WORLD ROBOT OLYMPIAD TM

Olimpiada Naţională de Robotică Educaţională

Metoda de promovare a roboticii educationale

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HUMANS FOR STURGEONS - ROMANIAN JOURNEY FOR SAVING THE LAST „DINOSAUR"

Coach - Alexandru I. Cuza National College: Daniela ILIE

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Flexform

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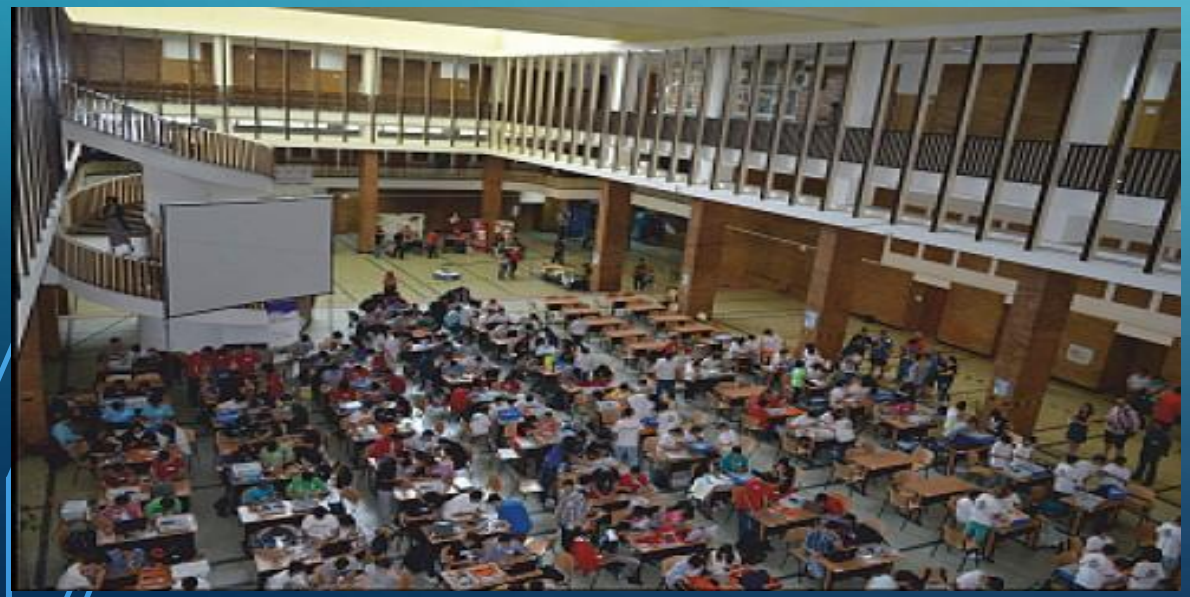
RobotiCompetition 2012

World Robot Olympiad (WRO) Romania

Robotica educationala

How we started: RobotiCompetition 2012

WRO ROMANIA 2017



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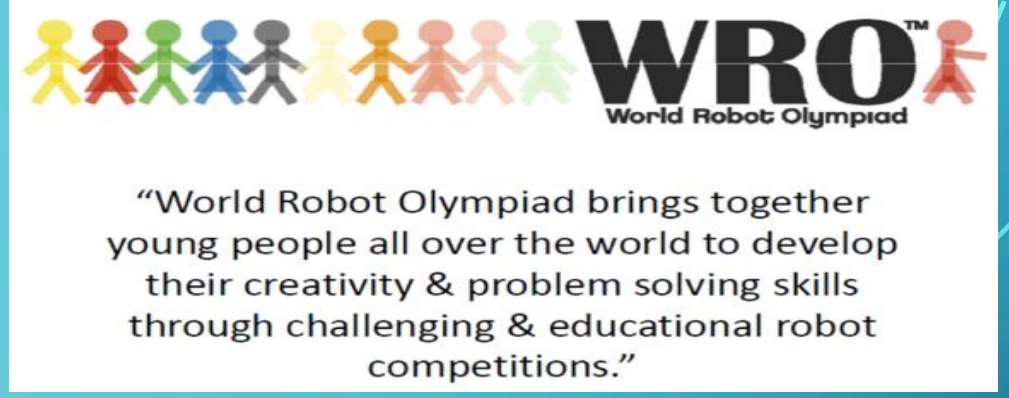


- Olimpiada Naţională de Robotică Educaţională World Robot OlympiadTM (WRO) este un proiect educaţional internațional de succes, prin care tinerilor le este stârnit interesul pentru ştiinţă, pentru studierea disciplinelor inovative în domeniul tehnic, robotica educaţională fiind un domeniu extrem de atractiv, motivându-i pe aceştia pentru a opta în viitor spre o carieră din domeniul ingineriei.
- Competiţia contribuie ca orientarea spre știință și tehnologie să se facă de timpuriu, pe parcursul pregătirii în cadrul învăţământului primar şi gimnazial.
- Este promovată şi încurajată implicarea tuturor membrilor comunităţii locale, persoane fizice/instituţii/organizaţii, în procesul educaţional dezvoltat in jurul competiţiei.

Caracteristicile cele mai importante ale *WRO* pot fi rezumate după cum urmează:
- concurența internațională;
- sarcini identice la nivel mondial;
- o echipă este formată din doi sau trei elevi și un profesor coordonator;
- trei grupe diferite de vârstă (intre 8 - 19 ani);

Secțiuni

A. Secțiunea STANDARD

B. Secțiunea CREATIVITATE

A. CATEGORII COMPETIȚIONALE

I. Standard
Regular Category

- Primar → **Standard 1 Elementary**
- Gimnazial → **Standard 2 Junior High**
- Liceal → **Standard 3 Senior**

II. Creativitate
Open Category

- Primar → **Standard 1 Elementary**
- Gimnazial → **Standard 2 Junior High**
- Liceal → **Standard 3 Senior**

III. Fotbal – Pilot
WRO GEN II Football

IV. Universitar – Pilot
WRO College

THEME WRO 2017 – REGULAR CATEGORY

- **„Sustainabots [Robots for sustainability]"**

  we encourge teams to build robotic aplications that can contribute to a sustainable development of the planet.

  - Standard (Elementary) 1. Sustainable Tourism-Turism sustenabil
  - Standard (Junior High) 2. Carbon Neutrality- Neutralizarea carbonului
  - Standard (Senior) 3. Renewable and Clean Energy- Energie curata si regenerabila

CREATIVITY. OPEN CATEGORY

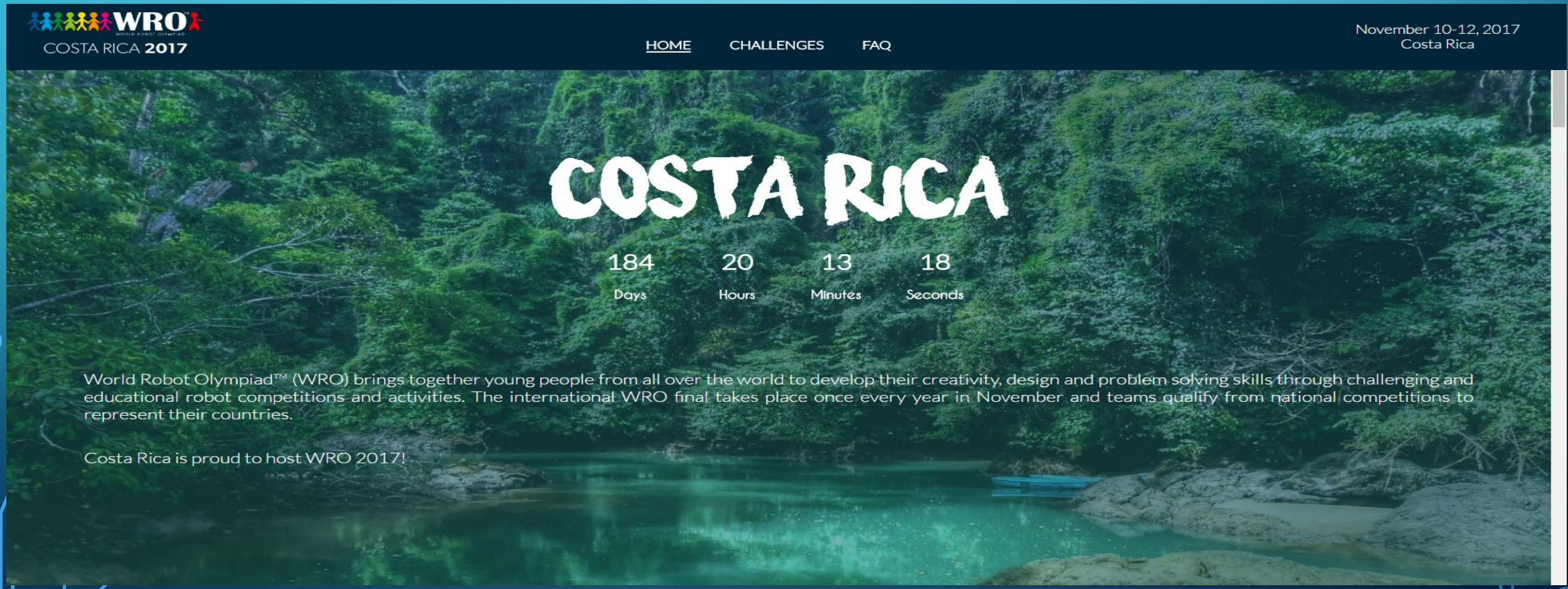
Theme – **SUSTAINABOTS**

- WRO 2017 theme :Sustainabots: Robots for sustainability

- Sustainabots are robots that are taking care of the planet and the humans. They are built to change our world without living a footprint on it, trying to integrate three sustainable marks: environment, society and economy.
- Creating sustainabots can help us transform our comunities all over the world. They help us reach our objectives for Sustainable Development.

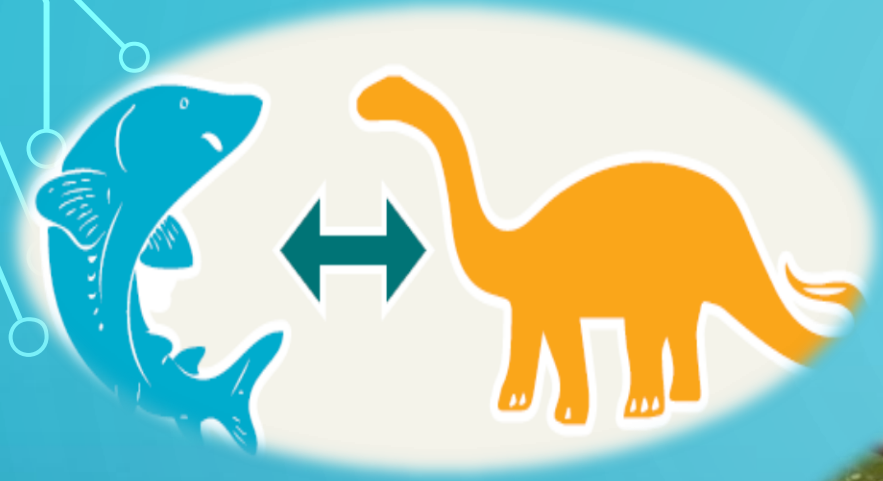
- **Can you help us take care of our planet? It's our home.**

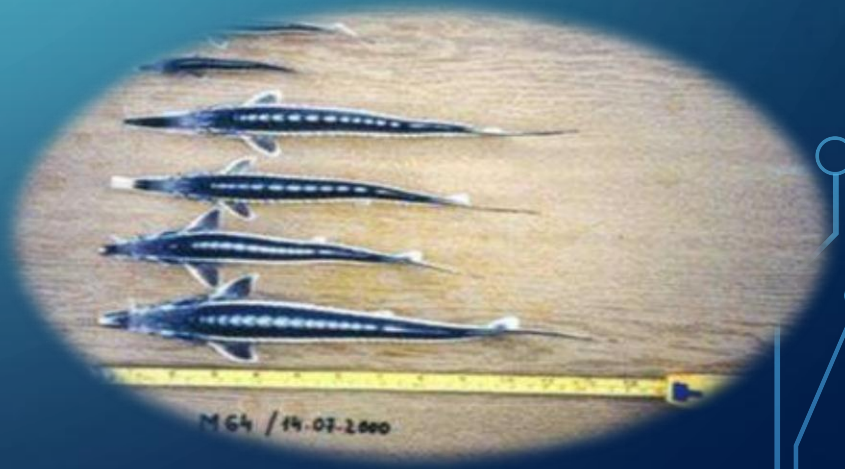
HTTP://WWW.WRO2017.ORG/



HUMANS FOR STURGEONS ROMANIAN JOURNEY FOR SAVING THE LAST DINOSAUR


ROBERT
MIHAI
DANUȚ
ALEXANDRA

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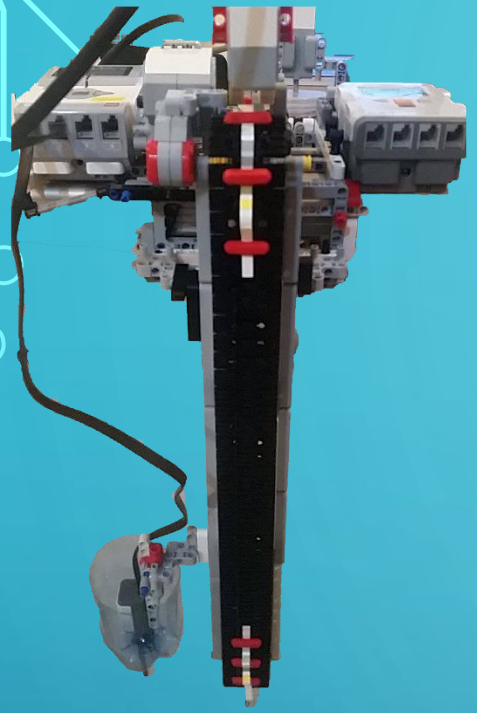
Rebuilding our ecosystems, protecting our species, building an economic development based on the respect for the environment, all of these, are for us personal goals. Continuously searching for solutions, everyone involved are defining factors if we want to make social changes and create an open society.

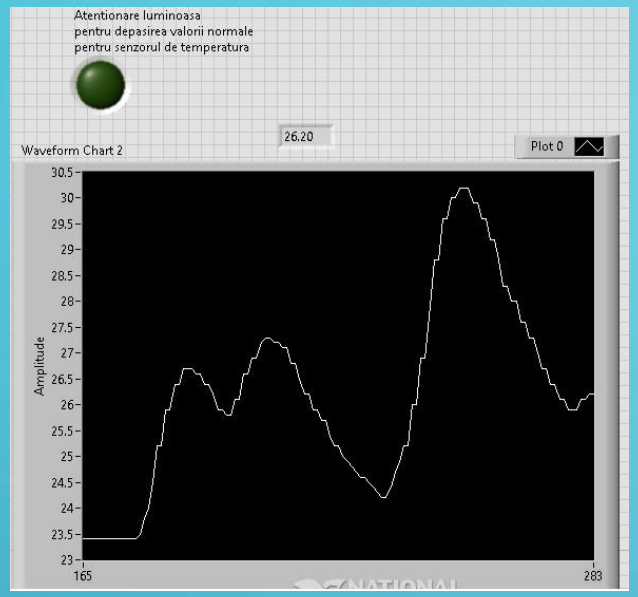
The Robot

- ✓ feeding fish at a certain period of time;
- ✓ cleaning the aquarium walls periodically;
- ✓ water quality supervision;
- ✓ provide water cleaning and circulation;
- ✓ fish measurements and behaviour supervision;
- ✓ fish separation for those who reach the standard dimension for release;
- ✓ vegetables movement and replacement.

The feeding function is carried out by an autonomous robot mounted at the first level just above the aquarium so the fish will have easy access.

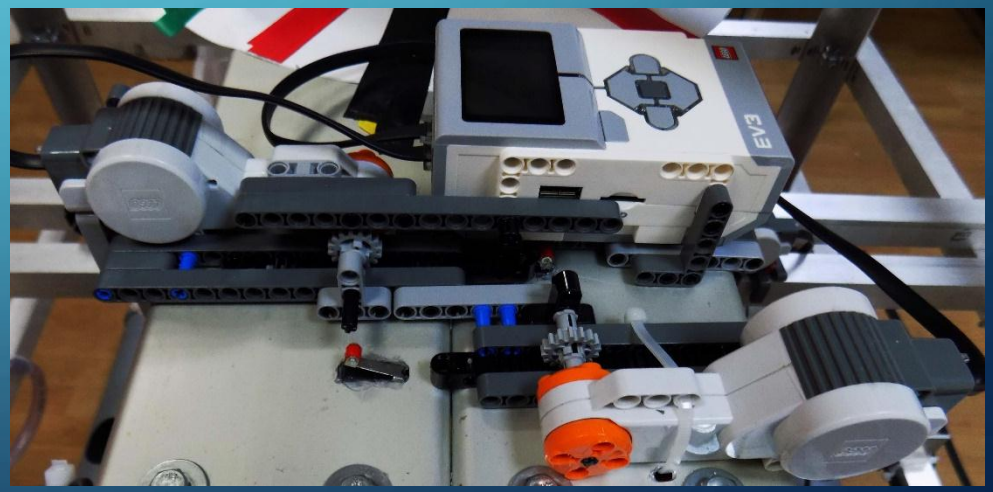
For keeping the walls clean our system uses a suspended robot, that goes on top of the aquarium walls, scrubbing them.

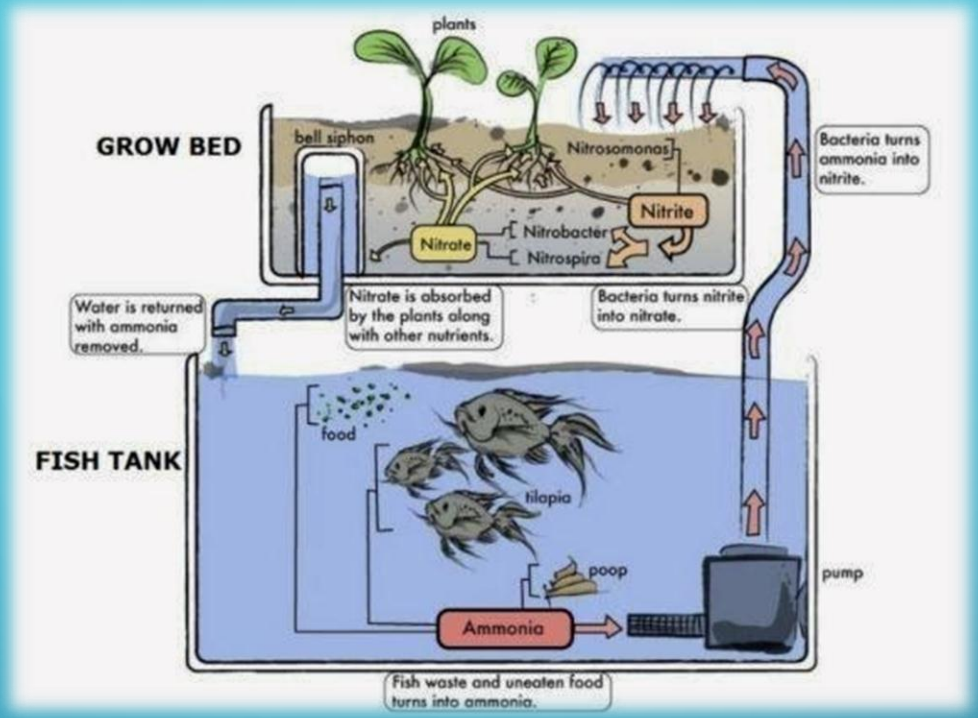




Analysis robot receives the values from the sensors that collects data of four parameters (pH, temperature, dissolved oxygen, nitrites and nitrates), collects them into a data base on a computer through data logging, so we can have access at what has happened to our water during a certain period of time.

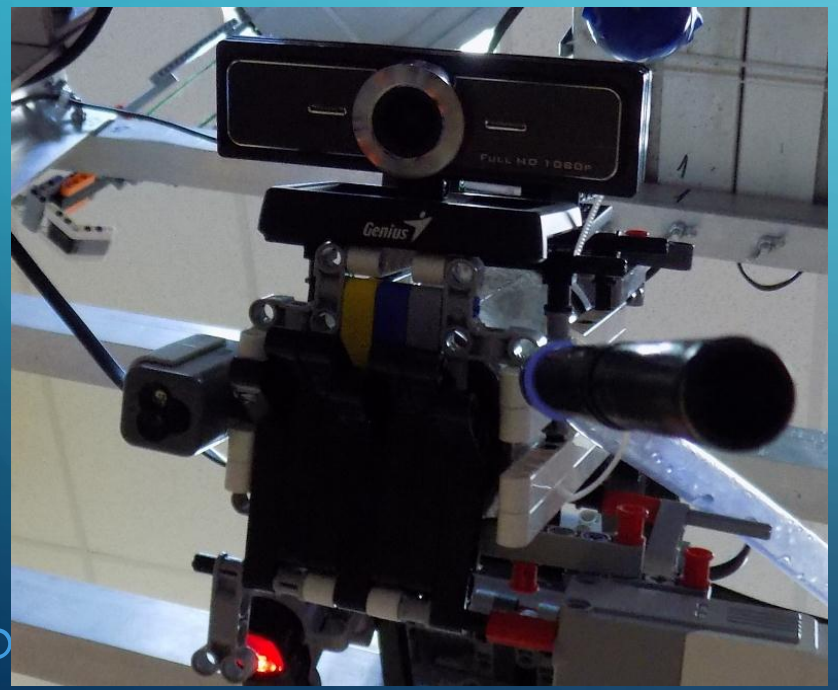
If one of them is out of range, we prepared a water transfer and cleaning system with the help of two submersible pumps located in the tank and plant pipes: the first one pumps out the dirty water from the aquarium and introduces it into the pipe system and the other one pumps the clean water from the pipes into the aquarium.



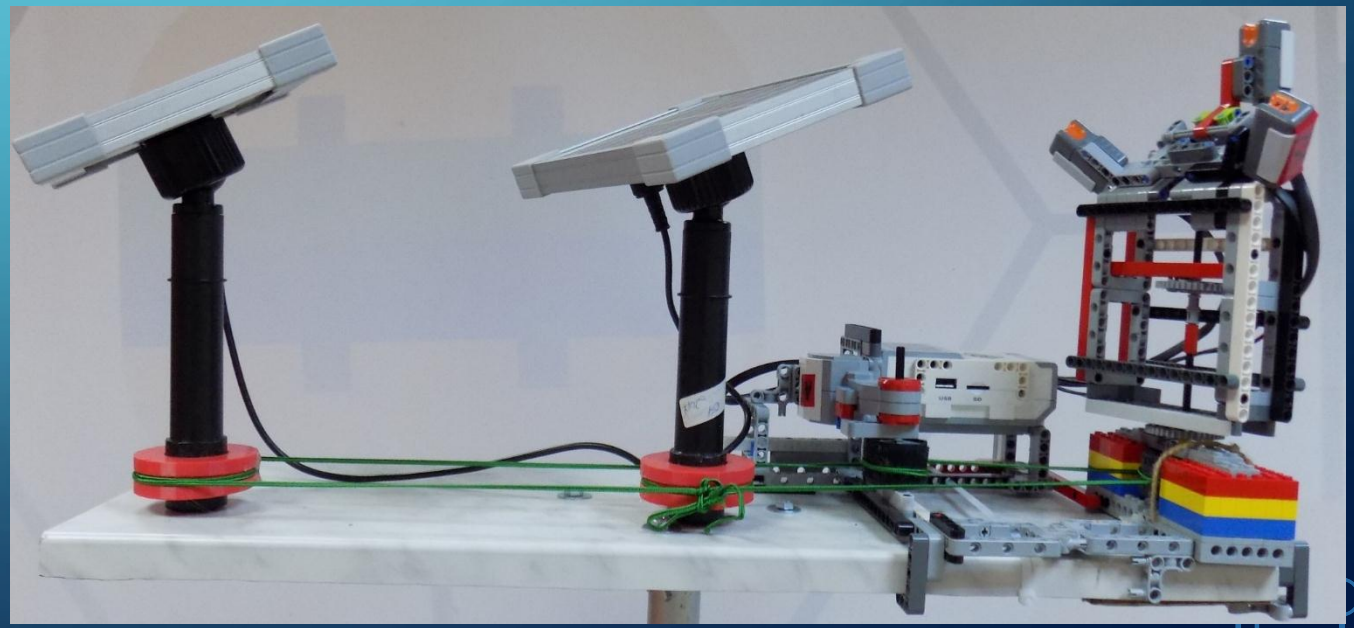


In the plant pipes, the roots are absorbing a diversity of substances toxic for the fish but very good for the plants. This is called an aquaponics system.

Another module is represented by a separation system that isolates the sturgeons which reached a specific size from the ones which didn't. This robot contains a web-camera and all the images that are captured can be seen through internet from all over the world. The owners or various specialists, like biologists, can observe the fish behaviour and can associate different behaviours with various stimuli.



For charging this autonomous systems, we are working with green energy, using solar panels. These are adjusting their position during the day. So, the principle of functioning is the following: three sensors read the values of the light intensity from the environment. At dawn, the system starts being oriented to east. As the central sensor, then the right sensor, start to read a bigger intensity of the light than the left sensor, the system moves the solar panels slowly to the right. When the sun goes down the system is resetting position to east orientation to prepare for another day.




HOT
STEEL
Galați