

LEDGER

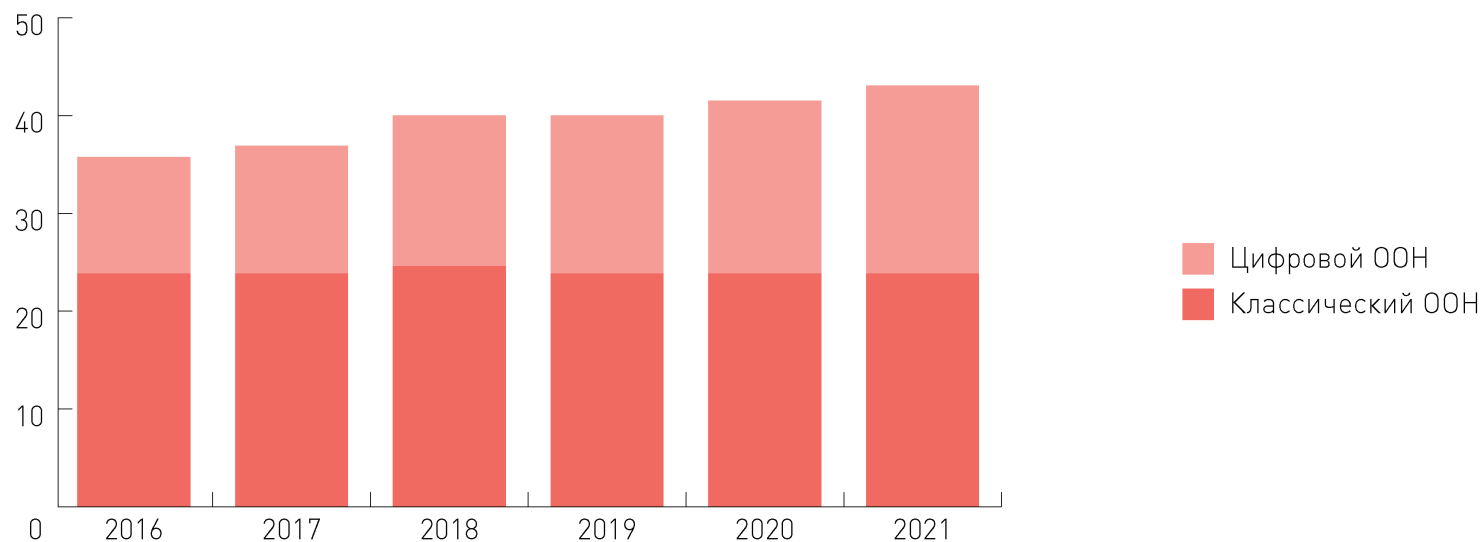
GLOBAL NET OF DIGITAL BILLBOARDS



MARKET

In the next 5 years outdoor advertising market will gain up to \$45 bn, digital formats will occupy about \$20 bn.

Major players with billions cash flows exist on the outdoor advertising market, but there is no global start-ups capable to consolidate the market.



Объем рынка наружной рекламы по данным PWC (млрд.\$)

OPPORTUNITY

There is a billion of usual billboards with the audience of 500 million people worldwide!

What if we hang light digital screens on these billboards, combine them into one net and plug them to large advertising platforms such as Google ADS, Amaxon ADV?

- Companies all over the world will be able to advertise on the thousands of billboards anywhere in the world.
- Advertising cash flows of such a net will achieve a billion dollars per month.



PROBLEMS

- Outdoor advertising nets are not connected between each other.
- It takes a lot of middlemen to place the outdoor advertisement.
- Nowadays technologies of digital screens are obsolete.
- Digital billboards are 10 times more expensive the usual ones.

It is impossible now:

- to launch the advertisement of your business on the billboards anywhere in the world in two clicks;
- to install a digital screen on the usual billboard instead of the banner, you will have to change the whole display;
- to hang the screen on the building wall and receive automatic constant income;
- to install the digital billboard there where is no electricity.

SOLUTIONS

Ledder creates the decentralized advertising platform, which can combine separate screens and advertising units into one global net.

Ledder develops a new standard of ultralight digital billboards, which will be 10 times cheaper than nowadays technologies. Screens will be powered by the sun through the video surface and they will be operated with the help of autonomous drones.

- DigitalBlade screens can be manufactured on any of thousands of existing factories, they can be easily installed on any surface, including the surfaces of the usual billboards.
- Screens are easy to use, you will need only to settle them on the surface, enter the sim-card and plug it to the socket. Our platform does everything automatically: sets the screen, calculate the audience and starts the advertise streaming.
- Companies and individuals will manage to place their advertise on the thousands of billboards as easy as to make a post in the social media.

MISSION

To combine the worldwide outdoor advertising into consolidated digital format, to give the opportunity to any companies and individuals immediately advertise on the thousands of screens anywhere in the world.



AIM: With the support of thousands of partners to create a global net of digital billboards on the basis of Ledder technologies with the \$10 cash flows per day, to plug this net to all the major advertising platforms.

BUSINESS-MODEL

Our business-model is based on the franchising: we will combine the market participants with the help of decentralized advertising platform and new technology of digital billboards. Such an approach will let us grow faster, turning rivals into partners.

- Technologies**
- We give a decentralized advertising platform to the advertising operators.
 - We take 1-10% interconnection commission.
- Platform**
- We give a new technology of digital billboard manufacturing to the screen manufactures.
 - We take 10% royalty for the use of the technology.



INNOVATIONS

Ledder invested more than 150 000\$ and 5000 of man-hours to R&D. As a result we achieved the technological breakthrough. We have already received 12 patents for inventions and 14 other patents are on approval. In 2019 we are going to claim for 50 new patents for inventions. Other companies work in this direction as well. In 2013 Google announced the creation of the net of digital screen, but they still work on the innovations of digital screens. Samsung bought the YESCO american company, which supplies digital billboards to major advertising operators. That way Samsung has become a world leader in digital screens supplying.



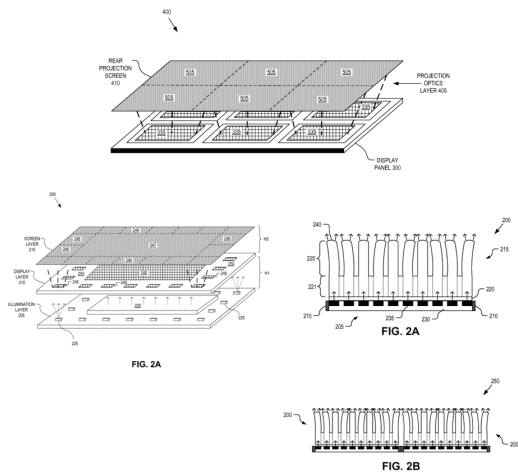
For 6 years they work on module-type video screens on the basis of projecting technologies. Most likely, such a technology will be effective only indoors because of the high cost of outdoor expenses.



We do not research in the sphere of monolithic displays and module-type led screens. Basically we improve old technologies which other companies use as well.

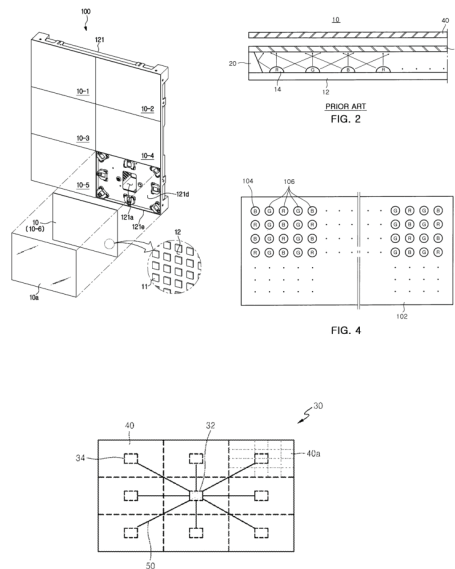


We innovate technologies aimed to create a global net of digital billboards which will be trending even in 10 years: technologies of digital screens, technologies of advertising nets management and manufacturing technologies.



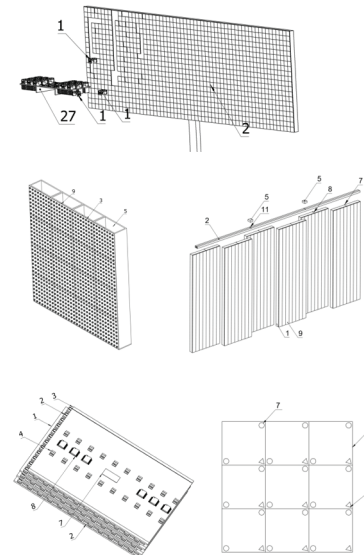
PATENTS:

US20130278872A1
 US20160179453A1
 US20150138755A1



PATENTS:

WO2018021672A1
 US20070146298A1
 US20140160077A1

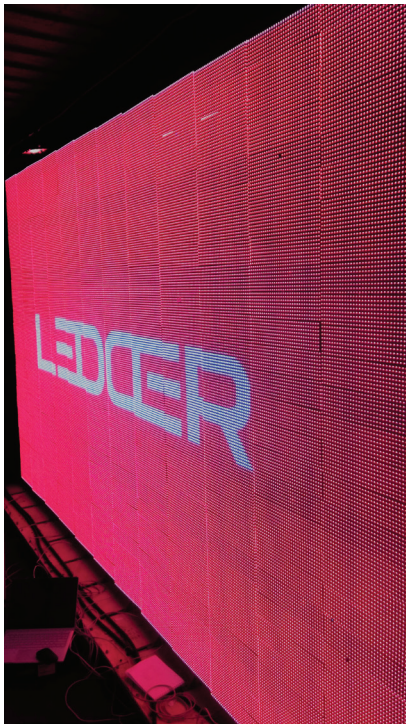


PATENTS:

PCT/RU2018/000035
 PCT/RU2018/000033
 PCT/RU2018/000034

PROTOTYPE

We have created the prototype of 4x2 meters digital screen consisting of 590 digital cards. Excluding the cost of innovation, net cost of the prototype is 30 000\$. Unlike 90 % of digital screens manufactures, we have created not just the led modules, but all the video controllers, drivers and player broadcasts.



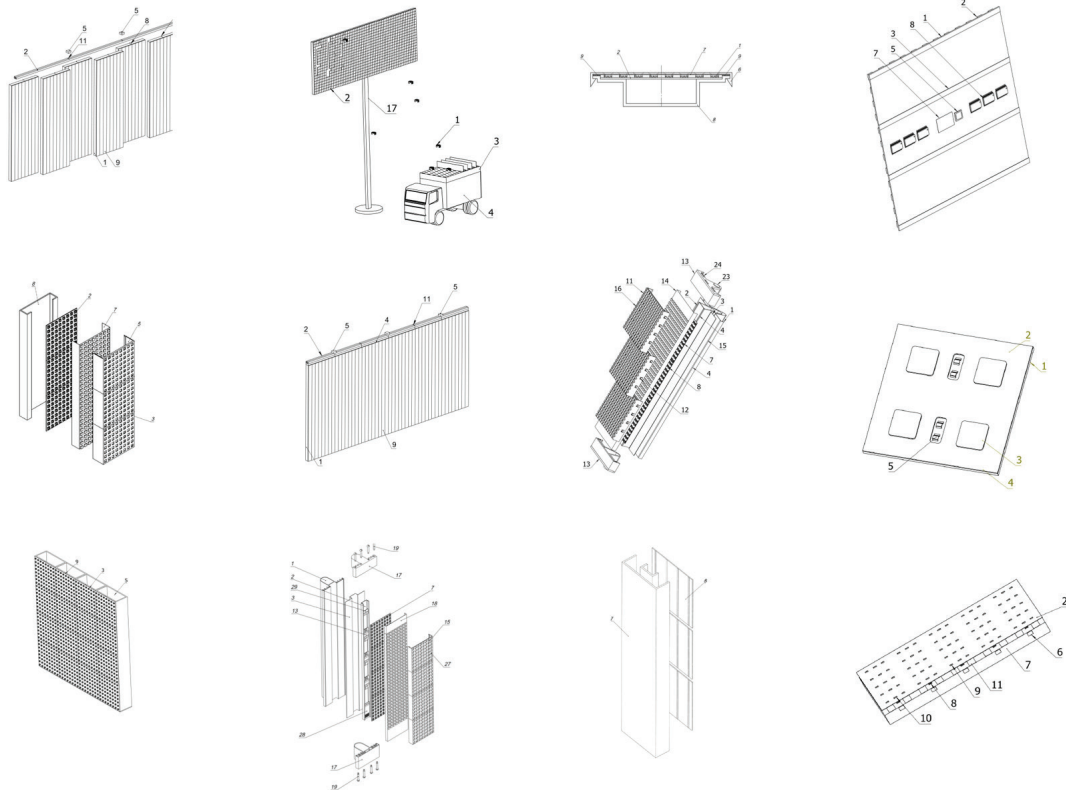
INNOVATIONS

WHERE WE WILL BE FIRST IN THE WORLD:

- confirmation technology of showing advertising video with the help of computer vision;
- fully decentralized advertising net without data centers;
- fully autonomic billboards powered by the sun through the video surface;
- technology of wireless data transmission among the screens through the wave guides;
- technology of electric power transmission through the supporting surface;
- deployment and service of digital screens with the help of drones;
- system of lean production on the basis of robotized containers;
- deals inside the advertising net with the help of virtual currency on blockchain;

PATENTS

Ledder develops and patents various technologies connected with digital advertising systems. At present, patent base of Ledder includes 26 patents and international applications for an invention. In 2019 we are going to apply for registration of 50 more patents. Our aim is to create a patent base of 200 various patents in USA, European union, Korea, Japan, China. Ledder is a technology company, we need patents to give licenses to screens manufactures, to exchange licenses with other technology companies which have patents we need.



Patents

RU2555767
 RU2646591
 RU2601922
 RU2606994
 RU2618733
 RU2628230
 RU2645654
 RU2651254
 RU2648563
 RU2662386
 RU2662384
 RU184635

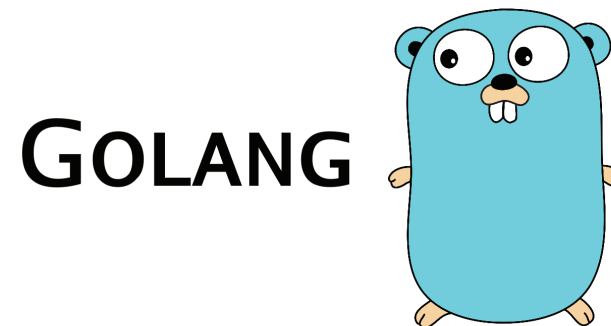
Applications PCT

PCT/RU2016/000605
 PCT/RU2016/000604
 PCT/RU2016/000603
 PCT/RU2016/000606
 PCT/RU2017/000009
 PCT/RU2017/000576
 PCT/RU2017/000577
 PCT/RU2018/000034
 PCT/RU2018/000032
 PCT/RU2018/000035
 PCT/RU2018/000033

LEDDER NET

Ledder net is the open source decentralized advertising platform, which is aimed to combine separate screens and nets into one global net, so that any companies and individuals can join this net. Herein the net will be horizontally scaled to millions of screens without changing the architecture and without expenditures for servers.

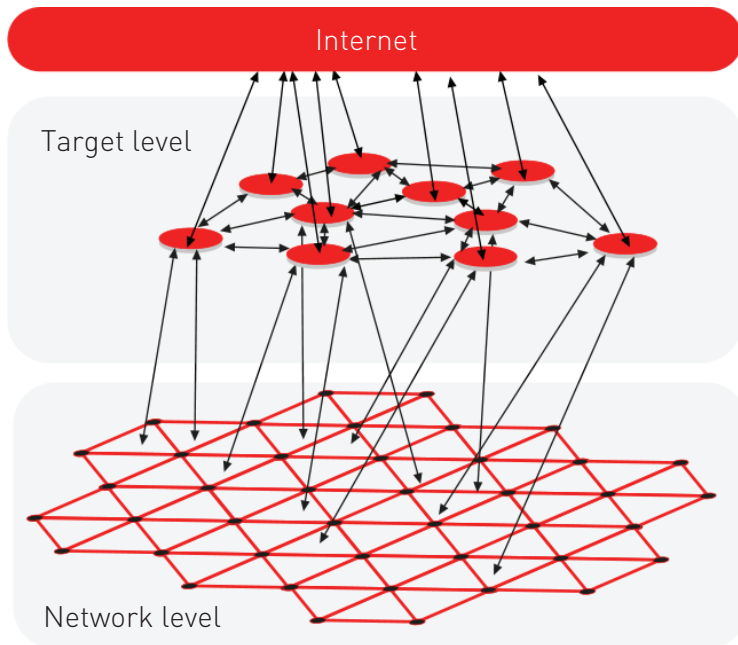
Platform is the software code which can be installed on different computers and operational systems. Platform will be built on Golang language with the use of Hiperledger Fabric blockchain engine, then platform will be moved to the original engine.



ARCHITECTURE

Ledder creates a blockchain architecture capable to process up to 500 design transactions per second and up to 200 000 microtransactions per second.

Runtime performance will be accomplished through 2-leveled architecture of blockchain and terminated number of target level node units placed in data centers of major companies.



TARGET LEVEL - It consists of tens of node units which place at data centers of major companies (advertising operators and advertising platforms). B2B sector doesn't need to create a fully opened blockchain, it discourages productivity by a factor of hundreds. Node units contain blockchain catalog and conduct financial transactions between market participants. Units of this level are the gate ways to the network level of the net as well. All passthrough queries to network units pass through these gate ways, in such a way network level is defended by the target level from the internet attacks.

NETWORK LEVEL - can contain up to million of separate node units placed next to the screens. These node units contain blockchain catalogs of microtransactions and they are placed in screen controllers. Blockchain catalogs disintegrate on cells, each cell is located on several node units. They control screens, store and they exchange data between each other. Network level represents a distributed data center with the common compute capacity of tens of petaflops, with the memory capacity more then petabyte and network capacity more then terabyte per second.

CRYPTO CURRENCY

LedderNet platform will have the mechanism of new currency creation, besides the basic currency LedderCoin, which will be used for global mutual payment between the market participants and for commissions' payment.

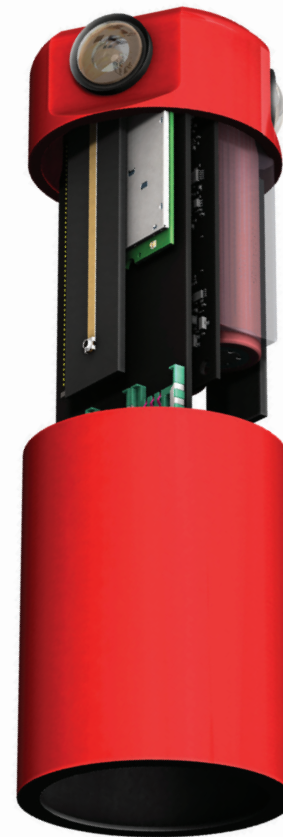
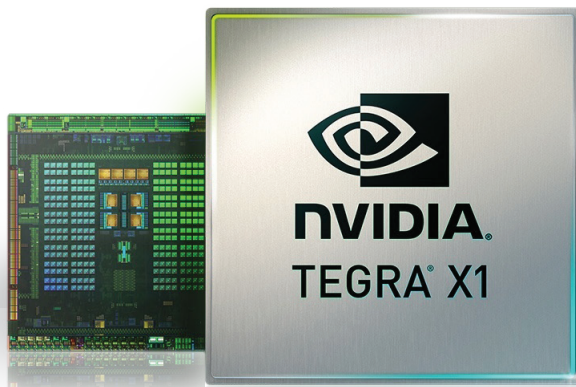
Local advertising operators will manage to create their own virtual currency with the zero sum. These currencies will be used for mutual payments between the local market participants, but real payments will be arranged between participants and advertising operator in national currency linked to the virtual one. Such a mechanism will allow to observe a local law throughout the world, in this case a blockchain will hold a function of the operations catalog.



NERO EYE

NeroEye is the screen controller. It contains quad-core processor Nvidia Tegra X1 and 256-core CUDA accelerator. NeroEye is placed next to the screen and it controls ad view. This device is the node unit of the decentralized net and it contains three 4K and 4G interface videocameras.

NeroEye controls ad view, screen audience and approves financial transactions. This device allows to work in conditions of zero trust to screen owners, as with the help of neural network it controls the view of each advertisement.



DIGITAL BLADE

The world's first double-sided digital billboard with the thickness of 10 mm, which will be powered by the sun through the video surfaces and will be rigged on supports as cloth.

TECHNOLOGY ALLOWS:

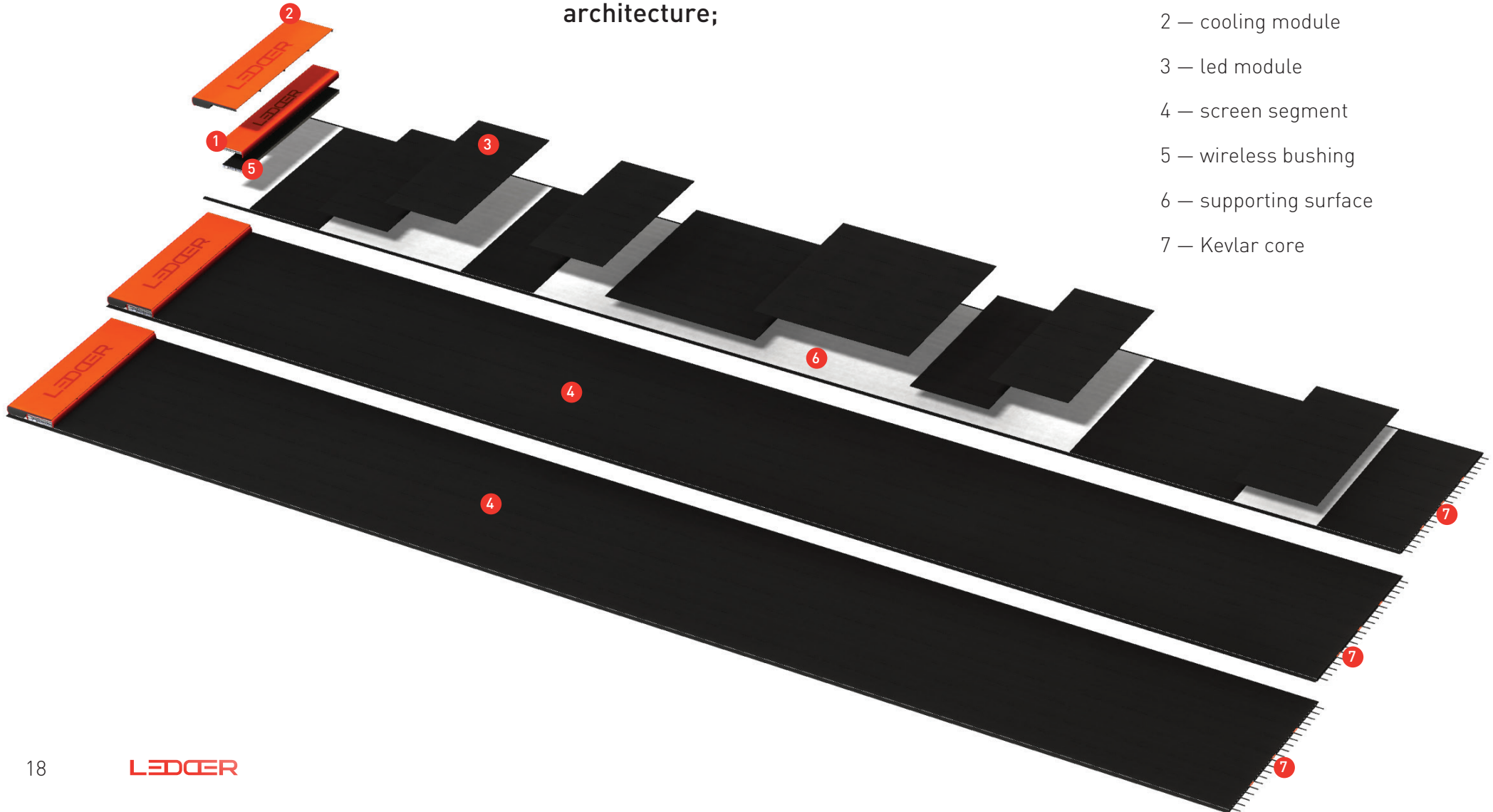
- To install a digital screen on the usual billboard instead of the banner;
- To use the existing factory for the manufacturing;
- To reduce expenditures on transition;
- To install screens within an hour anywhere;
- To launch the manufacturing with the spending of only 15 000\$;



DEVICE

Screen has the scaled module-type architecture;

- 1 — segment controller
- 2 — cooling module
- 3 — led module
- 4 — screen segment
- 5 — wireless bushing
- 6 — supporting surface
- 7 — Kevlar core

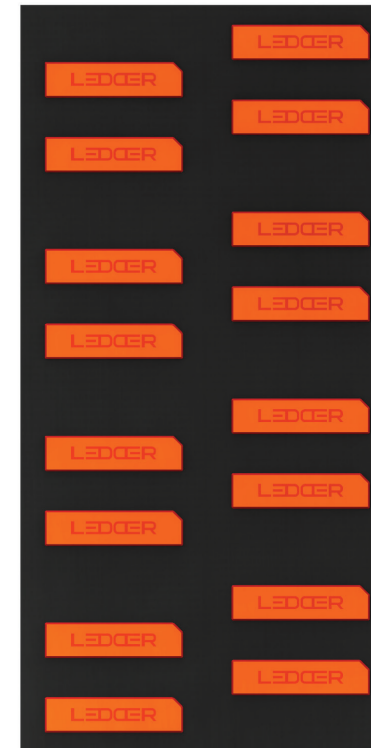
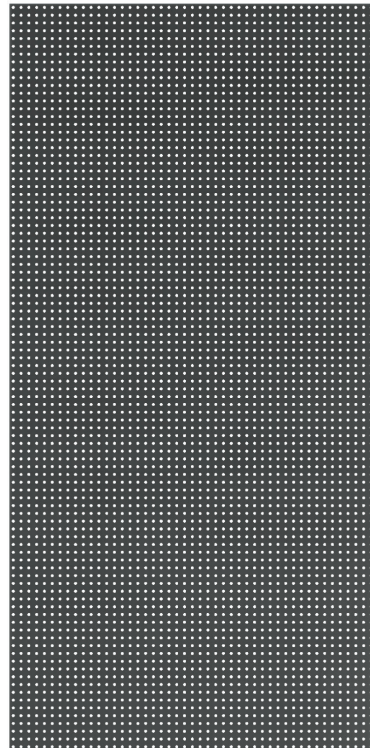


MATRIX V1

At the first stage, we are going to use matrix in Digital Blade screens on the basis of a common manufacturing process, but with the wireless interface and magnetic fixation of modules on the supporting surface. Also we will have the possibility to integrate solar panel to the video surface of the modules. Such a decision will let us quickly transit led screens manufactures to the new technology without a long-term R&D process.

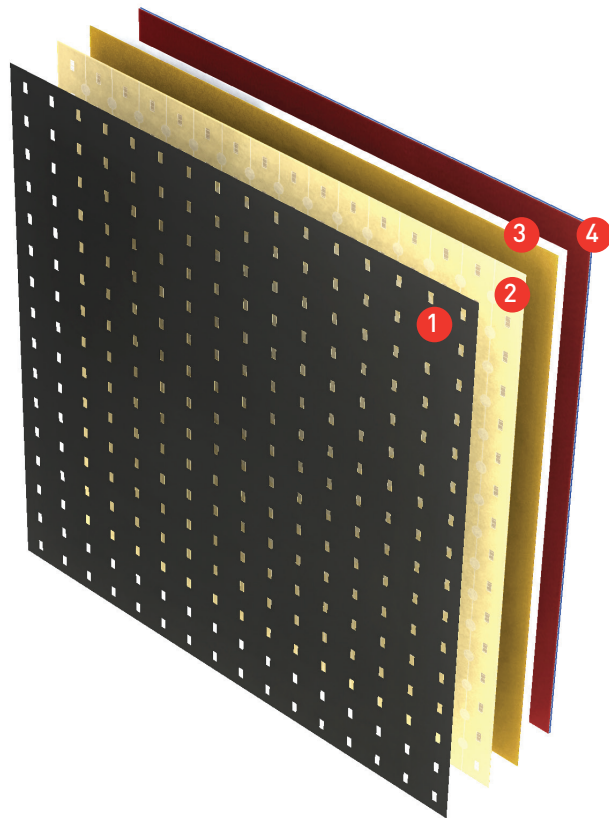
TECHNOLOGY ALLOWS:

- distance between diodes from 3 up to 15 mm;
- to reduce the weight of video modules by 2 kg on the square metre;
- to decrease electrical energy consumption by 50%.



MATRIX V2

To decrease the prime cost in 5-10 times Ledder creates floppy led matrices with the wireless interface based on PHOLED and SOLARPIXEL film technologies and chips of our own production. Matrices will present a multilayered structure based on liquid crystal polymer with chip controllers inside, chips of diodes with thin-filmed solar panels inside. PHOLED modules will be designed for small screens of high resolution (1 mm distant between pixels). SOLARPIXEL modules will be designed for creation of big autonomic screens and they will have integrated solar panels.



TECHNOLOGY ALLOWS

- to decrease the cost of screens manufacturing in 10 times;
- to reduce the weight of video modules by 1 kg on the square metre;
- to decrease electrical energy consumption by 50%.

DEVICE

- 1 — photoelectric converter
- 2 — layer with conductor tracks
- 3 — base coat made of liquid crystal polymer
- 4 — ferromagnetic film

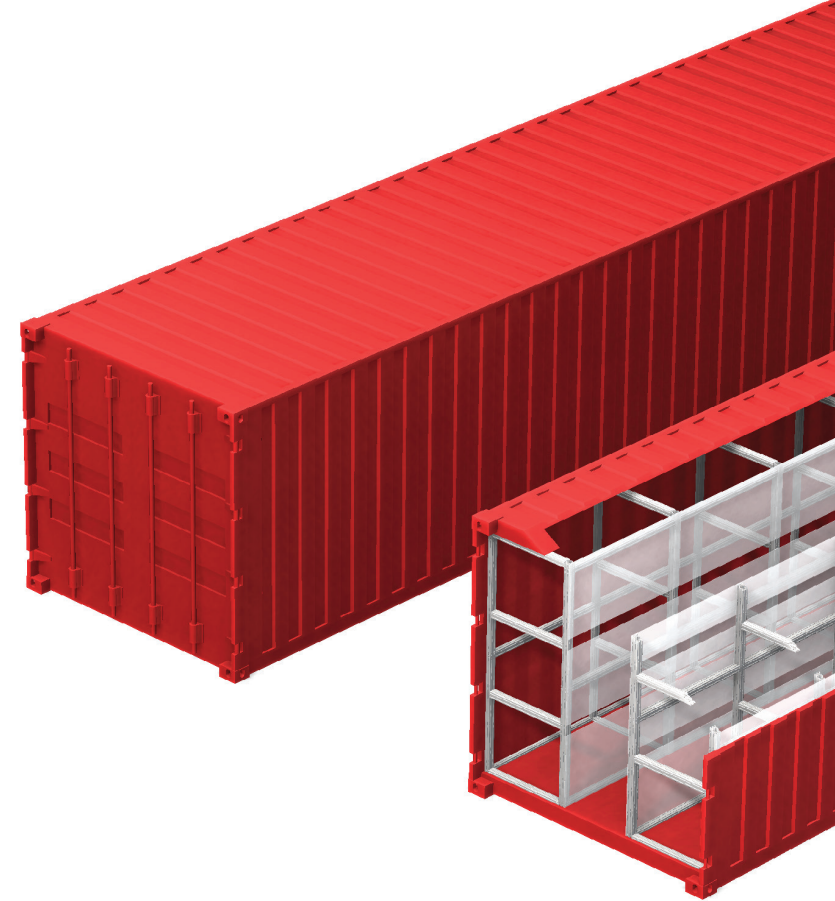
ROBOTS

Our franchising partners will manage the manufacture of digital billboards. Capabilities of their manufactures are going to develop at the expense of launching sea-cans with robots inside.

Manufacturing partner buys container and installation set for Robo Framework robots, then the partner constructs robots inside containers as Lego. We are going to use 3D-printing for creation of manufacturing robots. All non-standard code units will be printed in place.

HARDWARE REPLICATION

For hardware update the manufacturer partner's employee launches the 3D-printing of new code units and replace changed units in robots, after that robots' software is being restored automatically.



TEAM

For now we are a small team which is going to grow with employers with necessary skills as the project develops and investments are being attracted.

ALEKSEY SHTORM

founder

Business owner, engineer and inventor

- Several business-projects with 420 000 \$ net profit;;
- 12 patents for inventions in the field of led video systems;
- 12 years of IT-system professional development (Java, Python);
- 3 years of electronics developments(FPGA, ARM);
- he participated in start-ups development: ubank, anywayanyday, biganto.

SERGEY KULAKOV

PCB engineer

Vendor of chip cards of high density

- more then 10 years of experience in chip cards designing;
- Tracing of chip cards containing up to 20 layers with 2 Ghz frequencies.

EVGENIY PUKHTIY

FPGA engineer

- Vendor of digital systems
- 8 years of experience on development of highly-efficient digital systems based on FPGA;
- Development on Verilog and VDHL languages.

ANASTASIYA MYAOTS

designer

diverse graphic designer

- Work experience in graphics and adjacent design spheres such as industrial, web and interior designs;
- Development and creation of digital and printed presentations, web-sites, 3D-models.

POLINA MESCHERYAKOVA

PR manager

SMM marketing, SMM, copywriting.

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Contacts

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