmers higher yields without increasing fertiliser or pesticides.

Unique selling points:

- Promoting healthy and vigorous crop growth while reducing chemical load.
- Organic production and sustainable agricultural production.
- Developing modern agriculture in the 21st century.

1/2024 B2B B2C

www.fytolaser.cz

Product

Laser treatment service

Technology readiness

- ▶ Development
- Proof of concept
- Prototype
- First implementation
- Extensive implementation

BIMTWIN HUB

BIM Hub | Building Energy Modelling Tool.

The BIMtwin HUB is an engineering tool for energy specialists that enables building engineers to optimise building design for energy savings. The HUB allows the specialist to use the data from a digital building model to quickly find the optimal design option in terms of environmental impact and energy loss.

Unique selling points:

- Use of digital building model data.
- Working with open formats.
- Cloud based platform.
- Potential for additional features.

Product

Building energy modelling software

Technology readiness

Development

Proof of concept

▶ Prototype

First implementation

Extensive implementation

1/2024

B2B

www.bimtwin.cz

NEXTCYCLE

Electrostatic separator.

The aim of the project is to bring to the international market an innovative technology for the separation of a wide range of materials, from plastic waste to mineral raw materials to agricultural crops. The developed electrostatic separator is a technology with a high potential to fulfil this objective thanks to its original separation chamber design, the possibility of continuous operation, low energy consumption and minimal waste generation.

Unique selling points:

- High efficiency
- Low operating costs.
- Use in multiple segments and types of waste and raw materials.

Product

Electrostatic separator

Technology readiness

Development

▶ Proof of concept

Prototype

First implementation

Extensive implementation

2/2023

B2B

PHOTOBIOREACTOR HELENA



Devices that reduce carbon dioxide emissions using green algae.

From the Czech Republic, we build plants that reduce carbon dioxide emissions using green algae, which we then process. Our facilities can capture tons of CO2 per year. Individual plants differ in their capacity to capture carbon dioxide. However, they always capture more than the equivalent CO2 needed to generate the electricity that powers the reactor.

Unique selling points:

- Artificial intelligence creates optimal conditions for the growth of unicellular algae.
- During the growth phase, up to 25,000 litres of air per hour enter the reactor.
- Under specific conditions, the reactor is capable of capturing up to 90% of the CO2 entering the reactor.

Product

Bioreactor

Technology readiness

Development

Proof of concept

▶ Prototype

First implementation

Extensive implementation

2/2023

B2B

pbrhelena.com

PLAYME: SYSTEM FOR SPORTS VENUES

System for optimizing energy consumption in sports venues.

PLAYME offers a solution for sports venues that want to automate the commissioning of lighting, heating and other energy-intensive processes based on live data from the booking system. In addition to the savings, it offers end users the convenient ability to book a court for a specific time, pay conveniently from the app and not be delayed by additional communication at the sports venue reception. Our vision is a completely autonomous sports venue with no operator. Everything is serviced from the mobile app.

Unique selling points:

- System for automation of sports venues based on data from the reservation system.
- Smart control of heating, lights, irrigation or access locks.
- Modern reservation system.
- Advanced payment options.

2/2023

B2B

about.playme.cz

Product

Booking system with automated control

Technology readiness

Development

Proof of concept

▶ Prototype

First implementation

Extensive implementation

TAILORMEM

Product

Membrane electrolyte

Technology readiness

Development

Proof of concept

Prototype

▶ First implementation

Extensive implementation

Ion-exchange membranes for hydrogen economy.

Hydrogen is seen as the gas of the future and is set to become a key tool in the transition to a low-carbon economy. The expected boom in green hydrogen production in the coming years will provide an opportunity for TailorMem, which holds the license for TailorMem Hollex ion-exchange membranes used in green hydrogen production. The added value of the membranes developed in the project is the production of the membrane based on customer requirements. The use of TailorMem Hollex membranes in hydrogen fuel cells is attractive for the automotive industry and also as an energy source within the overall hydrogen cycle (the so-called hydrogen economy).

Unique selling points:

- TailorMem – “tailor made membranes”, solid electrolyte for electrolytic hydrogen production.
- Stable membrane with a long service life.
- Production based on customer requirements

2/2023 B2B B2C

www.tailormem.com

RESONECT: PROJECT FELIX

Hastr

A smart level meter for the home and a comprehensive IoT solution for professionals.

The aim is to create a device that provides users with information about the water level in the reservoirs, allowing them to better manage and monitor the resources in a simple way. Our product differs from the competition thanks to the innovative radar principle of level measurement. This new and affordable principle will allow us to offer the market a device with extensive features and a lower price. Felix will also offer ease of use, versatility and openness of the solution. The user can simply monitor the level status in the app and, if desired, also integrate the device into a smart home. Furthermore, control of a connected appliance such as a pump will be available in the user platform.

Unique selling points:

- Innovative water level measuring equipment for households and professionals.
- It enables efficient water management in rainwater tanks or wells.
- Intuitive app with smart home integrations providing an overview of measured data and device management options.

2/2023 B2B B2C

hastr.app

Product

IoT level measurement

Technology readiness

- Development

Proof of concept

Prototype

First implementation

Extensive implementation

INCELIO – BATTERY POWER PACKS

An environmentally friendly and efficient alternative to traditional combustion generators.

Incelio's goal is to revolutionize the energy sector with innovative battery power plants that can fully replace traditional combustion generators. These devices are designed to significantly reduce greenhouse gas emissions while providing an environmentally friendly and economically viable solution with low operating costs. Our battery-powered generators offer a reliable, sustainable and quiet power source that is suitable for both residential and a wide range of commercial applications.

Unique selling points:

- Significant reduction in greenhouse gas emissions compared to traditional combustion generators.
- Economical operation thanks to efficient battery technology.
- Easier and less demanding maintenance.
- Flexibility in application for various purposes, from households to industrial buildings.

Product

Battery power station

Technology readiness

Development

▶ Proof of concept

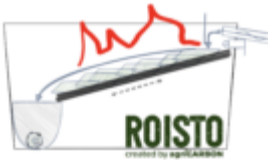
Prototype

First implementation

Extensive implementation

2/2023 B2B B2C

ROISTO



Product

Biomass recovery equipment

Technology readiness

Development

Proof of concept

▶ Prototype

First implementation

Extensive implementation

A major innovation for biomass heating that permanently removes carbon from the atmosphere.

The unique design of the gasification boiler converts wood chips into heat and carbon, which permanently stores the carbon dioxide absorbed by the biomass. It is called biochar and is a unique material for improving soil properties. In recent years, biochar has become part of the substrates in which greenery is planted in cities. ROISTO is an essential element of an urban BIOHELNA, where residues from green maintenance are converted into heat and biochar, which is returned to the soil, helps retain moisture and nutrients at the roots. This keeps the plants in better condition and improves the urban microclimate.

Unique selling points:

- Technically simple and power scalable device.
- Biouhel generates certificates usable as carbon offsets under the SDGs.
- The municipal BIOUHELNA operates as a social enterprise.

2/2023 B2B B2G

www.kazdekilosepocita.cz/biouhelna

NANO ADVANCED

NANO H_2
Advanced.Consulting

Modification of the source component and control system of PEM electrolyzers towards increased operational reliability and comprehensively higher efficiency of electrolytic components.

The hydrogen economy is crucial for Europe, but the inefficiency of the electrolysis process (electricity → H2) is a barrier to development. When using the NANO advanced el. and the downstream PEM electrolyzer to reduce the loss to 10-15%, which is at the system level of power line losses. The power supply component, which feeds the electrolytic bundles using renewable electricity at the input, is sized for a different architecture and operates with a comprehensively different approach than is currently used.

Unique selling points:

- Higher generator efficiency – more kg H2 per kW of energy consumed – higher operating yields – greater profitability
- Higher control system flexibility – uniform loading of PEM electrolyser components – significantly lower OPEX – higher yield
- System modularity – ability to change components on the fly – continuous operation
- The facility will also be advantageous as an electricity storage solution

Product

Increasing the efficiency of green hydrogen generators

Technology readiness

Development

Proof of concept

▶ Prototype

First implementation

Extensive implementation

1/2023

B2C

www.nanoadvanced.cz

RED-BETON

Technology for the processing of construction and demolition waste replacing up to 100% of natural aggregates in the production of sustainable building materials while reducing the carbon footprint and protecting natural resources.

RED-BETON specializes in the efficient treatment of construction waste from the demolition of old buildings. It produces recycled aggregates and uses them to produce high quality concrete with superior properties compared to concrete made from natural aggregates. The innovative approach contributes to sustainable development and reduces the need for landfill and natural aggregate extraction. It offers expansion opportunities for recycling yards, concrete batching plants and construction companies to produce concrete from recycled aggregates by licensing a unique technology and providing comprehensive support in the production of sustainable materials.

Unique selling points:

- RedBeton turns construction and demolition waste into a sustainable material.
- It protects natural resources and reduces carbon dioxide emissions.
- RedBeton helps to meet the requirements of ESG, LCA and BREEAM, LEVELS, WELL, LEED...

1/2023

B2B

www.redbeton.cz

Product

Technology for processing and use of SDO

Technology readiness

Development

Proof of concept

▶ Prototype

First implementation

Extensive implementation

WINDEES

WINDEES

Innovative horizontal and vertical wind turbine on the roofs of buildings to enable the development of this renewable energy source.

Windees is an industrial-creative company specialising in innovative wind turbines for various types of buildings. The turbines generate power even in light to moderate winds, making them suitable for residential and commercial applications. During incubation, they plan to collaborate with research institutions for validation and testing. Turbines outperform solar panels in terms of energy production per unit area and can be customised based on customer needs. Wind power plants offer secure communication, remote diagnostics and compatibility with existing sustainable technologies.

Unique selling points:

- A new wind turbine solution located on the roof ridge.
- Solutions to enable the development of wind energy resources in conventional developments.
- A solution to take advantage of low to medium wind speeds.

Product

Wind turbine for building roofs

Technology readiness

Development

▶ Proof of concept

Prototype

First implementation

Extensive implementation

1/2023

B2C

windees.cz

POSPOOLING

The aim of the project is to combine sales promotion within retail chains with sustainability in one innovative stand product.

POSpooling aims to introduce sustainable POS kiosks driven by smart technology into the retail environment, reducing waste and promoting circular economy. Traditional disposable stands contribute to unnecessary waste, but the proposed wire stand made from recyclable metal offers a sustainable alternative. The project draws inspiration from successful sharing systems in the retail industry and adapts this principle to the point of sale (POS) environment. The development of the operating system will provide users with up-to-date information on the rack lifecycle, simplify processes and support resource sharing.

Unique selling points:

- Fully recyclable rack solution including commercial rack rental sales.
- “Smart rack” for sales and stock control.
- Versatility and scalability regardless of the sales system.

Product

Smart stand rental system for sales promotion

Technology readiness

Development

Proof of concept

▶ Prototype

First implementation

Extensive implementation

1/2023

B2B

pospooling.cz

PLASMATICO

Innovative sterilisation method without high temperatures and chemicals.

The Plasmatico decontaminator uses low-temperature plasma (NTP) to effectively decontaminate medical and laboratory equipment or personal protective equipment without the need for high temperatures, vacuum or chemicals. It stands out from the competition in terms of simplicity, energy efficiency, mechanical durability and, in addition, its operation is extremely environmentally friendly with minimal waste production. The goal is to achieve commercial deployment in laboratories, hospitals and other facilities with a business model based on boxed and modular solutions.

Unique selling points:

- Environmentally friendly decontamination without chemicals and high temperatures.
- It extends the life of decontaminated items and allows decontamination of a wide range of materials.
- Plasmatico is energy efficient, safe and easy to use.
- It brings the possibility of upcycling medical and protective equipment that could not be decontaminated before due to high temperatures or the use of chemicals.
- Decontamination of items of personal use, for example for immunosuppressed ophthalmic patients.

Product

Decontamination equipment

Technology readiness

Development

Proof of concept

▶ Prototype

First implementation

Extensive implementation

1/2023

B2B

YEDEM

NANO H_2 Advanced.Consulting

User-friendly smart system for company carpooling and parking reservation.

Yedem is a smart system and app for corporate carpooling and parking reservation. It provides a means for businesses to optimise commuting through carpooling using innovative technology, leading to significant carbon reduction, increased efficiency and greater convenience. The software solution intelligently connects employees and motivates them to carpool by prioritizing the allocation of parking spaces. It helps them find colleagues who are driving to work from the same direction at the same time. By linking the database of offered carpools, it is also possible to give a ride to an employee of a neighbouring company or a neighbour who works somewhere along the way.

Unique selling points:

- Using smart tools to make employees' daily commutes and parking more efficient.
- A convenient booking app and carpooling platform that ensures employees have efficient journeys to work and fair allocation of parking spaces.
- Guaranteed and fairly distributed parking spaces and shared transport for employees reduce employer and employee costs and carbon footprint.

Product

Ride sharing app

Technology readiness

Development

Proof of concept

▶ Prototype

First implementation

Extensive implementation

1/2023

B2B

www.nanoadvanced.cz/

MEWERY

A deep-tech biotech startup with the ambition to bring cultured pork from cells to the global market without the need to slaughter the animal.

Mewera's vision is to contribute to tackling climate change by breaking down the conventional wisdom about the need to raise domestic animals for slaughter. Cultured meat from sustainable food sources has major positive environmental impacts such as reduced water, arable land and CO2 consumption. Mewery is the only one in the world to incorporate microalgae into the cell growth process, creating a more stable and nutritionally rich product compared to traditional meat.

Unique selling points:

- Unique production technology = The method combines pig cells and microalgae cells into one stable structure.
- Scalability = 3D structure based on microalgae makes it easier to use for other types of meat.
- High consumer value = Microalgae provides a nutritionally richer product compared to competitors and the product has a high benefit to the lifestyle-oriented consumer segment.
- Cost minimization = Combination with microalgae provides a cost-effective production method.

Product

Cultured pork based on microalgae

Technology readiness

Development

Proof of concept

▶ Prototype

First implementation

Extensive implementation

1/2023

B2C

www.mewery.io

INTECORES

Reducing the amount of carbon dioxide in the air by permanently storing stabilised carbon in building materials.

The business plan is based on the idea of how to reduce the amount of greenhouse gases in the atmosphere to counter the threat of global climate change. The founder of the company, together with other experts, came up with a way to stabilize the carbon, which was previously part of the CO2 in the air, and permanently store it in building materials. In addition, the properties of these materials can be improved without significantly increasing the cost of production. The company is looking for the optimal way to apply its ideas in manufacturing companies.

Unique selling points:

- Permanent storage of stabilized carbon in building materials.
- An amount of carbon equivalent to 1000 kg CO_2 can be stored in 1 m^3 of building material.
- The principle can be applied to a wide range of building materials.

Product

Technology consulting

Technology readiness

Development

▶ Proof of concept

Prototype

First implementation

Extensive implementation

1/2023

B2B

DOLPHIN PRINTER

Dolphin Printer

Maximising the use of 3D printing. Simple, automatic and reliable optimization for smart 3D printing of solid parts.

3D printing is not yet widely used in companies because the transition from conventional production methods is difficult and time-consuming. The SelfSlice Premium software automatically modifies a part made with conventional technologies so that it can be produced in 3D printing while maintaining its properties. SelfSlice Premium simplifies complex work with complex software, just specify the load and the attachment. All the complexity of 3D printing is done automatically inside SelfSlice Premium.

Unique selling points:

- You don’t have to be an engineer, you still print like an engineer.
- Unlock the full potential of 3D printing.
- Saving material and human time.
- A plug-in that controls your Slicer for you.

Product

Software

Technology readiness

Development

Proof of concept

▶ Prototype

First implementation

Extensive implementation

1/2023 ALUMNI B2B

www.dolphinsimulation.com

BIONIC SYSTEM

Ecological technology enabling the processing of waste into a beneficial product called Biochar.

Microwave tolerance technology that converts sewage sludge into biochar (biochar), which has the ability to support soil-forming processes and retain water in nature. In contrast to other sludge treatment methods, microwave tolerance works without combustion and therefore elements such as carbon and phosphorus remain in a form suitable for application in the soil. The technology is completely clean, without any risk of hazardous by-products. Thanks to the possibility to carry out the process at temperatures below the critical values for the formation of fumes, the risk of formation of hazardous substances is completely eliminated.

Unique selling points:

- Complete elimination of the risk of hazardous fumes.
- Soil regeneration and the promotion of soil formation, including water retention in nature.
- The possibility of transforming waste into materials that not only retain water in the soil but also promote plant protection against fungi and other diseases.
- Creating a circular economy model (e.g. for smaller municipalities and cities) where biochar can be applied and tailored to the needs of local soil and plants.

Product

Treatment of sewage sludge

Technology readiness

Development

Proof of concept

▶ Prototype

First implementation

Extensive implementation

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ARBO TECHNOLOGIES

Data-driven management of non-forest green spaces.

Through a unique trio of tools, we streamline the collection of data on non-forest foliage and expand the range of variables that can reveal the true condition of a tree to arborists. By assessing the condition in detail, we can help to identify trees that pose a danger to their surroundings, but above all save many of those that are perfectly safe and healthy. Each of our products, which we are expanding along with our growing specialisation, combines cutting edge technology with the latest arboricultural knowledge. This makes our tools grow together with the trees they explore.

Unique selling points:

- The first product on the arboriculture market that is able to evaluate 3D scans of a tree trunk and incorporate them into the tree stability calculation.
- Our tool is the only one on the market that can determine the exact parameters using calibrated photographs.
- Use without any external hardware – for mobile devices equipped with a LiDAR sensor, the trunk can only be scanned with the phone.
- We offer tree assessment as a service that is performed manually by our operators, allowing the arborist to make the most of his time in the field.

Product

Software

Technology readiness

Development

Proof of concept

Prototype

▶ First implementation

Extensive implementation

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www.arbotechnologies.cz

BEAMSHAPE

Product

Equipment for 3D printing of metal parts

Technology readiness

Development

Proof of concept

▶ Prototype

First implementation

Extensive implementation

Electron beam 3D printing of metals.

BeamShape is a company that deals with 3D printing of metals using an electron beam. Its first product, BeamShape WeldPrint, is an adapter that can turn an electron welder into an electron 3D printer. This allows manufacturing companies and scientific laboratories to produce parts locally with minimal material and energy consumption. Unconsumed powder can be recycled and reused to produce other parts.

Unique selling points:

- Printing from any metal material.
- Easy recycling of metal dust.
- It can turn an electron welder into an electron printer.

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B2B

beamshape.com

BETONEXT PRODUCTION

Development of an original technology for recycling brick waste into products usable in the construction industry.

The environmental focus in the European Community has led to the need to reduce carbon emissions in energy-intensive industries such as cement and construction. Inorganic activators offer a promising solution by reducing the carbon footprint while maintaining technical parameters comparable to traditional binders. Existing research has investigated qualified raw materials and sorted waste, but our intention is to develop a cost-effective technology for processing unsorted waste. The aim of the project is to increase knowledge about inorganic materials, promote socially beneficial products and replace established building materials with greener alternatives.

Unique selling points:

- Processing of brick waste.
- Recycling of brick waste into building products (bricks, fittings) with high contents of unsorted brick rubble above 60 wt.% using a firing-free technology.
- Reducing the carbon footprint of construction production.

Product

Recycled building material

Technology readiness

- ▶ Development
- Proof of concept
- Prototype
- First implementation
- Extensive implementation

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B2B

vpmi.eu

SENSORIE

Healthy home-grown vegetables for every member of the family.

The company's long-term vision is to support the general public in local and sustainable food production. With the Smart Greenhouse, it makes the technology of modern agriculture accessible even to the complete beginner. The grower selects the optimal conditions for his plants via an intuitive web app and the smart equipment takes care of the rest. By managing the conditions, the plants in the greenhouse are healthy, resistant to fungi and other diseases and have a rich harvest all year round. The return on the initial investment is in the range of 1-3 years.

Unique selling points:

- A smart greenhouse creates ideal conditions for plant growth all year round.
- The construction of the Smart Greenhouse will be returned to the grower within three years at the latest.
- Growing local food without chemicals.
- The plants are watered with rainwater and the biowaste is converted into fertile fertiliser.

Product

Smart greenhouse

Technology readiness

Development

Proof of concept

Prototype

First implementation

▶ Extensive implementation

1/2022

B2C

www.sensorie.cz

PINFLOW ENERGY STORAGE

Product

Batteries

Technology readiness

Development

Proof of concept

Prototype

▶ First implementation

Extensive implementation

Manufacturer of high efficiency batteries based on redox flow technology.

The company develops highly efficient batteries based on redox flow technology. The low internal resistance chimneys are built on the know-how of the New Technology Research Centre of the University of West Bohemia and are the heart of the batteries. With its laboratory products, it also facilitates research into new redox flow batteries.

Unique selling points:

- Pinflow energy storage provides a solution for stationary applications.
- Independent power and capacity according to requirements.
- Safe and environmentally friendly.
- Solid and robust products.
- Low storage costs relative to capacity and lifetime.

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B2B

www.pinflowes.com

NIL TEXTILE

NILTEXTILE

Manufacturer of circular textiles.

NIL Textile is creating the world's first fully circular textile solution because it believes that circularity is the only answer to the industry's complex challenges. It develops and produces innovative, ethical and sustainable textile materials, applies know-how in circular design, ensures efficient take-back of old textile products and recycles them into new products. They think about sustainability in every step of their data-driven process.

Unique selling points:

- Using revolutionary molecular recycling technology.
- Textile production saves up to 75% of CO2 emissions, 98% of water and up to 100% of waste.
- The solution does not create any waste because the waste is a re-created resource.
- Keeping resources in circulation.

Product

Sustainable textiles

Technology readiness

Development

Proof of concept

Prototype

First implementation

▶ Extensive implementation

1/2022

B2C

www.niltextile.com

MYCO

Myco replaces single-use plastics with nature.

Myco is a biotech startup that researches, develops and manufactures functional 100% natural materials from fungal mycelium and waste from the agricultural and wood processing industries. The choice of raw material, the way it is processed and the variability of the production process make it possible to produce materials with different properties. However, all of them have one connecting parameter and the greatest value – biodegradability. The main objective is to apply mycelium where easy degradability is desired or, alternatively, where biological pressure is not a threat.

Unique selling points:

- All raw materials are sourced from renewable sources that are readily available locally.
- The materials are 100% degradable by natural processes and therefore harmless to nature (on the contrary, they serve as fertilizer).
- No harmful chemicals are used in the production process and no additional waste is generated.

Product

Fungal mycelium

Technology readiness

Development

Proof of concept

Prototype

▶ First implementation

Extensive implementation

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B2B

www.myco.cz

ETW



The patented process converts extremely contaminated soft plastic waste into high-quality regranulate.

The startup is recycling extremely contaminated soft plastic films. As the first company in the Czech Republic and one of the few companies in the world, it has a unique technological line, thanks to which it is possible to recycle even the dirtiest films – especially those coming from agriculture, which have so far ended up in incinerators, landfills or were buried or burned in the fields. The final product of recycling is the so-called. regranulate, which is further distributed to manufacturers of packaging materials. They reuse it to make garbage bags, packaging films, irrigation pipes, etc.

Unique selling points:

- Eliminating single-use soft plastic packaging, connecting producers and consumers with the highest quality recycled content.
- The patented process converts soft plastic waste into high quality regranulate.
- Used packaging is returned for endless reuse, recycling the dirtiest soft plastics available into a direct oil substitute.

Product

Recycling of plastics

Technology readiness

Development

Proof of concept

Prototype

First implementation

▶ Extensive implementation

1/2022

B2B

www.ietw.eu

BRNOLOGIC

Product

Accelerated network card for servers

Technology readiness

Development

Proof of concept

Prototype

▶ First implementation

Extensive implementation

The company specializes in the development of programmable logic technologies, especially FPGAs and ASICs.

The company's flagship product is DYNANIC, a solution for network applications that enables the transfer of high-speed traffic processing to FPGA acceleration cards. DYNANIC provides all the necessary software and FPGA firmware to build FPGA-based SmartNICs from cards from many hardware manufacturers. However, its cutting-edge technology completely eliminates the need for FPGA programming expertise and provides a standardized network interface for ease of use and rapid development of accelerated applications. With DYNANIC it is possible to accelerate network operations at line speeds up to 400 Gbps.

Unique selling points:

- With DYNANIC it is possible to achieve full throughput even on 400 Gbps network links.
- The project is linked to top research centres.
- DYNANIC uses standard interfaces (APIs) that are already in use in today's non-FPGA installations.

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www.brnologic.com