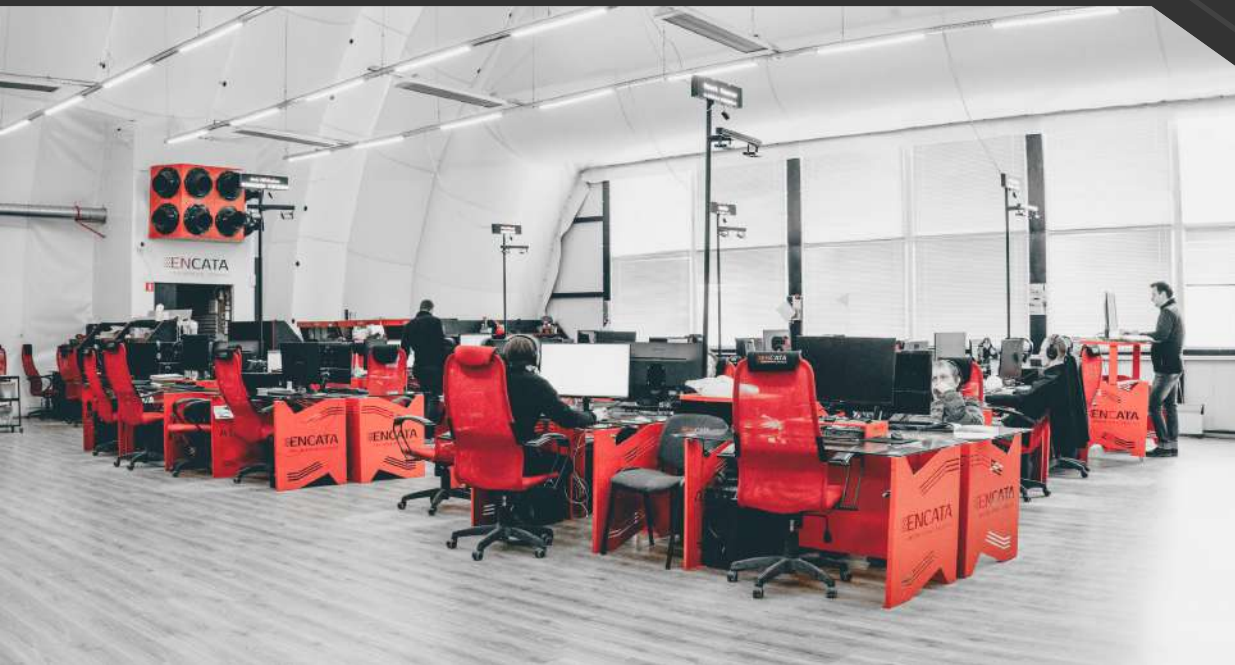


ENCATA

Engineering services and pilot-scale production

- Design hardware based on the Customer's business vision
- Engineering consultancy at all product development stages
- Prototyping and pilot-scale production

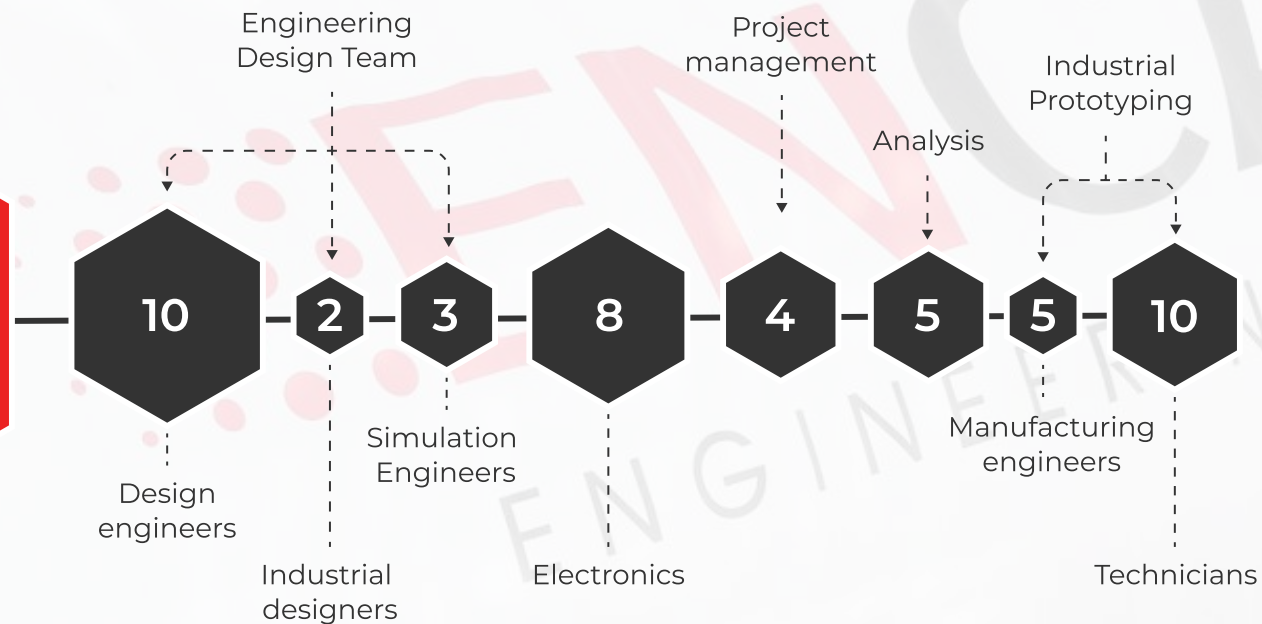


- ✓ Engineering design - from your business idea to pilot batch
- ✓ Electronics design - PCB, firmware, server backend
- ✓ FEA and CFD simulations
- ✓ In-house manufacturing - from 3D-printer to full 5-axis CNC machining

EnCata company in numbers

60+
ENCATA

Total



- EnCata was founded in 2006 as a product company. We specialized in industrial air purification equipment and electronic devices manufacturing.
- In 2017 EnCata became the member of Hi-Tech Park in Belarus and started providing engineering services.
- EnCata is structured in 7 different departments, whereby 5/7 are comprised of engineers
- Company employs 7 PhDs (Physics, Nanotech, Chemical Technology, Mech.Engineering)
- All the Project Managers have either BSc/BEng or MSc/MEng and were engineers in the past

Hardware products development and engineering services

EnCata helps meet the need for engineers at all stages of the product life cycle. We can speed up the project flow at times of peak load on your team or save you from a lot of stress and unnecessary money spend when it comes to reaching out to the manufacturers.

Our industrial design team transforms your ideas into engaging product concepts that are manufacturable. If your product is at the beginning of its journey, we make industrial design and renderings for pitch decks in front of investors. If you already have your first prototype, our team helps to improve it and amend the design for manufacturing. We could carry out different simulations of your technical system to obtain more data before prototyping.



Industrial design

- Design sketching
- Research analogues and competitors
- Ergonomics and special human factors
- 3D design and CAD modeling



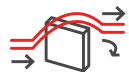
Design for manufacturing (DFM)

- Casings and plastic parts
- Test benches and production lines
- Injection molds and tooling
- Electrical cabinets, piping



Mechanical engineering

- Metal structures
- Drives, gearboxes and suspension units
- Pneumatics and hydraulics
- Electrical cabinets



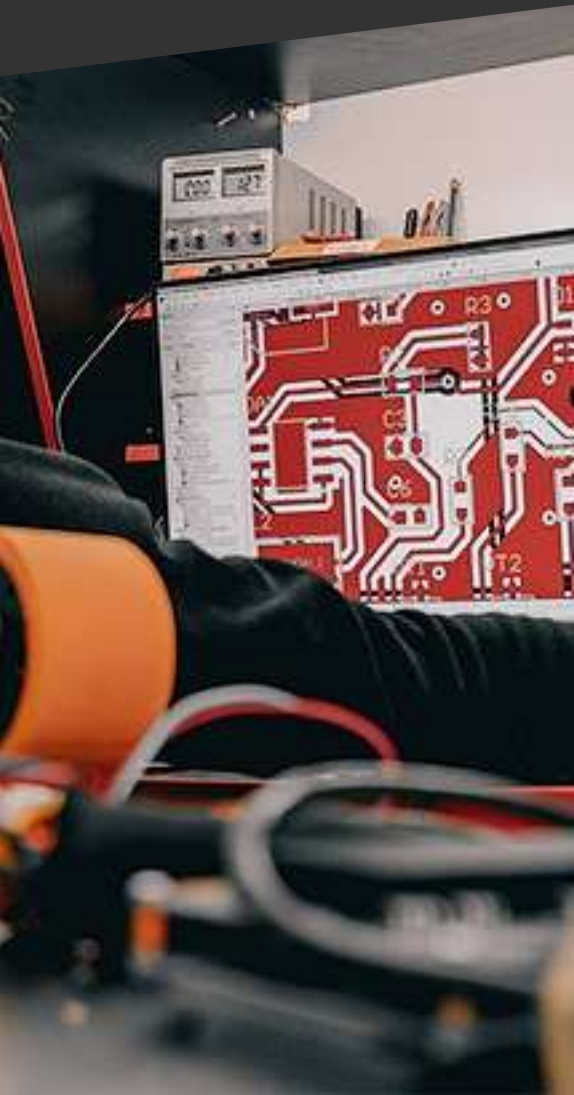
FEA and CFD simulations

- Heat exchange, boiling and crystallization
- Fluid dynamics: gases, liquids, smelts
- Strength and durability
- Waves and signals

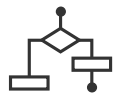


Electronics, PCB and Firmware development

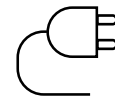
Our electronics team will develop a PCB to replace Arduino or Rapsbury Pi in your prototype if you need to estimate the real performance and cost of the product. We'll run a backend on the server and make a mobile app for the IoT product so you can sell the system to early adopters.



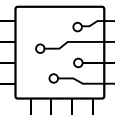
- Firmware and drivers (BSP) development
- Linux Embedded



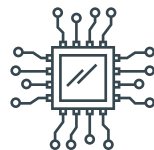
- PID controllers
- Physical algorithms development



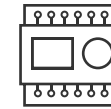
- Power electronics and IC design
- Battery chargers and battery management



- FPGA
- Chip programming
- 8/16/32 Microcontrollers



- Multilayer PCB development
- Flex-PCB design



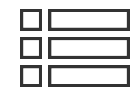
- PLC / HMI programming
- Industrial PC software design



Equipment manufacturing / mounting / commissioning



Wireless Connectivity: WiFi, BT, BLE, NB-IoT, GPRS / GSM / 3G, GPS / LORA



Interfaces: USB, SPI/SSP, I2C, LVDS, RS232/485, SD/SDHC/MMC, Ethernet, PoE, 1-Wire, CAN, I2S, AC97



Programming Languages - C/C++/C#, VB.Net, ASM, VHDL/Verilog, MatLab, Mathematica

Manufacturing services

- rapid prototyping
- batch production

EnCata is somewhat unique in having **in-house prototyping and manufacturing facilities** in the same building with the design office.

It helps us test the ideas of the developers, so as not to leave the Client with a bundle of drawings in front of the factory gates. LEAN set-up allows faster time for prototype manufacturing, design validation and assembly, ensuring the design documentation is timely updated.



In-house manufacturing technologies



CNC milling (3x, 5x)



Metal Tube and Plastic Bending



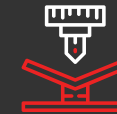
Water Jet (CNC)



CNC lasers



Injection Moulding



CNC bending



Composites and GRP



Vacuum forming



Polymer and Spray Coatings



Tools and Jigs Manufacturing



Annealing and Metal treatment



Welding (MIG, TIG)

Industries we serve

EnCata has over 5 years of expertise in various domains
We took part in creation of 160+ products



All projects require signing the NDA.

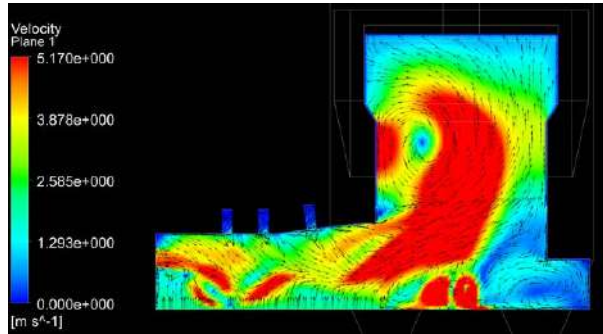
In EnCata all the IP (intellectual property) that is being created during the project belongs to the Customer

Our Experience since 2017

	MECHANICAL DESIGN	+150 000 hours
	ELECTRONCS DESIGN	+65 000 hours
	SIMULATIONS	+20 000 hours
	MANUFACTURING	+120 000 hours
	PROJECT MANAGEMENT	+40 000 hours

5 Smart Agriculture +4 200	23 Consumer & Wearables +47 100	15 Medical devices & IoMT +31 400	5 Robotics +8 000	3 AR and VR +8 800	22 Production lines +17 200
19 Industrial automation +18 700	3 Aerospace +10 200	6 Electric Transport +4 700	15 Air Filtration and Purification +6 100	5 Automotive +6 100	10 Construction +65 000
23 IoT of Everything +21 400	23 Smart city +35 300	4 Heavy industry +7 700	10 Deep-tech & Science +7 500	5 Clean Technologies +2 100	4 Geolocation and Telecom +6 300

Some featured projects



Copper Smelter project.

Multiphysics computer simulations project of the industrial copper smelter and its engineering optimization for liquid phase bubbling of slags and fume exhaust system. The results were integrated into plant modernisation and dramatically reduced the smelter down-time.



Warehouse Robot

An autonomous warehouse robot project with 50 kg payload. The robot has IP-45 protection mark to operate both in-house and outside (temporarily).

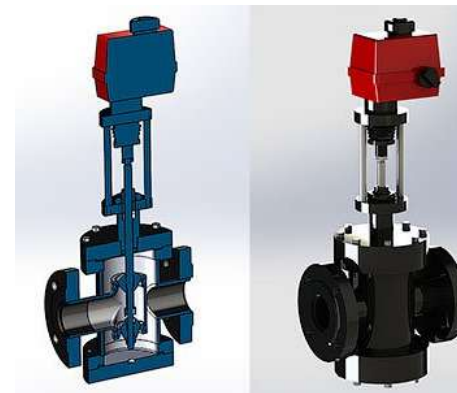
EnCata refined the startup's initial concept and developed the industrial design, DFM and produced the prototype with all the documentation for further mass-production.



Autonomous Drone Hatch

A fully automated drone hatch for Arctic and desert environment. The hangar was designed and manufactured from scratch.

The hangar is equipped with the advanced drone positioning system, custom drone chargers and smart HVAC system.



IIoT hot water monitoring system.

The R&D project in thermophysics, embedded algorithms, mechanical + electronics design with multiple on-site tests.

The final product controls, regulates, measures and monitors in real time thermal energy flow and hot water supply in industrial and residential heating system.

Some featured projects



Smart security locks. The lock was designed (hardware and software) to be accessible via electronic keypad, unique RFID card, NFC on a mobile phone, fob, or wristband;

All while complying with ADA guidelines. They also feature wireless capabilities on non-hardwire systems, making it the most versatile solution for locker security requirements in the market.



An IoT stethoscope device for heart, respiratory systems and blood vessel diagnostics.

Machine learning technology uses a neural network for signal interpretation, accurate diagnostics, historic data gathering and comparative analysis.

Developed algorithms estimate cardiovascular risks in the process of auscultation, leading to prevention of various disorders.



Smart power nap and stress reduction pod.

Designed from scratch in EnCata.

The pod is an advanced mechanical system with complex sensor hardware connected to a cloud-based AI/ML software providing unique experience to those who use the product.

The deep-tech algorithms help to analyze stress patterns among the employees at work.



Virtual Reality trainer for surgeons in healthcare industry.

The hardware simulator in combination with the VR software provides training for laparoscopic operations of any type.

The secret sauce is core technology that can be applied to training of astronauts or neurosurgeons.



We Make Things

EnCata.net

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