SV ROBOTECH | TECHNOLOGY CENTER WITH THE ROBOMASTERS TEST FIELD

SILUMIN VOSTOK LLP -SV

500
человек работает
в группе компаний
«Силумин-Восток»

25
лет на рынке
промышленного
оборудования

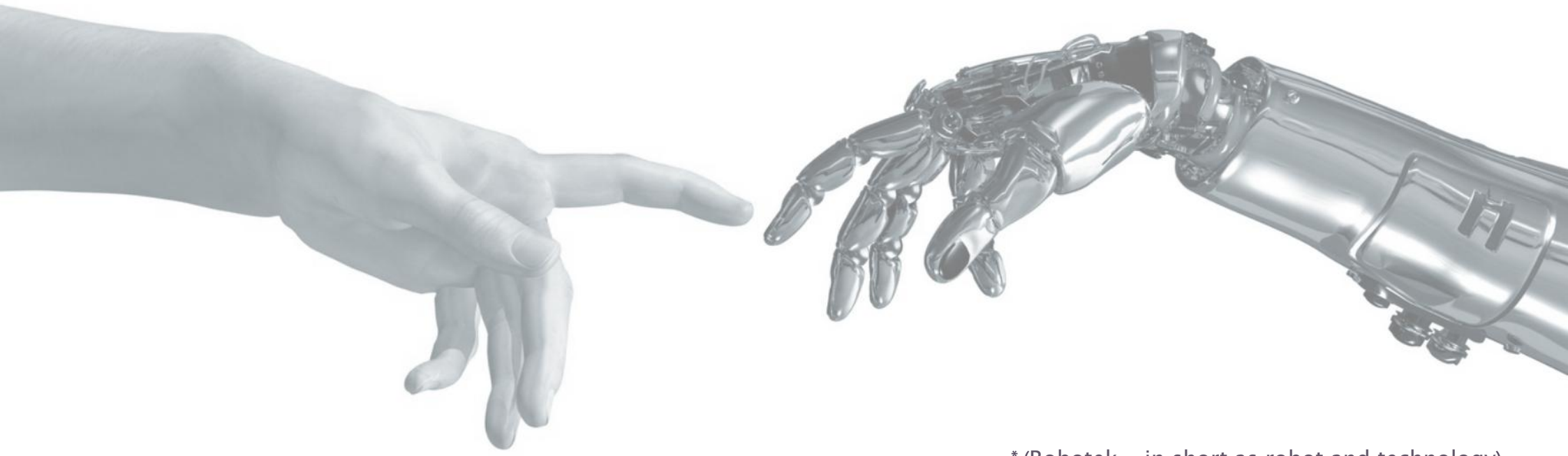
7 000 м^2
площадь
производственного
комплекса
в г. Усть-Каменогорск

2017
году награждены
премией «Лучший
Товар Казахстана»

400
единиц продукции
выпускается
ежедневно

6,3
млрд. тенге
товарооборот компании
в 2018 году

ROBOTECH* - TERRITORY OF INNOVATION



* (Robotek – in short as robot and technology)

ABOUT THE PROJECT

Those who do not look ahead are behind.
D. Herbert

SV-ROBOTECH:

A unique cluster that has no analogues in the CIS.

3D visualization technologies and organization of an innovation process of virtual modeling.

More than 4000 m of modern laboratories for the development of the robotics, electronics and IT industries

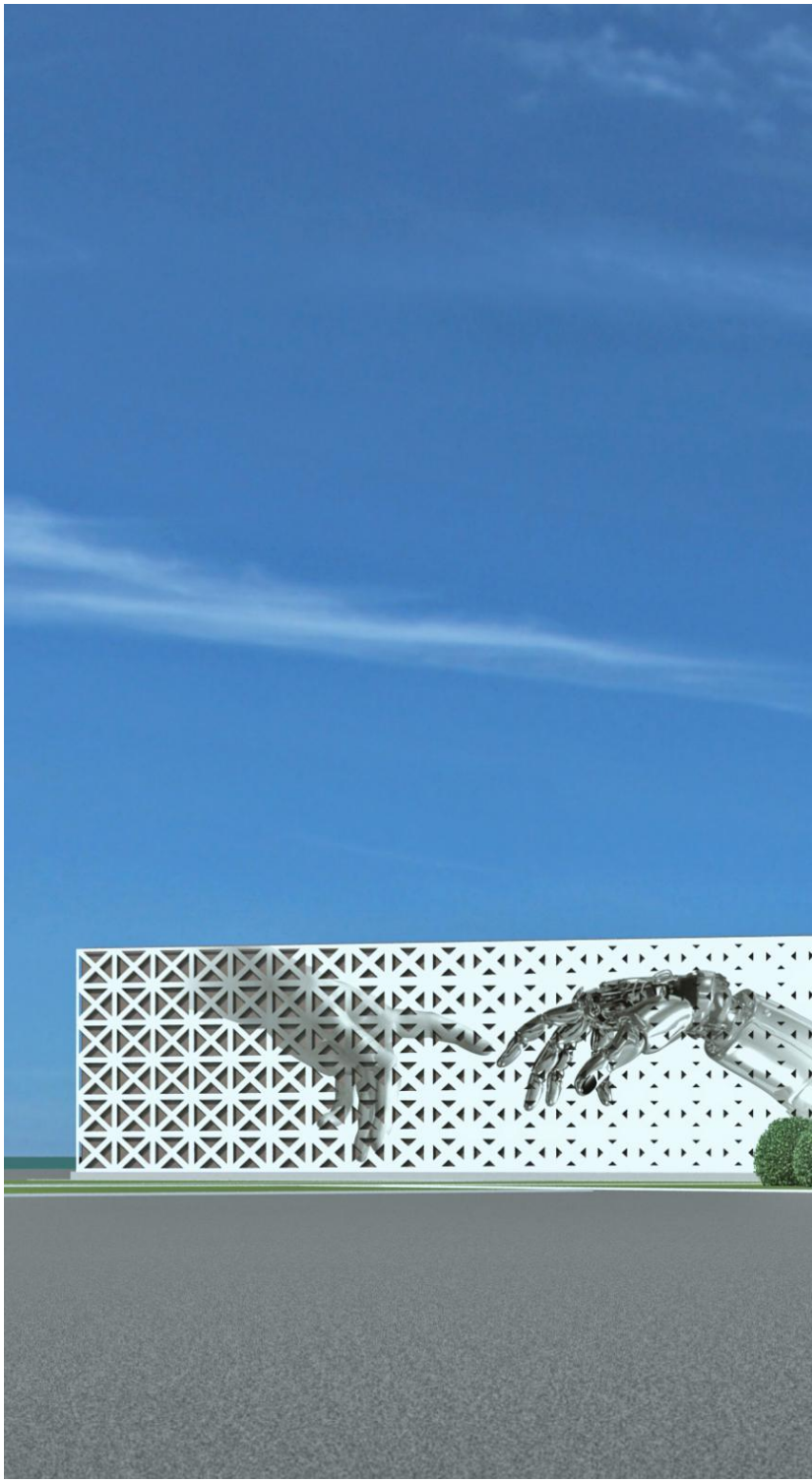
A world-class platform for interacting scientific and technical activities, commercialization of technology and implementation at enterprises of the Republic of Kazakhstan.

The estimated volume of investments will be 3 billion tenge

Robotics. Practical use of "technologies of the future: the device and robots programming and their use in production."
The main target of robotic systems implemenation and automatic robots into production processes is to optimize human labor in areas or tasks in which its use is unprofitable, dangerous, or is a source of errors.

Automation of control systems. SV-Robotech will become a territory for advanced training of specialists and students in the field of building SCADA systems and programming controllers in simulation mode, using the latest 3D visualization technologies. The present-day production cannot be imagined without an automated control system; every year the number of enterprises using ACS and SCADA systems will grow. Our task is to share knowledge and best practices, as well as implementation of new technologies to enterprises all over Kazakhstan and the CIS.

RoboMasters. Robotics competitions held among teams of talented engineers with the sponsorship and support of global corporations. The target of the competition is to design and build next-generation robots that are tested in the competition. The RoboMaster competition has been running for four years now and has attracted the interest of international students studying engineering and robotics.




SV ROBOTECH


SV ROBOTECH

Target

Creation of a scientific and practical center of robotics and the first SV-ROBOTECH platform in Kazakhstan for holding world-class competitions.

Task

1. Increasing investment activity in the region.
   The adoption of the latest technologies in the territory of Kazakhstan and the CIS, their use in production in close cooperation with world's corporations such as: Schneider Electric, Rockwell Automation, WonderWare, Siemens, Dji, etc.

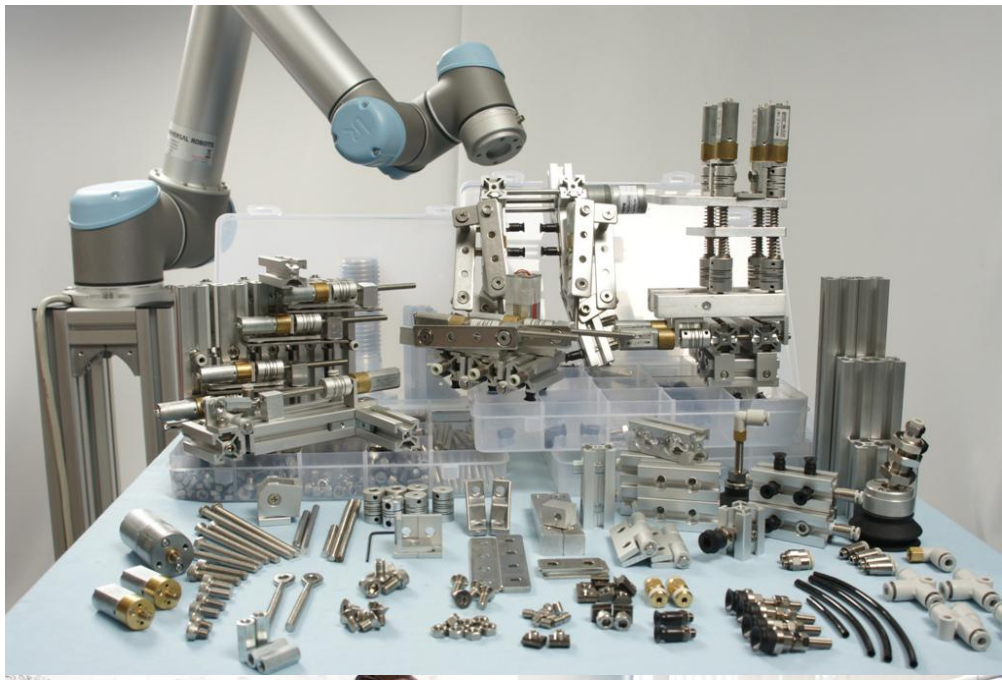
   SV-ROBOTECH – a unique platform that has no analogues in the CIS, which is meant for the practical use of skills and showdown of achievements of the technological capabilities of mankind in the field of robotics and IT developments.

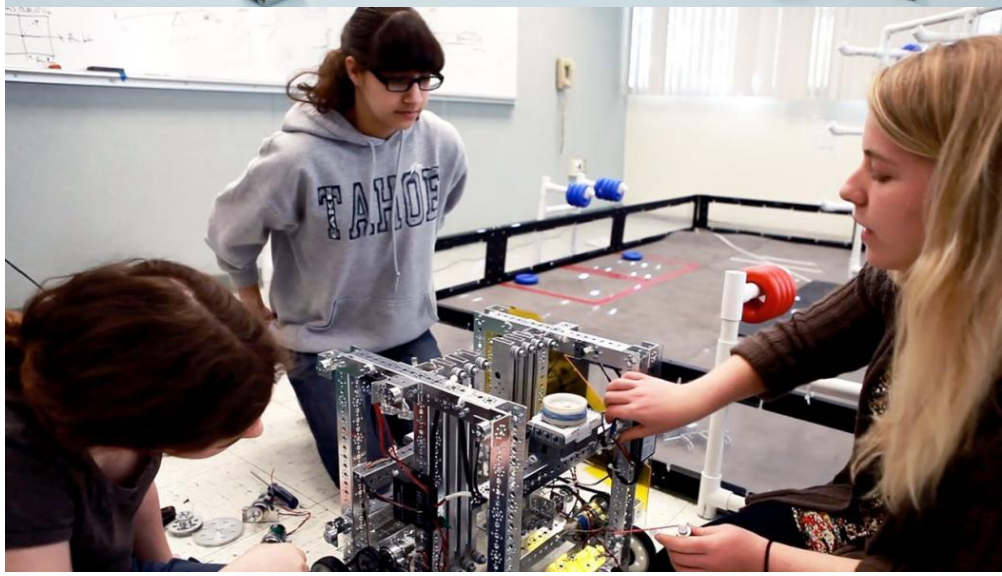
2. Qualified personnel training.

   Creation of a laboratory to accelerate the growth rate of information technology in the regions. Having a wide experience in the field of automation and IT, the nowaday manufacturing site equipped with high-tech equipment, the Silumin-Vostok company take aim to provide practical support in qualified personnel training. The concentration of large manufacruting enterprises in our region allows us to put knowledge to use.

3. Research activity support.
   Prototypes possibility testing.

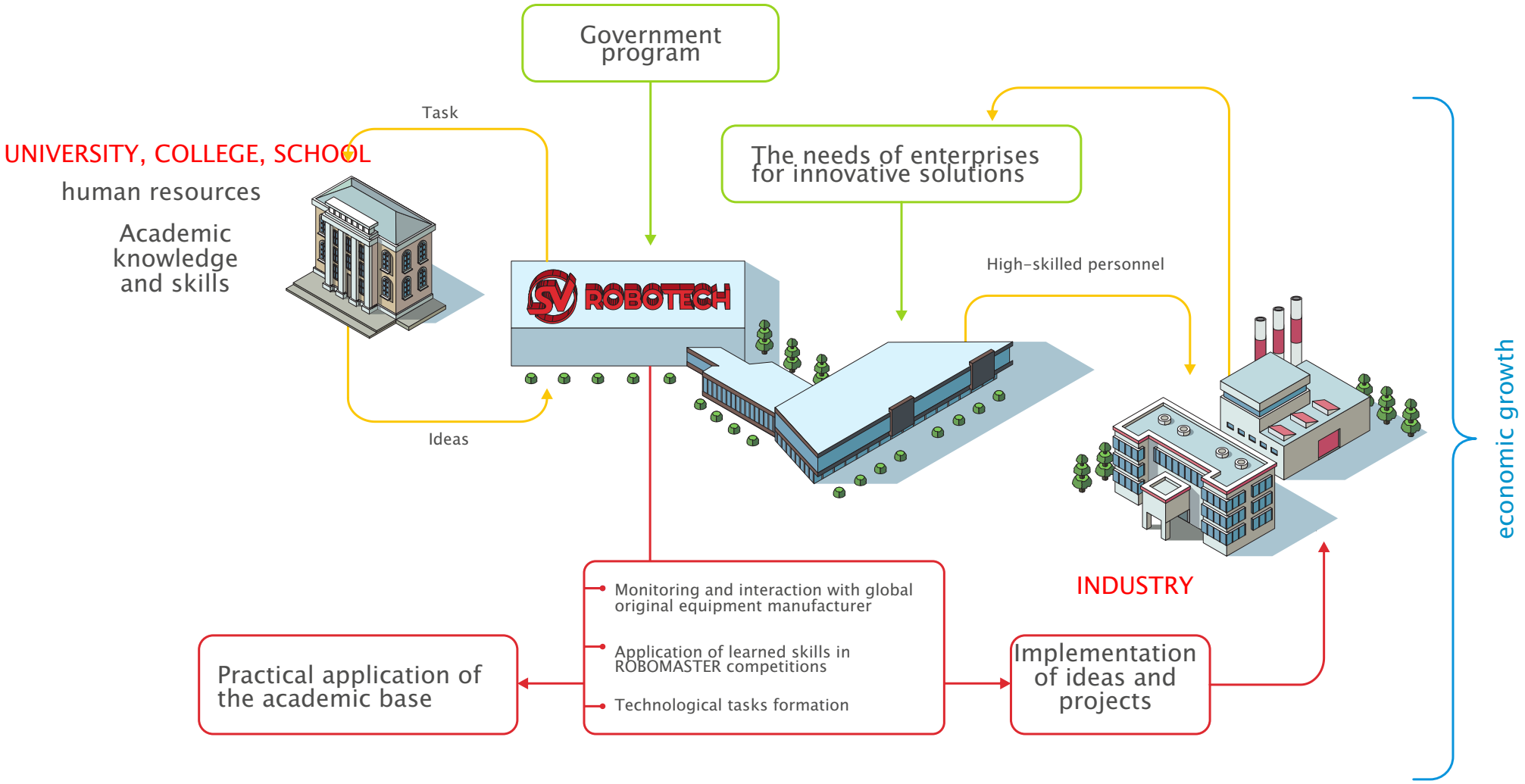
   Today, the evolution of information technologies has reached that level, where it is impossible to build an effective, competitive enterprise without their participation. But we all understand that it is not enough just to buy and implement new programs. You need a competent use of employees and professional service of information systems that guarantees the return on investment.





ALGORITHM OF INTERACTION.

OUR SOLUTION

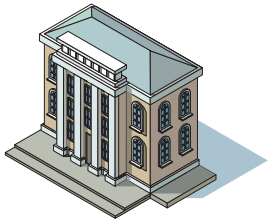


ALGORITHM OF INTERACTION.

REALITY

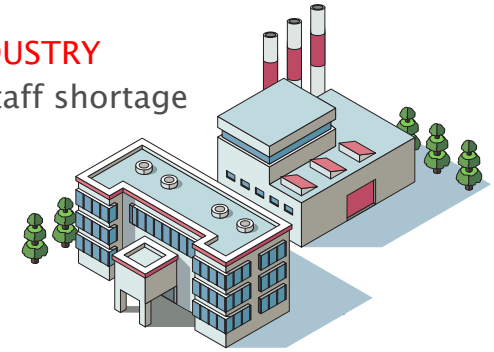
UNIVERSITY, COLLEGE, SCHOOL

Human resources



INDUSTRY

Staff shortage



Without practical use under specific tasks, the knowledges are reduction to zero.

Academic knowledge and skills

Industry goals

PLANNED SPACES

	Laboratory sector, Robomaster site			
1	Name	Location	sq.m	S
1.1	Arena	1 level	1 500	2 630
1.2	Laboratories	2 level	1 130	
2	Administrative building			
2.1	Show-room	1 level	175	1020
2.2	Offices	2 level	1865	
3	Passage			
3.1	Lobby	1 level	300	400
3.2	Cafe	1 level	100	

PLANNED LABORATORIES

N	Name	Function	Laboratory area sq. M	Material costs	Cost, thousand tenge
1	Web Development Lab	A full range of work on the study and development of solutions related to web technologies.	100	IT equipment, software	3000-4000
2	Microcontroller programming laboratory	Project development that include the tasks implementation related to low-level microcontrollers programming.	100	IT equipment, software, controller equipment	4000-5000
3	Applied programming laboratory	Packaged software development for operative task solving	120	IT equipment, software	3000-4000
4	Robotics laboratory	Projects development for creation and implementation of industrial and household robots	140	Industrial robots, IT equipment, software	20000-22000
5	Pilotless aerial vehicle laboratory	Creation, study and implementation of pilotless aerial vehicle with remote and autonomous control.	140	Drones, IT equipment, software	15000-18000
6	Automation laboratory	Integrated industrial automation and instrumentation.	130	Measuring devices, test stands, sample devices, IT equipment, software	20000-22000
7	Electronics laboratory	Creation of prototypes of electronic equipment for various living environment	140	Measuring instruments, prototyping equipment, IT equipment, software	12000-15000
8	Mechatronics laboratory	Creation of devices prototypes that are at the fringe of mechanics and electronics - drive technology, transport, prosthetics, etc.	140	Machining equipment, IT equipment, software	23000-25000
9	Project Management Laboratory	Personnel training for project management in the technical field, with the study of the basics of economics, business, psychology.	120	IT equipment, software	3000-4000
10	3D design laboratory	Projects creation related to virtual reality. Digital twins, simulation of production processes of a given complexity.	140	VR equipment, 3D scanners, 3D printers, IT equipment, software	20000-22000

Cost sheet

CALCULATION OF CONSTRUCTION COST
Technology Center with a ROBOMASTER test site in Ust-Kamenogorsk.

The working project "Terminal of arrival of the international airport in Ust-Kamenogorsk for 200 visits per hour" was adopted as an analogue.

The total cost of construction in 2019 prices is:
- 438,855.84 thousand tenge.

The construction volume of the building is 8154.9 m3.
The cost of construction of 1 m3 of the building is 438855.84 / 8154.9 = 53.82 thousand tenge.

Calculation of the construction cost of the "Technology Center with a ROBOMASTER test site in Ust-Kamenogorsk"

The volume of buildings and structures is approximately 40 843 m3.

The cost of construction of the "Technology Center with a ROBOMASTER test site in Ust-Kamenogorsk" is approximately in prices of 2019. is:

40843x53.82 = 2 198 170.26 thousand tenge.

CEO M.Zh.Uruntaev.

VOSTOKAGROPROMPROEKT LLP

ROBOMASTER™

RoboMaster – an annual robot tournament, attended by engineering students from all over the world. 200 teams of 10,000 young engineers create their own robots and compete for an impressive cash prize. RoboMaster empowers students to develop their potential. The final of the competition is a spectacular show that attracts the attention of the general public.

In the "battle" from each side, involved 5 autonomous robotic mechanisms : an engineer, a "tank", a drone, a combat robot and a base defender. Teams battle it out on a field the size of a basketball court filled with shelters, hills, and other restriction. Each of the participating robots is equipped with sensors that register a “hit”. If the robot is defeated, a certain number of "hit points" are charge-off. When the " life" reaches zero, the robot is recored as destroyed. The winner is the team that successfully destroyed the enemy base or destroyed all the robots.

Drone competitions, including races and various "robot battles", are becoming more and more popular in mass culture. In our country, such events have not yet been held.

The facts about **RoboMaster 2018:**

More than 200 teams, 10,000 young engineers
The prize fund is over 100 thousand US dollars.
More than 800 thousand spectators.
More than 15 participating countries


机甲大师
ROBOMASTER
裁判室
Referee Booth

The world's experience

USA

Fab lab (англ. fabrication laboratory) — эit is a production workshop that allows to product the necessary parts on numerically controlled machines. The idea of the laboratory was developed by Professor Neil Gershenfeld at the Massachusetts Institute of Technology (USA) more than 20 years ago. Since then, more than 1200 laboratories have been created around the world on all continents, and it's number is constantly growing.

Russian Federation

The Center for Youth Innovative Creativity (YICC) is a space where young people can bring their creative ideas to life using high-tech equipment such as 3D printers, laser cutters, robot arms, high-speed cameras, quadcopters and much more.

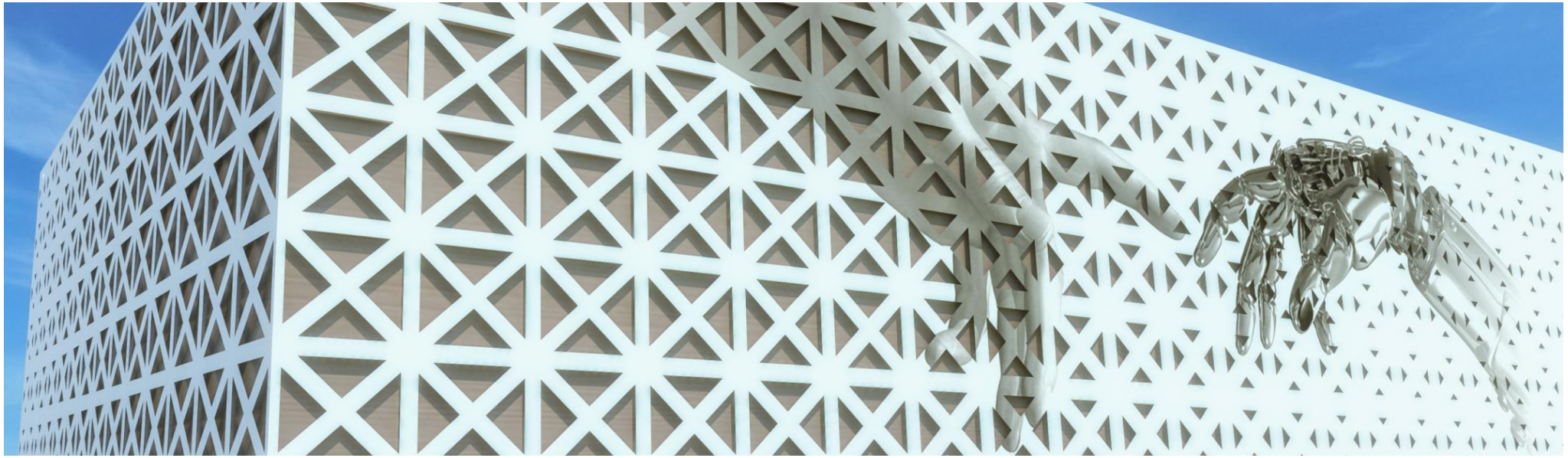
The concept is based on the experience of the international FabLab network (FabLab, fabrication laboratory) - a network of digital workshops that offer for participants to produce the nessesary parts on CNC machines.

Singapore

The International Robot Competition (ITS) is a competition for schoolchildren between the ages of 10 and 21. The first festival took place in 2004 in Singapore, now more than 1500 talented children from 54 countries take part in it.

PRC

Robomaster is the and most complex and advanced annual robot competition for start-up design engineers teams. They design and assemble next-generation robots that can handle a variety of complex technological tasks. This competition takes place in China and is founded by a Chinese quadcopter production company. There are more than 200 participants countries.



www.silumin.kz

Silumin-Vostok LLP
Ust-Kamenogorsk, 070010,
10 K.Yskak str.
+7 (7232) 769-012, 769-098
info@silumin.kz