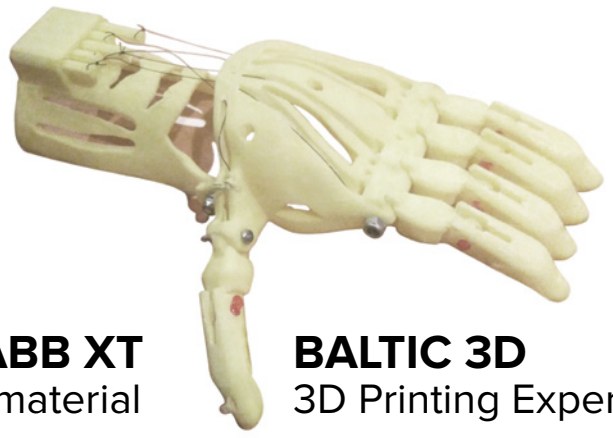
COLORFABB XT
Innovative material



BALTIC 3D
3D Printing Experts

AIRDOG
A Success Story

Mass Portal News

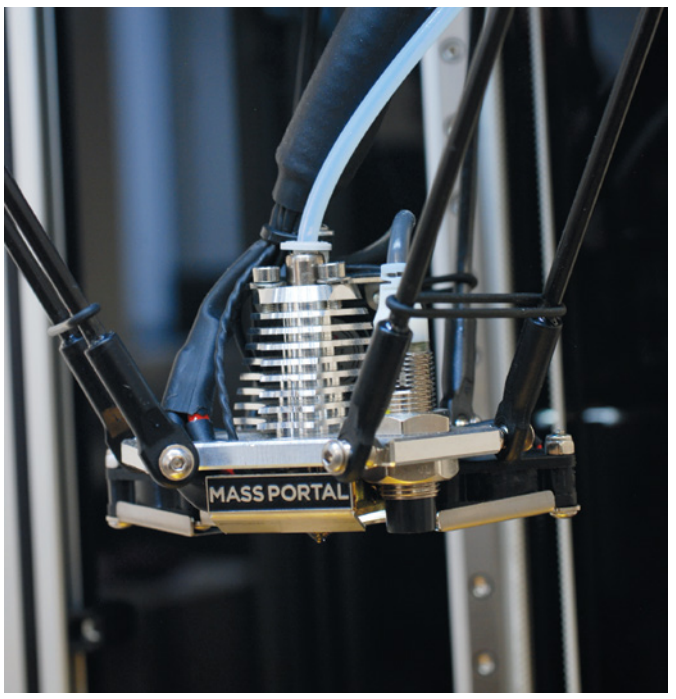
#1 • November 2014 • MassPortal.com

The New Pharaoh™

Delta 3D Printer by Mass Portal

Introducing the new Mass Portal Pharaoh™ 3D printer.
Well known and regarded in it's home market,
available to EU customers from early 2015 at MassPortal.com.

"…one of the best desktop 3D printers available at the moment." — Baltic 3D



The Innovation Machine

Introducing the new Mass Portal Pharaoh™ delta 3D printer — a quiet, versatile and fast 3D printing machine. We have designed the Pharaoh™ for lots of printing in environments like schools, offices and households, where these features matter, and packaged that into a clean and original industrial design.

It's a machine that helps you create things that have only existed in your imagination before. With style.

Refinement

It's already the fifth generation of Mass Portal printers, building on the design strenghts and home-market success of the previous generation. Features like automatic calibration, sturdy frame and a precision linear guide system continue to be a solid mechanical basis.

There are a number of improvements, the most visible being a new industrial design sporting a 5' touch screen, running a custom Pharaoh™ printer control software. This makes the printer a whole lot easier to use — whether it's selecting the file to print or controlling printing parameters while printing. It also lays foundation for software improvements down the road.

The "brains" of the printer — the electronics responsible for controlling the printer — have also been updated, now being a 32-bit system with enough performance to drive a delta printer with precision calculations at higher printing speeds.

We hope you'll get the chance to see the new Pharaoh™ printer at the tradeshows we're attending or at retailer's showrooms in the near future.

For the time being, in this newspaper we want to show you a glimpse of what our customers from our home market of Latvia and the Baltics are doing with our printers. We have been impressed and hope you will be too.

Convenience

At the end of the day, it's the basics that matter. Basics like precise, smooth and quiet operation, fast printing at a very low vibration level. Small footprint of the printer and relatively large build volume. Sturdy frame that will keep the mechanics precise over time, and allow for real world use in schools and other demanding places. Industrial grade components like precision linear motion guides. Convenient automatic calibration system.

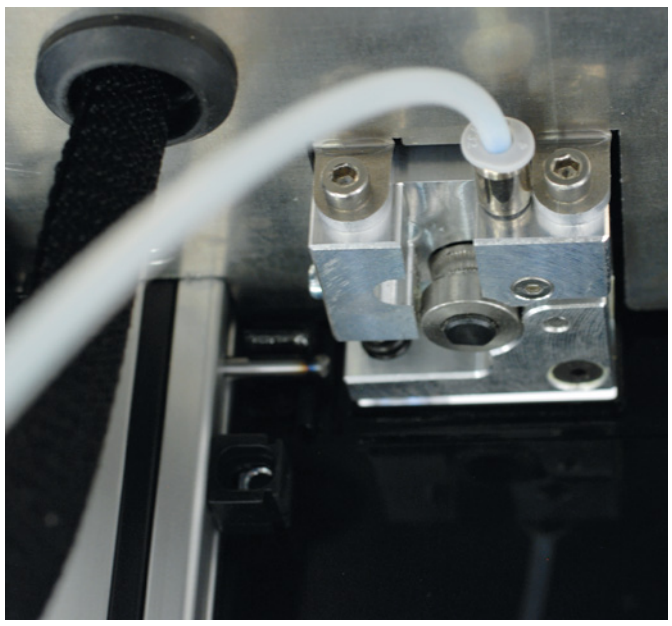
Balance of Elements

Mass Portal™ printers are the right balance of basics done right and quality craftsmanship. Designed, engineered and built in Latvia, with parts sourced in the EU.

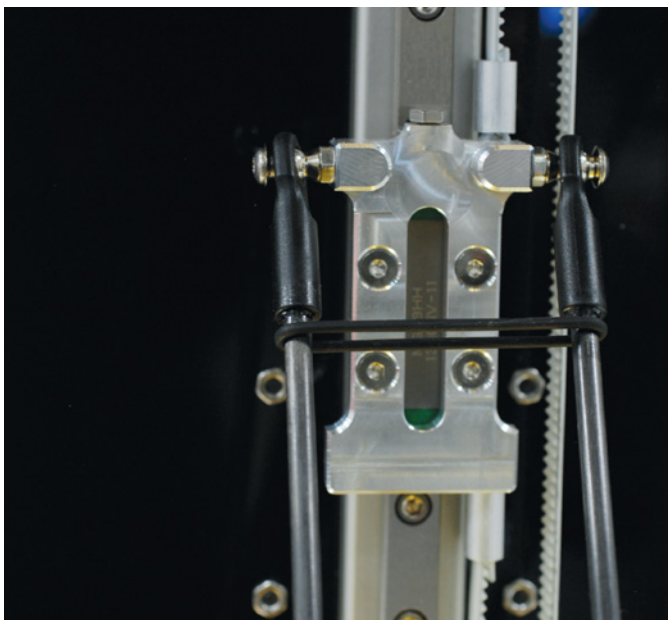
The New Mass Portal Pharaoh™

The First High Quality, Mainstream Delta 3D Printer?

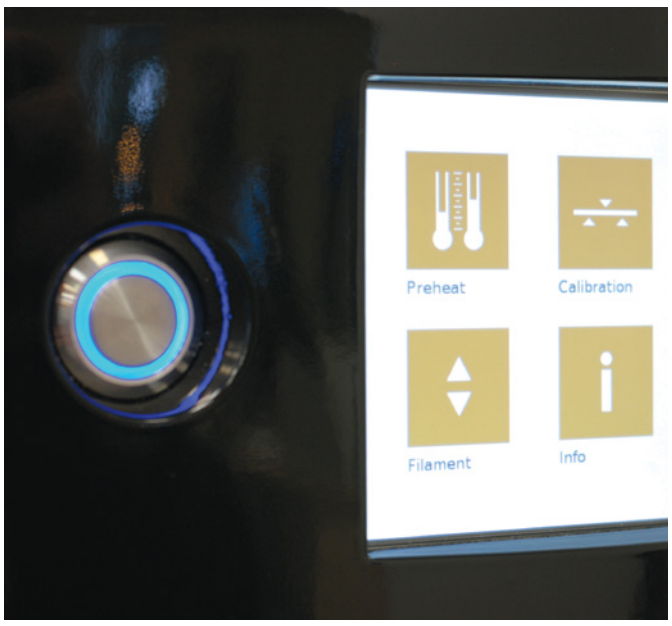
A smooth, quiet and fast delta 3D printer with automatic calibration. Easy to use touchscreen. For home, school and office use. Prints plastic objects up to 20 cm diameter and 20 cm height.



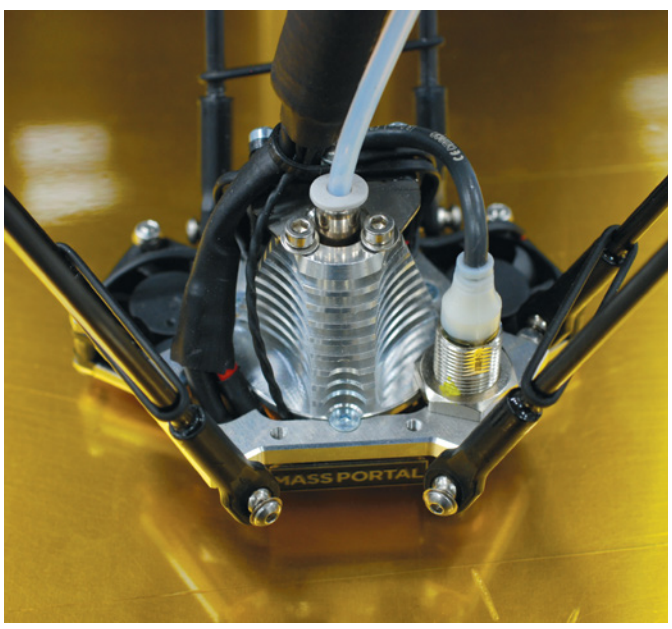
All-metal, Mass Portal designed and manufactured bowden extruder. Easy cleaning, adjustable spring ratio, long service life. Even the filament drive gear is tuned for performance. Driven by a geared stepper motor for strong, precise drive.



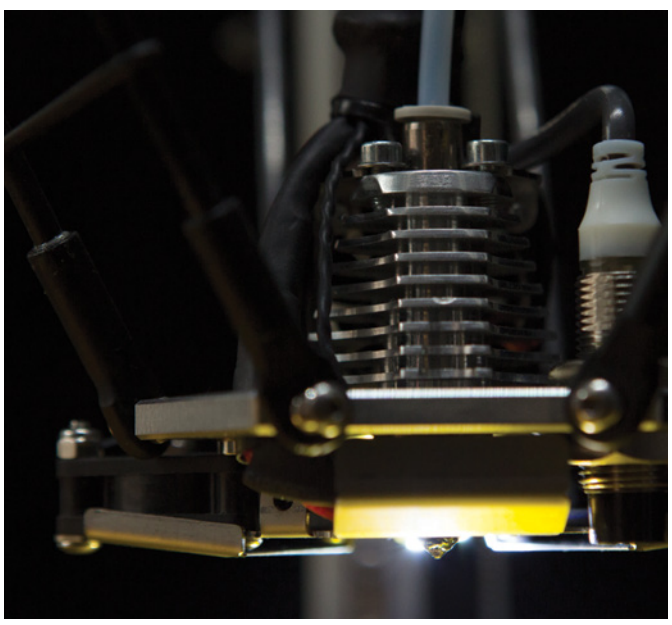
Compared to conventional 3D printers, the Pharaoh™ delta robot printer can print at faster speeds with lower levels of vibration and noise. Precision linear guides ensure smooth and precise movements, driven by 0,9 degree step angle motors.



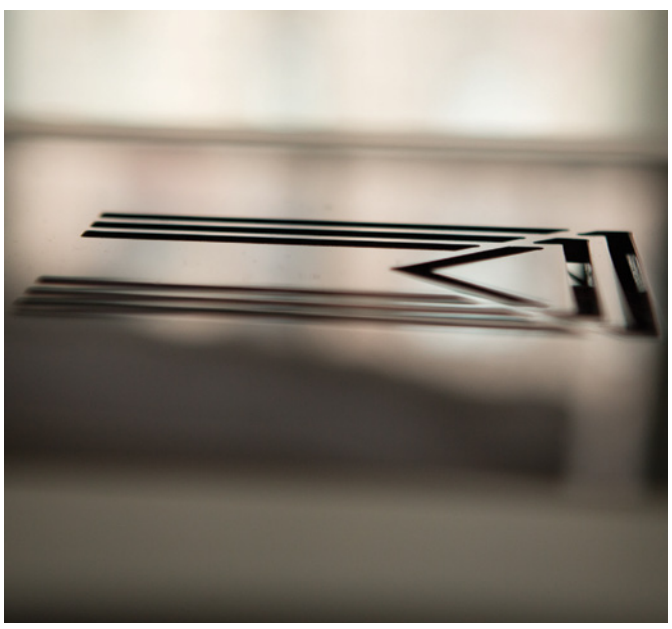
Mass Portal designed Pharaoh™ printer control software, operated via a touchscreen display makes the printer easy to operate. It can be used for standalone printer operation and as a status display when printing from a PC or Mac.



In order to get the best quality prints and ensure material adhesion to the printing plate, Pharaoh™ 3D printer is designed and built with a geometric stability reserve. Print head distance from the heated brass printbed is ajdusted automatically.



Mass Portal designed, all-metal Pharaoh™ printing head with two heating elements can sustain high printing speeds and extrusion temperature up to 300 °C with uniform results. Exchangeable brass nozzles 0,25 mm – 0,7 mm diameter.



Under the hood, the printer is operated by a 32-bit controller with a custom port of open source Repetier Firmware. This ensures compatibility with a number of slicing and printer control applications.

Designed for Lots of Printing

Main Design Goals: Convenience, Durability and Versatility

Printing with Multiple Materials

In addition to the popular PLA and ABS plastics, Mass Portal printers can be used to print a number of thermoplastic filaments of other kinds, like PET, HIPS, Nylon etc. It must be noted, however, that reliable operation and desired results are often obtained only after fine tuning software settings and printing parameters in an experimental process. Similarly, Mass Portal printers are able to print a number of flexible materials.

SEAT, GASOLINE CAN & HANDLES
Printed with FormFutura Flex EcoPLA

FRAME ELEMENTS
Printed with ColorFabb_XT

BODY PANEL
Printed with ColorFabb_XT

TREAD
Printed with NinjaFlex

OFFROAD SCOOTER
Printed with different brands of ABS, post processing: sanding and assembly

AN INNOVATIVE MATERIAL
Acchive great color and quality with the ColorFabb XT Copolyester filament

EVEN THE BOX IS A FEATURE.
The printer ships in a plywood box, that doubles up as both a printer stand and a storage unit for filaments and other items. It even comes with two shelves, so you can store more than a dozen rolls of boxed filament in perfect order, and still have some room to spare. Of course, you can use the box for transporting the printer later on.

MASS PORTAL®

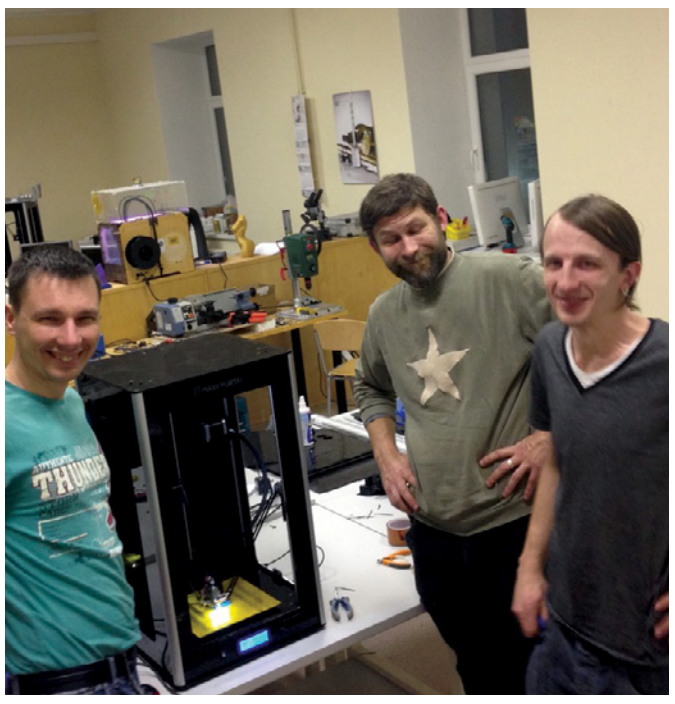
Mass Portal News

#1 • November 2014

Mass Portal SIA
3/11 Pulka str.,
Riga, LV-1007, Latvia

Phone
+371 255 00 393
Email:
sales@massportal.com
Facebook:
Facebook.com/MassPortal
Twitter:
@MassPortal

MassPortal.com



AT THE MASS PORTAL OFFICE A YEAR AGO.
Alvis Narmonts, Jurils Klava and Kristofers Celms

THE FAMILY TREE.
The Mass Portal Pharaoh™ is a proud descendant of an established line, since early 2012.

THEY DID IT

INNOVATORS: Edgars Rozentals, CEO & Founder of Helico Aerospace Industries and Roberts Dauksevics, Robotics Engineer

Smile, You're on Camera

A (3D Printed) Success Story: AirDog, the Auto-follow Camera Drone

Start-up company Helico started developing technology of auto-follow camera drone in summer 2013 and this year came up with their first product — a foldable auto-follow quadcopter named AirDog for sports enthusiasts and professionals to follow and film them outdoors.

The technology development behind the drone was complicated, incorporating at least 5 different, completely innovative concepts. AirDog is first product of the kind providing the function of autonomous following and filming at the same time. Up till now enthusiasts were limited by renting multi rotor helicopters that had to be controlled from land.

This revolutionary product will completely change the way action sports are filmed — snowboard, wakeboard, skateboard, BMX, motocross and all other kinds of freestyle disciplines, that benefit from the aerial imagery.

Kickstarter Campaign

In 2014 Helico started their famous Kickstarter campaign pledging for $200,000 — that was reached in just 4 days time. By offering additional features such as color choice and GoPro charger in the AirDog, they raised more than $1,3 million, backed by 1,357 people.

3D Prototyping

For AirDog to get off the ground Helico had to completely rely on 3D printing.

Initially they ordered silicone molds from China, with the turnaround time of two weeks. Not only was it time consuming, but models themselves were too heavy in keeping AirDog in the air.

"The benefits delivered by 3D printing compared to the method we used originally are numerous. Above all, turnaround time is significantly reduced and if we need to make last minute changes to a design, we can do so within a matter of hours, easily and cost-effectively. This was simply unachievable before as it necessitated time-consuming production of a costly new mold. In fact, I'm not sure how we would have arrived at the stage of having a functional part, were it not for 3D printing technology." says Edgars Rozentals.

The second most used tool at Helico is CNC machine for creating some of the metal parts.

"I'm not sure how we would have arrived at the stage of having a functional part, were it not for 3D printing."

3D Printing

Helico's first 3D printing experience came through the use of a Leapfrog 3E printer, chosen thanks to its impressive printout size. However, a few months had to pass to understand the printer and to succeed in printing itself.

The experience and knowledge accumulated with Leapfrog lead them to minimal time spent on problem solving when 3 months ago they started using their first Mass Portal 3D printer. Edgars finds Mass Portal product capable of competing at the high end of desktop 3D printers. Mass Portal printer combines precision and relative simplicity of setup and use, meeting the expectations of heavy-duty users. Helico prints the smaller parts on a Mass Portal printer, while bigger and more complicated parts are sent to their partners at Baltic3D for printing on Stratasys printers.

AirDog

- Raised more than $ 1.3 million at Kickstarter
- Can reach up to 70 km/h
- Uses gyro-stabilized gimbal for smooth shooting
- Camera always points at the target
- Can follow any moving object with the AirLeash attached to it
- Operation time: aprox. 15 non-stop minutes
- Weight: 1.6 kg
- Waterproof AirLeash
- Autonomous landing
- 6 modes of following, including previously set route through the AirDog app
- Collision-sensitive motor shutdown

AirDog

AirDog doesn't ask for unnecessary attention. It's simple as that — "put the AirLeash on your wrist or helmet, turn the AirDog and remote on, press take-off and you're done. AirDog is now in action," says Edgars

You can adjust AirDog for height, range and angle, ensuring the best point of view. It uses gyro-stabilized gimbal in order to create smooth videos always keeping its target in the center of the shot. The drone can hover above, circle in set radius and height, automatically follow your every move whilst completely ignoring weather, temperature, even physical objects. The latter has been achieved by developing sensors that scan the surface under the AirDog. Such sensor will command it to go higher if surface starts elevating.

AirDog developers have also implemented an app that will help its user to define the "no-fly" zones for places where following would be dangerous or not possible.

Currently most suited places for AirDog are non-crowded open fields. The development of sensors has not yet reached the point where AirDog could detect and avoid objects in a crowded place.

One of the main problems for AirDog users could be stopping look back on the AirDog and let it look back on them.

Net: airdog.com

MAKER COMMUNITY

Idea Marathon

Promotion of Technical Innovation — the Common Goal of Different Maker Events

TARTU MINI MAKER FAIRE 2014. Mass Portal stand

Maker Faire — is an all-ages gathering of tech enthusiasts and inventors. Throughout the world it is a place where a rocket scientist and a six-year old with a self-constructed robot can sit at one table and exchange their experiences.

Net: makerfaire.com

GARAGE 48 HARDWARE & ARTS TARTU 2013. Mass Portal printing workshop

Garage48 Hardware & Arts

The lack of knowledge, information, the like-minded people and funding often causes fear of starting a new project or business. Garage 48 has been created with the aim of changing this way of thinking, creating an environment for new ideas and cooperation of creative people.

Less Talk — More Action!

Garage 48 event series started in 2010 with past events taking place in Africa, Ukraine, Belarus, Russia, Finland and the Baltic countries. In Latvia there have been several Garage 48 hackathons in Riga and Ventspils.

All of these event series share the desire of bringing venturesome people of different areas (programers, designers, entrepreneurs, as well as marketing and project managers) together and motivating them to create a working product prototype within 48 hours.

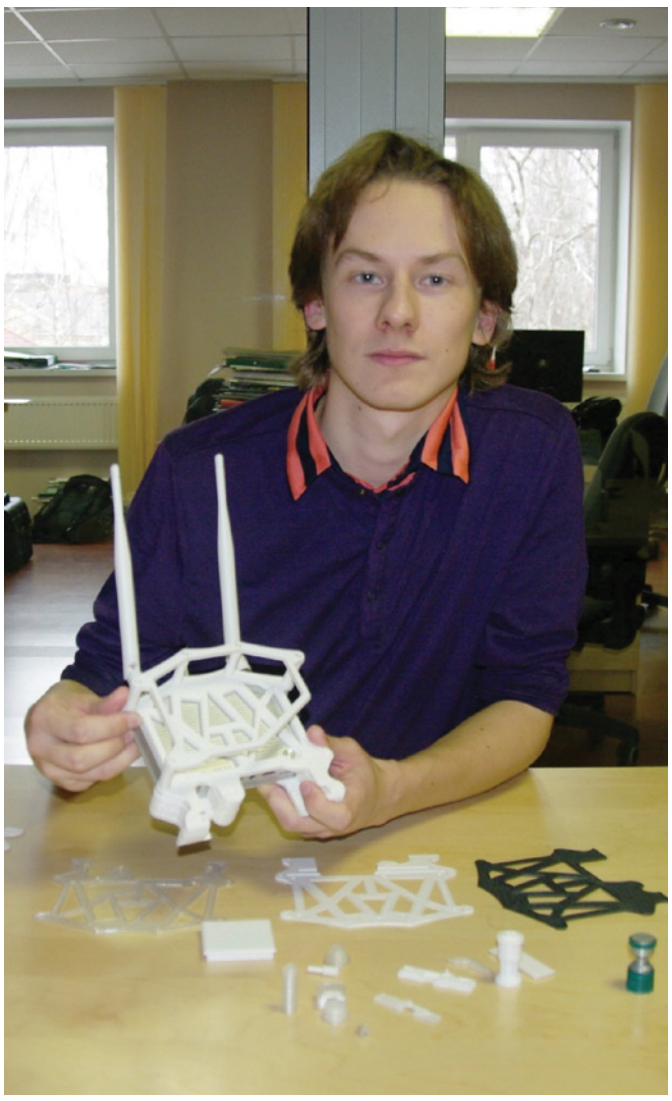
Garage48 Hardware & Arts activities focus on the creation of tangible things and not software development. Mass Portal is Garage 48 official 3D printing partner, providing the participants with 3D printers and prototyping mentorship.

Net: garage48.org

TECHNOHACK TALLINN 2014

From Guns to Advertising

Anything can be printed



ARMANDS DUNDURS, designer at D Dupleks

D Dupleks is Latvian company that for more than 10 years manufactures smooth-bore steel slug munition and different kind of equipment for hunting and military operations. At the moment most of the company's products are being exported to around 30 countries and the company itself is an internationally recognized player who regularly participates in major industry exhibitions.

Armands Dundurs is D Dupleks computer designer and a student of graphic design in Latvia University, where he studies 3D animation, modeling, drafting and printing. Armands is responsible for the modeling and printing jobs in the company.

"The acquisition of 3D printer was the initiative of the company's director, chief engineer and chairman Aivars Dundurs," says Armands. "

"Creation of new products and innovation plays a great role in sustaining the market position. To survive, one has to make unique things, and 3D printer is the fastest prototyping tool for such tasks" says Armands.

Prototyping

D Dupleks uses 3D printer to prototype munition, various moving parts for weapons, gun holders, etc. One of the last prototypes was a 14x17x5 cm big radio transmitter holder, equipped with control panel and two video displays. Such a standard holder was not available in the market and one had to work on unconventional solutions.

Apart from munition company is also working on a range of specialized fastening equipment solutions, as well as manufacturing equipment for its own needs.

Armands says: "I was pleasantly surprised that the Mass Portal printer is manufactured right here in Latvia, because you can see that it's not some kind of home-made monster with wires hanging out and bare microchips hanging out. And the quality of printing is fantastic, even when working with relatively small and accurate parts."

3D Printer for Advertising

Besides prototyping, 3D printer serves company's own advertising needs — it prints product presentation consumables. For instance — a pad for a new slug that's placed on a podium with 3D text effects. The podium is printed from a light-permeable PET material and the LED light-emitting diodes embedded in the podium attract the visitors of the stand.

Net: ddupleks.com

The First 3D Show in the Baltics

Riga 3D Show at Riga COMM 2014

THE NEW PHARAOH™ PRINTERS IN ACTION. Mass Portal stand at Riga 3D Show 2014 / RIGA COMM 2014

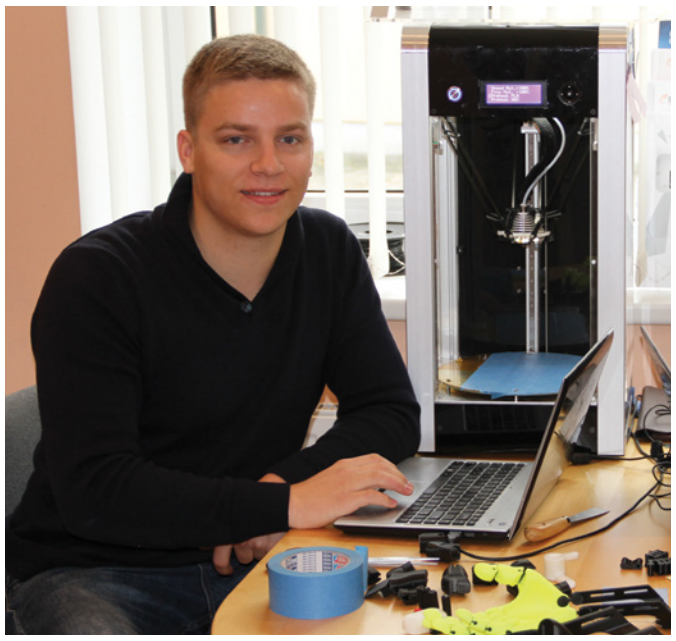
Introduce your business to the world of 3D — is the motto Andris Breske declares by opening *Riga 3D Show* — a zone dedicated to 3D technology within the RIGA COMM 2014 IT fair.

"I wanted to cover the area of IT progress and opportunities, wanted to meet and talk. For that to happen the first RIGA COMM was organized in 2012, which succeeded, and in RIGA COMM 2013 there were already 65 exhibitors." This year, there were 4 zones in the Baltic IT expo – Gaming zone, IT job market zone, Startup zone and Riga 3D Show — 80 exhibitors from 8 countries.

"3D technology developers and manufacturers in the Baltics have high potential, because they are mostly startup-type companies, that, compared to the big manufacturers, are very flexible and can bring new products to the market very quickly," says Andris Breske.

Mass Portal demoed the new Pharaoh 3D printer, generating a lot of interest.

Net: rigacomm.com



JANIS JATNIEKS, Managing Director at Baltic 3D

3D Printing Experts

"My Main Job is Telling People what 3D Printing is."

Baltic3D is a retailer of STRATASYS printers in the Baltics and also a provider of 3D printing services.

"We started our research on 3D printing in internet, later on — in real life mode. We then went to see how are printers working in Poland, Germany, Lithuania. Tried to come in terms as to which is the printer we could bring back to Latvia and that would be something entirely new in the Baltic market.

Collaboration

We own two printers — STRATASYS PolyJet un Mass Portal printer that we purchased this year. We are very happy with Mass Portal printer. I do think that their Delta printer is one of the best desktop printers available at the moment.

Mass Portal is also one of our service partners. We exchange ideas and in such a small market as in Latvia its very positive to work in collaboration versus competition.

We have all kinds of people. People that have heard of 3D printing, want to know better, are experienced in 3D printing. But the clients that stay are manufacturing companies.

Prototyping sums up 90% of all our printing. The remaining 10% are end products and concept models, which cannot be called prototypes.

My main job is telling people what 3D printing is and not managing or selling itself. Lots and lots of telephone talk, explaining the work… Once one comes and sees it, the idea changes completely.

Will 3D Printing Change Everything?

It will change the way the idea arrives to the point of manufacturing — that is the foremost task of 3D printing. There are many niches where 3D printing will rise its level far above the existing. Biological printing has the potential of evolving and becoming something unique. And that can be accomplished only with the means of 3D printing.

Net: Baltic3D.eu

ANDRIS ZARINS, bike and 3D printing fan

Man with a 3D Printer

"People have to change — they gotta have what they want, not what they can find in stores," says Andris Zarins, engineer at Latvian Railways company, a member of bike adventure club apPasaule, owner of two enduro and two snow bikes, 3D modeling pioneer in Latvia and one of the few home users of 3D desktop printer.

Since April 2014 when Andris bought the Mass Portal printer, both of Andris' hobbies — 3D printing and mountain bike enduro competitions — literally complement each other.

A lot of equipment for bike competitions and adventure rides are being printed by Andris and his son at their home.

CHARLES BUSHMAN. Head of RTU Design Factory

Print. Cut. Solder.

Design Factory is a laboratory that helps students realize their plans and projects both in their studies and starting own businesses.

RTU Design Factory (Riga Technical University) is an independent platform within RTU aiming to promote interdisciplinary learning, innovative idea generation, development, even incubation, and to solve real-life problems and tasks for the companies.

The founders of DF are Charles Bushman and Guntis Kulikovskis. Charles found Latvia to be a favorable environment for such projects, thus leaving behind the *old Europe* and launching a number of projects, including the RTU Design Factory.

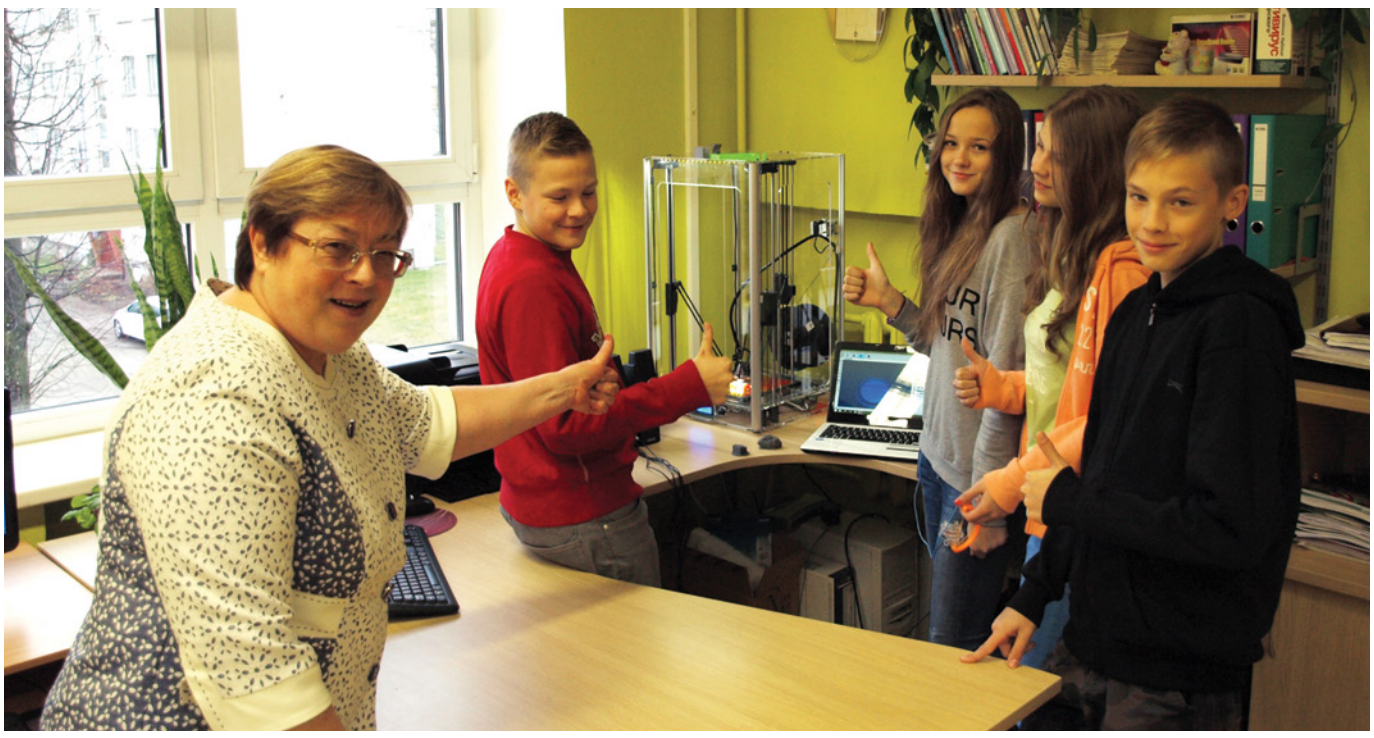
There are four such factories in the world now — in China, USA, Australia and Finland, with around 12 being in preparatory phase. All of them are connected in a global DF network, thereby promoting interdisciplinary learning and realization of projects. DF is equipped with plotting, CNC and 3D printing machines.

"We do not promise anything that can't be done. When we work for a company, we give only two promises — we take your money and we do best we can. That's the only promise we can give. That's how we expect to have our best results," says Charles.

"It was here in Latvia where I first worked with thermoplastics 3D printers. I like its simplicity. If you need a prototype, it's much cheaper and easer to make it with such a machine. It will be a little bit rough. It will not be so polished. But it's enough to understand the size, how it fits in the hand, if parts are correct, etc." says Charles.

"I think the danger in 3D printing is — lets make 3D printed objects! I don't think that's the goal of 3D printing. It is not there yet. I think 3D printing is a very interesting, very useful tool of design. You can print an iPhone case, a holder for a cup and such things. But I don't see it happening on a mass scale."

Net: RTUDesignFactory.com



IT TEACHER TURNED 3D PRINTING TEACHER: Vizbulite Misevica at Balozu High School

3D Printing in School: Pioneer's Take

The basics of 3D modeling in Balozu High School are taught by using SketchUp modeling program. Since october 2013 models can be printed on the school's 3D printer.

The Role of 3D Printing

"There will likely never be mass production of significant scale in Latvia. Our road is development of new products appropriate for each client. 3D printing is a technology that allows to do it. It is important today to show our kids, that there is such a technology, that it works and that it's right here in Latvia," says Juris Jerums, teacher of economy at Balozu High School.

"It is important to be allowed to make mistakes and try again."

The IT teacher at Balozu High School Vizbulite Misevica stresses out, that "it is important for kids to see the result of their work. To have a palpable real-life product. In turn, there are number of subjects linked to the creation process itself — architecture, mathematics, geometry, IT, physics, chemistry, electronics and drawing."

"No new thing has ever been created with the first round. I think there should be a 3D printer in every school. The technology is cheap and it gives a lot of opportunities for an interesting work with kids," says Juris.

Net: balozuskola.lv

MASTERS OF ROBOTICS. Einars Deksnis, long-term member of Robotics Club, member of Robotics School and Vitolds Birins, CMO at Terra Virtuala, retailer of iRobot

Robotics School

At the Robotics School, we are building great many different robots for international competitions. We rebuild iRobot vacuum cleaning robots for both robot competitions and different entertaining and educating events for children. We donate our robots that have served their duty and have been exchanged to newer models to students to further remodel them into competition models. These robots have a great base — drivetrain, connectivity. This is one of the most interesting first steps to a more complicated model build.

3D Printing Experience

We have our 3D printer for half a year. It's been occupied nonstop. We are mostly working on innovative projects — printing different parts for our robots. The main is — 3D printing speeds up the whole creative process.

iRobot vs Robotics School

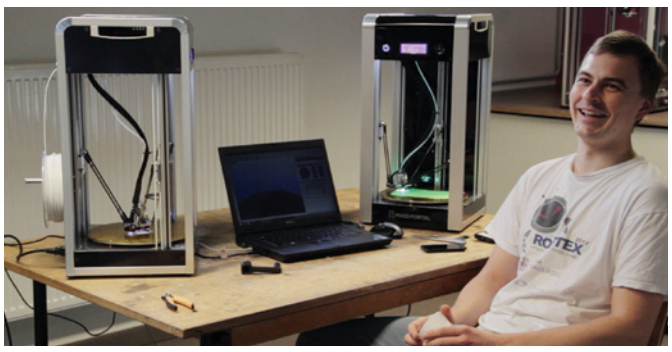
It is clear that they (iRobot) use 3D printer for much longer than us. But any robot enthusiast, including one working on commercial grounds, will be pleased to see youth being involved in robotics.

The Impact of 3D Printing?

It will change a lot where there is need for optimal small manufacturing with limited costs. Thanks to 3D printing the speed of this process is growing very rapidly.

Recently there were Days of Technical Innovation in Latvia, where we had 3D printed parts in our robots. The parts we used before were expensive, fragile and all in all not convenient. But now 3D printing has greatly decreased the cost of creating parts for robots.

Net: robotuskola.lv



THE ROBOT MAN: Guntis Kulikovskis

RTU Robotics Club

Since 2007 RTU Robotics Club builds competition robots, are participants of global competitions in Europe, America and Japan and at the moment are champions of sumo and line follower robot construction.

"I got involved in 3D printing in April 2014 when we purchased our first Mass Portal 3D printer for the needs of Robotics Club. Since then it has become an integral part of daily engineering and work equipment," says Guntis Kulikovskis.

"My first real experience with 3D printing was fabricating parts and prototypes for robots. It's there when I realized the role of 3D printer in my life as an engineer — how it broadens the borders of modeling and creating.

"We mostly print all kinds of mounts for sensors and motors. Complicated parts of configuration, comparatively hard to accomplish with laser cutting or routing machines. As well as parts for rapid functionality tests."

Mass Portal printers let us focus on file preparation rather than worry about functionality of the printer. When comparing with other 3D printers I've seen, the robust build and quality of the performance is a stand-out.

3D printing has its place where it helps to create not all and anything, but specific and detailed parts starting from the very early design stage.

Net: robotikasklubs.lv

DESIGN

EGILS MEDNIS, multimedia artist

Miracle of Creative Spirit

Technology Cannot Replace Creativity

I had never heard anything much about 3D technology, but the moment I heard about it last year I immediately bought a 3D printer. It was just like that — boom, there's 3D, there are printers. I realized I can buy them and I've seen Ultimaker already. A couple of days later some guy said it can be found in Tech Industry expo, where I met the Mass Portal guys. It was then that we negotiated about me taking that big prototype.

3D Role in Art

I've thought long and hard about the issue of 3D role in art, and I've realized today's biggest error. It's that through marketing, through the build of society technology has become some kind of salvation — it has taken the role of savior. People are continuously waiting for a new program, new machine, new gadget, that will enable them to do something more. When talking about 3D printing I want to stress this — 3D printing actually doesn't change anything — it doesn't change human soul. I think it's an entirely normal tool. But it's important not to change it into something more than it is already. The results are most wonderful when people deal with technologies intelligently, without becoming enslaved by them.

Both motorcyclists and architects are now 3D printing same things that can be made without the printer. It doesn't do anything you cannot do already. But it changes the consciousness and the state of consciousness of things being done. I reckon 3D printing will bring in something entirely new we have not thought of yet. To the point where it will be hard to imagine how have we managed without it. — A garment printing machine. Entirely new way of buying and getting stuff. I really do see wondrous things happening here.

Having spoken to artists, for them to really use 3D printing, besides from inspiration, they need to have some technical interest. And clearly not every artist will deal with a 3D printer.

If you've decided on 3D printing, it's important to think of something new instead of making things that have already been done. Apparently — learn some basic 3D software, at least SketchUp.

I am interested in a 3D printed piece of jewelry or anything I can bring to the gallery...

But it's crucial to have a genuine interest. In any case, I believe you have to run the internal heart test, wait for tomorrow and if it's still there — go for it.

Return of Investment

I am now quite simply and primitively testing if 3D printing enables me to recover the investment put into the printer. Therefore, the experimental side of it has gone to the background (which I don't like, because, as an artist, I should work more on the miracle of creation).

I am interested in a 3D printed piece of jewelry or anything I can bring to the gallery, where I already have a stand with 3D printed necklaces and with soon-to-come printed rings.

The Wonder of Limitation

I like the type of lab work and I also build robots myself. For instance — a drawing robot. It's one thing to make a mechanism that changes colors, to figure out how it can both ride and change the colors with the help of engines only. But it is another thing to understand what's he going to draw. Because, as I saw on youtube, the robot only performs a digital drawing already given to him. But I wanted my robot to draw by himself.

The solution I found for the given task was in the artificial intelligence. What my robot draw was completely primitive, it's on youtube — you can't really understand it. And I think, for me as an artist, it was the biggest challenge. To do what you've never done and do it with primitive means.

I may not know the coding part of 3D printer, but I understand the logics behind it and I do not fantasize about the shapes I cannot print. I know the desktop printers have quite a deal of limitations. — At the beginning I didn't know that and I thought one can print about anything…

But those limitations have a great potential for real creativity. — When you find a workaround and not notice them any more. I would like to even call it the miracle of creative spirit. In any case, any field, be it art or non-art, you don't need anything much or expensive, but you need the creative spirit that gives you solutions. It's when miracles occur.

If you can survive without a phone for just one day, the need for it drops in a geometric proportion. It's a general rule of thumb, because that's the human nature.

On the other hand, if that's your passion — you have to follow it. It's a tool in the hands of spirited and passionate people. For everyone is creative already, but people are scared to admit it. They instantly start comparing themselves to the world's best benchmarks. But one has to distance oneself from it all. To my understanding — creativity is some sort of field, available to everyone who is open to it.

Net: behance.net/mednios

INTERACTIVE ART

Connection Codes

A DIFFERENT KIND OF CODERS: Kristaps Bitters and Martins Dabolins

Kristaps Bitters, the man in charge of interactive multimedia solutions and Martis Dabolins, the heart and brain behind the interactive art laboratory Connection

"We would like to encourage people to think. The basis of our work lies in human nature. Our product is mindset technology — a device that is put on a head thus enabling to read the brain frequencies. The result is a product that allows our thoughts to physically affect the matter.

Our Riga Shines 2014 project is going to be brainwave projections with changing 3D fractals in it that can be printed out as well. We can sing a song to somebody and the resulting pattern of thoughts, created by our singing, can be 3D printed," says Martins.

The Meaning of Data

A person can look at his/her brainwave data picture and ask — why is it black and with such ugly corners? — It's likely you were angry… Look, how beautiful this picture is, how nice, with a flower, when you were in the mood and joyful. This is the right direction for you to go. — It is up to you, what you're going to do with this information.

Reading Behavior

The main technology behind our work is kinect and leap that perceives, interprets and reacts to human motion and gestures. Therefore, all we read is human behavior in any given environment — be it solitary or crowded.

We can read the face, its features. We can read the whole body, all of the gestures, how we work, what we show. We investigate it even further. We collaborate with neuroscientists — the know-it-all people of the human brain. — If a pattern between the two hemispheres is asynchronous, that's a signal for some kind of brain deviation. Or vice versa — brainwaves of successful people are entirely different. — We can now look at it and compare the results.

The Idea Stage

The idea grew in my home garage — out of a big box of wires, something mystical. All of my family members kept on asking the same question all over again— when are you going to remove all of this away. — These were experiments where I was my own guinea pig. As a result I realized I have to work on myself.

3D Printing

It was a long time ago since I had my first thoughts about having a 3D printer and how cool would it be. But I had no idea as of what kind of printer, why and what could I possibly do with it.

When I got my hands on Mass Portal printer, it domesticated me immediately. I was literally hung up on it. For the start we had to launch it, then — get through the whole printing process — printing parts for installations, performances, sensors, all kinds of mounts. And everything printed out so accurately it didn't require any polishing.

Although we don't have the best model, instead, it's one of the first Mass Portal beta printers, it has already simplified our work process by 500%.

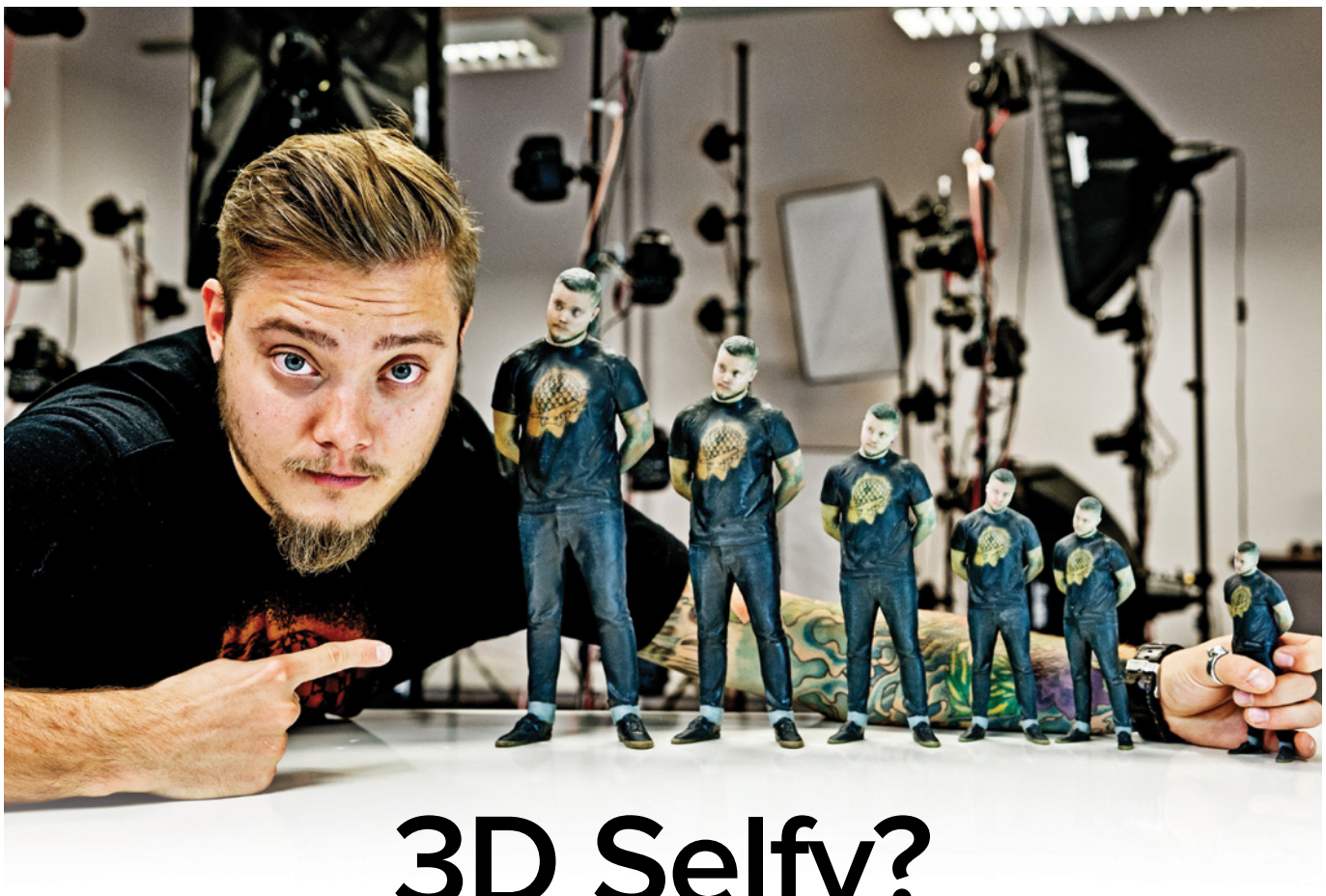
Will 3D Change it All?

Yes. I will not have to go to the shop searching for some kind of expensive parts. There's a lot we can get out of this printer — not only what's normal and regular, but also something completely non-functional and abnormal.

We are also observing the printer's behavior and response to all kinds of modification. We put it on its sides, we put it upside down, we experiment with settings. As a result of all of that we've managed to 3D print a sponge — something that this printer and these materials are not not supposed to do.

We do not print what's on internet, because somebody has printed it already. And we do not try to make things that are there already.

Net: connection.codes



3D Selfy?

DollyMe3D, First 3D Photostudio in the Baltics

DollyMe3D and Wolfprint 3D founders are students of Estonian Business School Timmu Toke (21) and Haver Jarveoja — in 2013 within the framework of business studies they opened the first company Wolfprint 3D — 3D modeling and printing service.

Wolfprint 3D uses Mass Portal printers since the time of founding. Currently they own the newest Mass Portal printer. Timmu says — comparing to the previous version Mass Portal proved to be immensely growing towards the quality.

The idea of 3D scanned and printed figurines was borrowed in Berlin a few years ago. At that time there were maybe 6 companies in the world (mostly Japan) that offered this kind of service. Wolfprint saw it not so much as an idea to conquer the world but as a bootstrap for the already started 3D service.

For starters, market available full size scanners and 3D technologies were explored. In the result it was clear that the equipment is either ridiculously expensive or the quality of colors is not satisfactory. — The decision was made to build the study on their own.

Currently DollyMe 3D study uses 50 Canon DSLR cameras that shoot the model from all sides with shutter time of just 0.01 seconds, subsequently bringing the data into a 3D model. The whole creation of 3D model takes up to 2-3 hours time. The involvement from client's part being just a couple minutes. Such a figurine costs starting from 150 euros.

The most time consuming process is 3D printing itself, that is currently being done in Belgium on a full color printer. A bronze or copper imitation figurine can be printed on a Mass Portal printer.

DollyMe 3D also works on a unique creative commission — 50 life size 3D scanned people models made for Estonian National Museum for exhibition of costumes and accessories. As well as sculptural works of art scanned for art museum's KUMU digital library.

During the Christmas season DollyMe3D plans to open pop-up store inside the largest mall near Tallinn old town — Viru keskus, that is being visited by 50'000 people daily. This will be the first time that DollyMe 3D photography service is offered to such a large number of people.

Net: DollyMe3d.com

THE PUPPET MASTERS: Haver Jarveoja and Timmu Toke

ARTSPEAK

Art in the Era of 3D Reproduction

With the development of photographic and filming equipment capabilities Walter Benjamin in his essay "The Work of Art in the Age of Mechanical Reproduction" wrote about the change in public perception and opinion. A hundred years have not passed yet, but technological development have given rise to new opportunities and challenges.

The new three-dimensional technology is relatively inexpensive and makes it possible to easy reproduce almost any three-dimensional object. However, what is the importance of our tactile perception?

For a person to feel he or she has to be in direct contact with the perceived object, therefore the tactile experience seems to be much more intimate than that of visual or auditory.

In the context of different religions and rituals the touching of an object is often taboo. Touching an object in the environment of museums and galleries is also considered to be undesirable in regards of preserving the object and exposition. This principle has been broken only in recent years when museums started special tours for the visually impaired. Even in contemporary art only a few have dared to trespass the borders of intimacy. For example, the campaign *You can touch my hair* organized by the *Un-ruly* association led to a sharp public reaction.

The new reproductions created by 3D technology can serve as an intermediate step between the object that cannot be touched and the interested person.

Such a reproduction does not give a true picture of the weight, size and material of the object, but similarly to a two-dimensional reproduction, it enhances the popularity of the object or the illusion of recognition to a wider public, but in a sense of a new, more intimate level.

ARCHITECTURE

Overturn

Martins Pilens Tells About the Role of 3D in an Architect's Office

"3D printing is the most important overturn I've experienced in the last fifteen years of my studies and work in architecture. I've seen no other overturn."

For a very long time I've lived with the idea that 3D printing is not for me, not any more. That either I'm too old, either there's too much planning and concern about functionality of things. I saw 3D printing next to a 3D vase fabrication or something I didn't really see in my life.

But I met Mass Portal people and was able to observe the printer in action. By seeing how it quite convincingly provides with quality black and white prints, I became willing to take a risk and invest my time and patience into adjusting it to the needs of architectural modeling.

It seemed pretty clear to me that 3D printing fits the niche market of souvenirs and other such things that's not exactly in my range of work. More precisely — for me, it had to serve the role of modeling — creating landscape, buildings or small cities.

Detailed and Lightweight

The main advance I saw in 3D was its capability of creating a detailed and lightweight model. I realized it is now possible to replace a heavy plywood model, that has to be put in a suitcase to go on a flight, with this lightweight 3D print, that is also much more durable. These were the main factors why I decided — OK, let's do it and let my office go and figure it out.

In my bureau we're creating models for almost every project. We are building models for both interior and furniture. With the 3D printer I am hoping to save time, reduce labor intensity and the cost of models.

In any case, as we're already working in 3D environment, now we only have to transfer the task to a 3D printer.

From Huge Models to Smaller Models

Thanks to high enough detailing 3D printer gives an opportunity of a different scale point of view. That means we don't have to build extremely huge models, instead, we can build them on a significantly lesser scale.

We have found polystyrol to be the best material for our needs. We are also upgrading interior designs and 3D printing furniture models. Our office is due to have a presentation of the major Riga Latvian Society House project and it's going to be exclusively 3D printed. This will be the turnaround moment, us giving up on hand crafted models and things like visualization.

3D vs Handmade

We work both in architecture, interior and design. Therefore, 3D printer allows us a much more successful presentation of design objects.

Secondly — it's great for modeling urban planning projects with many small repeating cottages, that are boring to cut with a foam cutter and extremely expensive to order at carpenters'.

It's a bit more complicated exactly in the middle — in the exact architecture, where we're designing the house. To make a step forward, we need a large enough scale. And that is not supported by the 3D function yet.

Thirdly, we have 3D printed a couple of wall plugs to prevent a short circuit in the office. For me personally, it was a huge surprise that can be done. I can see that with a slightly more flexible materials coming in, 3D printing will become a great application for the industry of fashion and creating bracelets, buttons and other accessories. Thanks to its typology and dimensions, it is the right 3D printing scope.

Team Builder

This printer is clearly a huge team building event — when all of a sudden the whole team is shining like little children and running and trying to do something. I see it as a daily motivator for my employees.

Will 3D Change it All?

Yes and no. I think 3D printing will attract even more young people to 3D design and modeling. That's the main thing.

It has to be understood that with the new education system less and less office people do hand crafting. Thus, the craftsmanship skills are on a criminally low-level. And only ugly models can be made with criminally low-level skills. In which case, 3D printer comes as a rescuer.

Net: 1plus1.lv

MARTINS PILENS, architect and manager of 1plus1 architecture and design office