International Youth Robotic Cup
«NORTH STAR»

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On October 2nd, 2007 St. Petersburg hosted the start of first international youth Eurobot competitions in Russia - «North Star». International robotics competition is rapidly becoming popular among teams of young people.

Eurobot is an amazingly exciting kind of sportive and educative robotics which does not only attract the audience and supporters by spectacular, heated matches but also allows schoolchildren and students to get into grips with a variety of modern high tech.

Eurobot knocked at the Russian robotic specialists' door in 2005 when they became interested in the idea suggested by their French colleagues and united in a team of enthusiastic soul-mates. The task was the same for all the teams – to create a mechanism able to play bowling with an opponent without human help. In 2006 autonomous robots were now playing golf with each other.

At first glance there is nothing unusual in bowling or golf that might interest young people to such extent that they would spend sleepless nights scratching their heads over mechanisms, programs, concepts, would work out behaviour strategies and invent new effective ways to play the game. But the organizers did succeed! Mostly due to the proper competition format (perimeter of a robot should not exceed 120 cm, the playing field size has stayed unchanged for many years already and it is approx. 2x3 m), to an exciting idea, active matches and interest from the side of educational institutions as well as the public.

In 2006 enthusiasts from leading Russian universities decided to establish United Robotics Club, the main goal of which is to attract and support new teams to take part in Eurobot competitions. This initiative was so sincere and decisive that the same year the club was appointed with the status of the official representative of Eurobot Association in Russia. Thus, the club became the 13th National Organization Committee of the European Association.

During Eurobot competition held in 2007 robots were gathering rubbish. Student teams constructed autonomous robots able to collect, sort and dispose of bottles, cans and batteries. Younger participants (8 to 18 years old) controlled their robots skillfully gathering and sorting different rubbish. For the first time the young people ready to pick up the slack faced a serious practical task.

The first Russian national Eurobot qualification games took place in 2007 in the Moscow State Technical University n.a. N.E. Bauman (BMSTU). United Robotics

Club impressed the public with a bright show where the best teams were selected for the finals in France.

This activity had an unusually strong effect which in its turn aroused a resonance in the academic circles. Central R&D Institute of Robotics and Technical Cybernetics suggested holding a friendly tournament Eurobot within exposition congress "Mechatronics and Robotics (M&R 2007)".

So, how to teach robots respect cleanness? Here is our recipe:

First, find a place where you can get together with your friends

Fig.1 – exposition centre «Lenexpo» (St. Petersburg, Russia)

Since 2nd till 5th of October exposition centre «Lenexpo» in St. Petersburg held first International Youth Robotic Cup «NORTH STAR» based on the rules of Eurobot 2007 competition.
The Cup was arranged by a Eurobot National Organization Committee under support of the Central R&D Institute of Robotics and Technical Cybernetics, Moscow State Technical University n.a. N.E. Bauman (BMSTU) and Moscow State University n.a. M.V. Lomonossov within International Scientific and Technical Exposition Congress "Mechatronics and Robotics (M&R 2007)".
United Robotics Club provided realization of this tournament under methodical support of MUMC BMSTU, Polytechnic Museum and Educational Centre "Education Technologies" as well as such innovative sponsoring companies as JSFC "SISTEMA", «3Detection Laboratory», «Solver», «ShiP», «Union Pro» and «SetUp».

<u>Second, ask your friends to think of a solution, try to put it into practice and bring the results back</u>

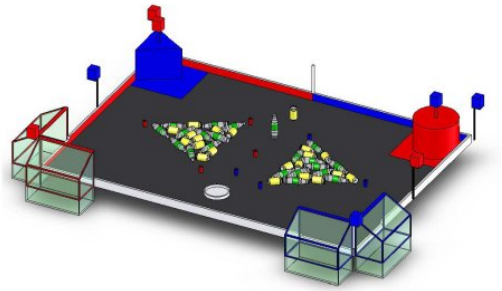

Fig. 2 – Table for rubbish gathering competition «Eurobot 2007»

Fig. 3 – Table for rubbish gathering competition «Eurobot Junior 2007»

Fig. 4 – Competition «North Star» and participating countries

Gathering friends to come is not always an easy task. Teams from France, Belgium, Romania, Hungary, Czech Republic and Russia took part in the "North Star" tournament.

	Team name	Country	Robot	Organization
1	IFIPS TEAM	FRANCE 	Robot IFIPS	IFIPS
2	ISTY2000	FRANCE 	PATATE	ISTY Mecatronique
3	Helb Inraci	BELGIUM 	Selektor	Helb Inraci Club Robotique
4	Gyurgyalag	HUNGARY 	Gyurgyalag	Budapest University of Technology and Economics
5	RobotiqueFF	ROMANIA 	Speedy	University "Politehnica" of Bucharest
6	RallyRobot	ROMANIA 	COSTEL	Automatic Control and Computer Science from University Politehnica of Bucharest
7	CTU Dragons	CZECH REPUBLIC 	DragonBot	Czech Technical University in Prague, Faculty of Electrical Engineering
8	UniRobot	RUSSIA 	RobotNick	United Robotic Club
9	Argonaut	RUSSIA 	Argonaut E7	MSU n.a. M.V. Lomonossov, Keldysh Institute of Applied Mathematics

8 teams took part in the competition held according to the rules of Eurobot Junior 2007.

	Team name	Country	Robot	Organization
1	CrazyBot	RUSSIA 	CrazyBot	MSTU n.a. N.E. Bauman (IU 4 chair, Designing and production of electronic - computing and telecommunication systems)
2	Alpha	RUSSIA 	Bittle	MSTU n.a. N.E. Bauman (IU 4 chair, Designing and production of electronic - computing and telecommunication systems)
3	DIM	RUSSIA 	DIM-8	School 6 Krasnoarmeysk
4	Cleanness Pros	RUSSIA 	Hyper-Scoop	Educational centre “Education technologies”
5	Naughty team	RUSSIA 	Sympatyaga 9 Volts	Educational centre “Education technologies”
6	Red sweepers	RUSSIA 	Treasure Hunter	Educational centre “Education technologies”
7	Reverse	RUSSIA 	Omykron	MSTU n.a. N.E. Bauman (IU 4 chair, Designing and production of electronic - computing and telecommunication systems)
8	Group M TNTL	RUSSIA 	PLUT-2	Creative scientific and technical laboratory of Polytechnic Museum

Third, gather together and in the noisy company of friends take a difficult decision whose idea is better

The four days in an improvised youth robotic laboratory «Lenexpo» passed in a creative atmosphere. The members competed, learned, exchanged experience. They also had a unique chance to get familiar with achievements of Russian and foreign robotic science at the exposition, congress and during excursion to the Central R&D Institute of Robotics and Technical Cybernetics.

Fig. 5 – in the Central R&D Institute of Robotics and Technical Cybernetics

Fig. 6 – Russian robot greets his Chinese "colleague"

Exciting rules and colourful decoration of the Eurobot stand attracted a lot of people. The competition start signal was given by the Central R&D Institute of Robotics and Technical Cybernetics director-chief designer Vitaly Lopota (Fig. 7).

Fig. 7 – competition start

Fig. 8 – playing zone is ready for competition

Fig. 9 – exposition guests are very interested in what is going on

Usually after such a party there are tons of rubbish left, isn't it?

Fig. 10 –public is tense

The jury was lead by the European association Eurobot representative from France, an experienced referee – Cristophe Tournois. He mentioned that Russian teams are well prepared and the tournament format is very interesting as it takes place within the international exposition congress "Mechatronics and Robotics". He also mentioned a huge potential of the Russian robotic science.

Fig. 11 – international jury team found a common language

Fig. 12 – experience exchange takes place even during the competition

Teams from France, Belgium, Romania and Russia went through to the final. Young robotic specialists from France became the winners, coming from the country which started Eurobot in 1998. The Junior League had two winning teams from BMSTU. The third place was taken by a 9 year old pupil from Krasnoarmeysk – Dmitry Suhotsky.

Fig. 13 – Robots' parade

	1st day	2nd day	Total	rank
1 - IFIPS TEAM France	17	9	*26*	1
2 - Helb Inraci Belgium	1	17	*18*	2
3 - Gyurgyalag Hungary	2	2	*4*	6
4 - RobotiqueFF Romania	3	0	*3*	7
5 - RallyRobot Romania	4	3	*7*	4
6 - CTU Dragons Czech republic	3	3	*6*	5
7 - UniRobot Russia	0	0	*0*	8
8 - Argonaut Russia	0	8	*8*	3

The situation after the final was as follows:

	Rank
1 - IFIPS TEAM France	1
2 - Helb Inraci Belgium	2
5 - RallyRobot Romania	3
8 - Argonaut Russia	4

Fig. 14 – Awards

Teams' presentations were one of the interesting activities during the tournament. Teams from France, Belgium, Czech Republic and Romania presented their robots, teams and supporting organizations in details. Members and the public of the competition learned about international Lego-robot competition and about a unique educational centre "Education Technologies". An interesting presentation was prepared by a teacher from this centre Y.I. Razumov. He told about teams of young robotic specialists from i-school (schools of distance support for physically challenged children and children who can not attend schools because of health problems). Employee of the Polytechnic Museum, competition judge Sergey Stepanov told about creative and scientific laboratory, about a popular program «Robots' vacation at the Polytechnic Museum" and of course about the robotic team of the museum. There was an emotional and bright presentation of BMSTU students who told about their department ("Informatics and Control Systems"), and how they presented their University, their country during the final competition in France. Many members of the tournament remember the program "Robots of the Future" arranged by BMSTU ("Step into the Future, Moscow") which was a set up in life. Information on this BMSTU program was put to the competition stand. Multiple laureate of the Scientific and educational programs for schoolchildren on mechanics, mechatronics and robotics arranged by the MSU Mechanic Institute, Dmitry Suhotsky showed all stages of his tortoise-like robot birth. Under- and postgraduates of MSU headed by Pavlovsky V.E. held a demonstration tournament in virtual football.

Fig. 15 – Friendship won

Experience which the teams acquired during the four days of the tournament can hardly be overestimated. Young inventors checked their technical solutions, studied the solutions of other teams, got familiar with the best examples of Russian and foreign robotic science, united their teams and got acquainted with young people from other countries.

The North Capital greeted young people with wonderful weather and the members could admire splendid views of St. Pete in autumn. They left St. Petersburg full of impressions, ideas and desire to create the robot of the future!!!