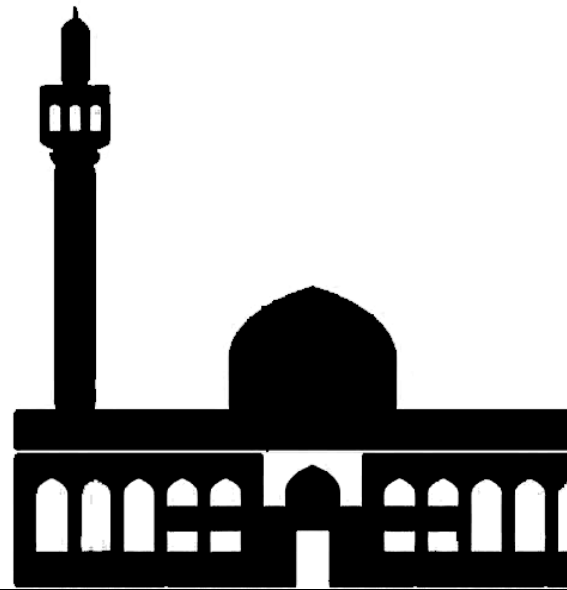


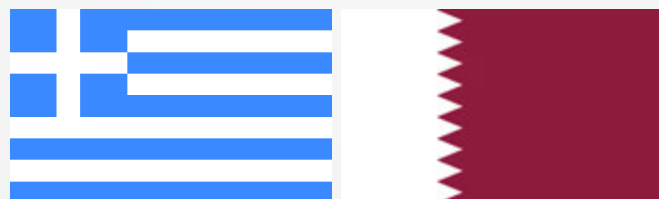


Official Portfolio

World Robot Olympiad 2015



www.minders.gr



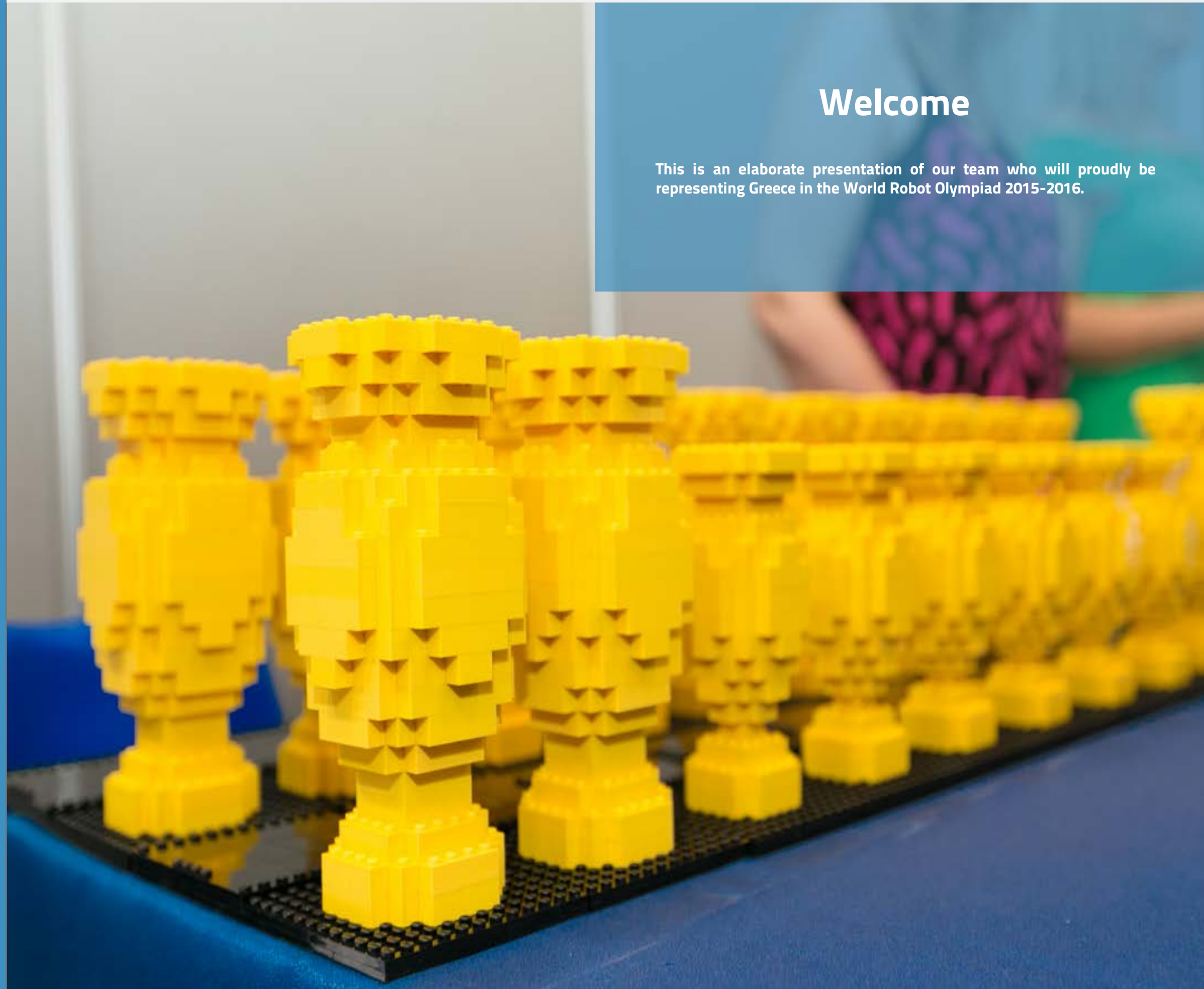
Qatar 2015

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Welcome

This is an elaborate presentation of our team who will proudly be representing Greece in the World Robot Olympiad 2015-2016.



THE TEAM 2015-2016

HISTORY

"Minders" is team established in 2010 by a group of Ekpedeftiki Anagennisi students, a private school, aiming at including and promoting robotics in its curriculum.

They are one of the most widely known teams in the Hellenic Contest WRO Hellas, having participated very successfully for the past four years.

Since their inception, the team has aimed at applying techniques of human logic and thought to their creations in order for the "robots" to be able to identify with humans and, therefore, to enhance the standards of living in any field (eg. Project Eurydice, RoboMind Project, RoboHermes Project).

With this criteria in mind, the Minders team was established with the goal to further advance and evolve the technology in the field of Robotics, something that has been successfully achieved by each generation of Minders.

Untill now, the most successful project of Minders team is the Shine Space project which was placed 7th in the World Robot Olympiad of 2014 at Sochi.



Reference from
WRO HELLAS
Secretary of the
Scientific Committee

PROF. DIMITRIS ALIMISIS

“

Minders, being one of the most successful teams in the Hellenic WRO, have continuously achieved to introduce unique innovations, and with their strong presence, raise the bar every single year.

”

AWARDS

Poseidon Project :

WRO HELLAS 2015 - 1st Place

ShineSpace Project :

World Robot Olympiad @ Sochi 2014 - 7th Place

WRO HELLAS 2014 - 1st Place

RoboHermes Project

World Robot Olympiad @ Jakarta 2013 - 12th Place

WRO HELLAS 2013 - 1st Place

Project Eurydice

WRO HELLAS 2012 - 4th Place

RoboMail Project

WRO HELLAS 2012 - 5th Place

RoboMind Project

WRO HELLAS 2010 - 2nd Place

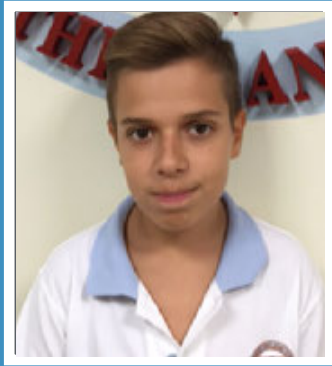


ROSTER & RESPONSIBILITIES

DETAILED PRESENTATION OF 5TH GENERATION

The team consists of three Senior students who have been co-operating on different projects for many years and their endeavor has produced impressive results.

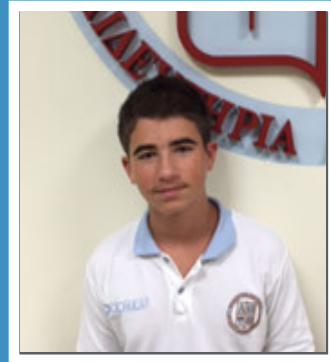
The composition of the team:



Theodore Gamaletsos

Operation Manager

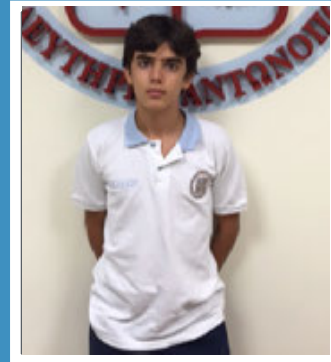
Theodore is a student who has participated before in debate competitions. Due to his experience in such competitions he has gained some skills in administration and that's why he is responsible for the team's operations.



Kostis Spyridonos

Programmer

Kostis is a student who loves mathematics. He has undertaken the programming sector and he is responsible for the robots proper function.



Kyriakos Nikolaidis

Constructor - CAD Designer

Kyriakos has great inclination to science. His main role is to design the robot and build it with the best possible ways. Also he has undertaken the CAD Design for the propellers.

Support Members



Sotiris Panagopoulos

Constructor

Sotiris, is participating for the second time in a WRO Contest. This year managed with his team to reach the World Finals. Due to his experience in the contest he is helping Kyriakos with the construction



Argiris Pigos

Marketing & Media

Argyris is a student who loves sports. This year he decided to join the Minders team in order to try something new. He has undertaken the Marketing sector in order to help the team find Sponsors.

Mentors



Dimitris Moraitis

Short bio :

Mr. Moraitis is a Computer Science teacher. He is the team's director since 2010, and he counts all of the team's successes in his biography.



Iasonas Taoukis

Short bio :

Iasonas is a student at the University of Piraeus, and along with Orfeas he is one of the founding members of the Minders group. He is mostly engaged in Computer Science and Robotics Teaching, and is responsible of coordinating the group's efforts and maintaining communication with external partners.

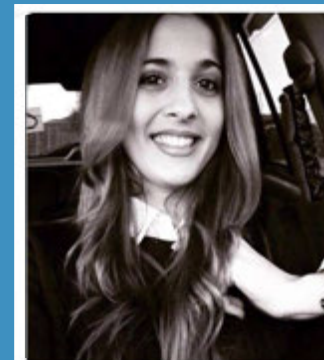


Labis Evagelatos

Short bio :

Labis is a student at the National and Kapodistrian University of Athens. He is engaged in Computer Science and has a great passion for Lego constructions. He is responsible to help the students with new construction techniques and help them find the best possible way to build the robot.

Coach



Sissy Spanopoulou

Short bio :

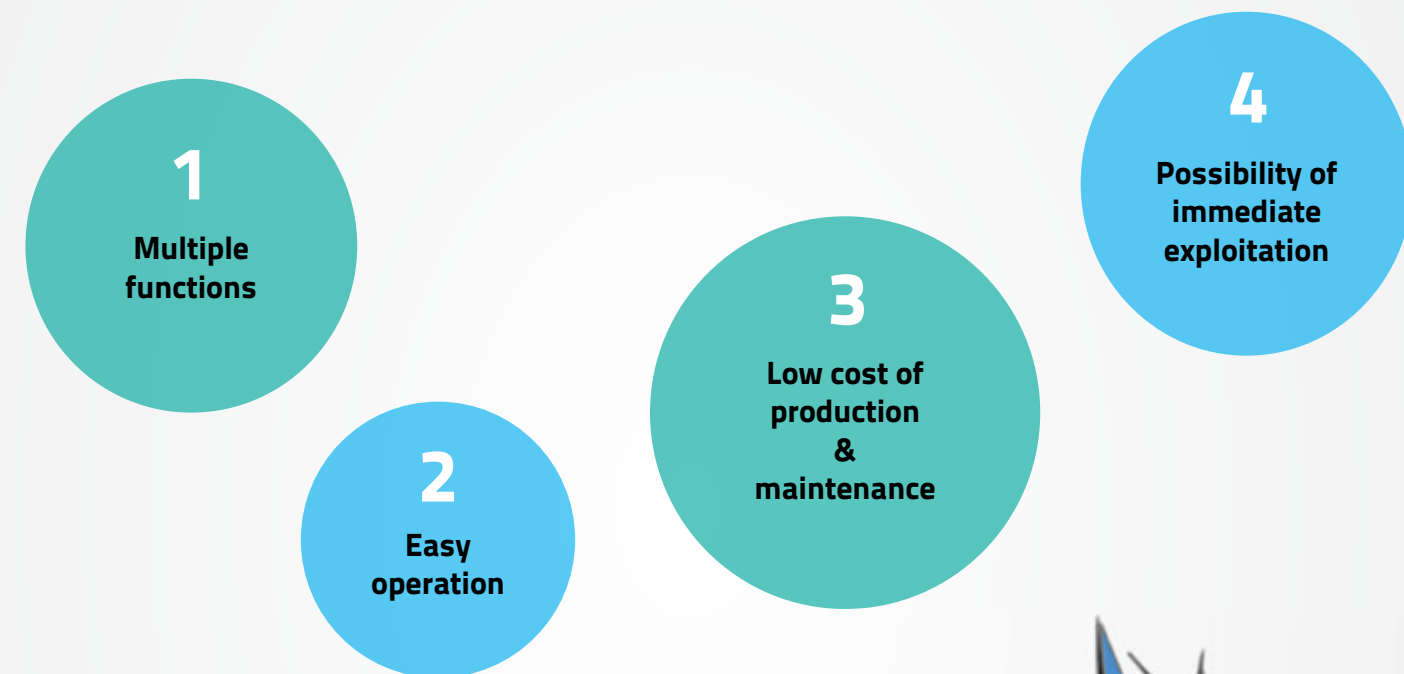
Mrs. Sissy is a Computer Science teacher. Last year participated as a Coach in the WRO Hellas contest with Minders Junior and got the 3rd Place. This year, her team managed to take the 1st Place and travel to Doha for the World Robot Olympiad.

THE PROJECT

The difficulty to find nowadays new resources in the aquatic environment, makes Poseidon significantly important for further development. The convertible character of it makes it extremely powerful for its purpose.

The Basic Idea

Taking into account all the above, we decided to create a model robot that will meet certain criteria:



The results speak for themselves :

Poseidon is an advanced Robotics system that aims to explore the water for natural resources. This is achieved through the sample extraction and analysis of water in the region that sent the coordinates of the satellite – mobile devices.

What makes the difference in Poseidon is its practical use and multi-functional design. This is showcased through Poseidon's structure and functions.

Moreover, its manufacturing cost is relatively low.

Lastly, the samples collected by Poseidon can be used in recognize as natural resource or pollution



POSEIDON'S CONTRIBUTION



After careful study, we came to the conclusion that "Poseidon" can explore inaccessible and dangerous seas, lakes and rivers all over the world in order to find natural resources which could be used for our benefit. As you can see in the map above there is plenty of water to explore such as:

Atlantic Ocean

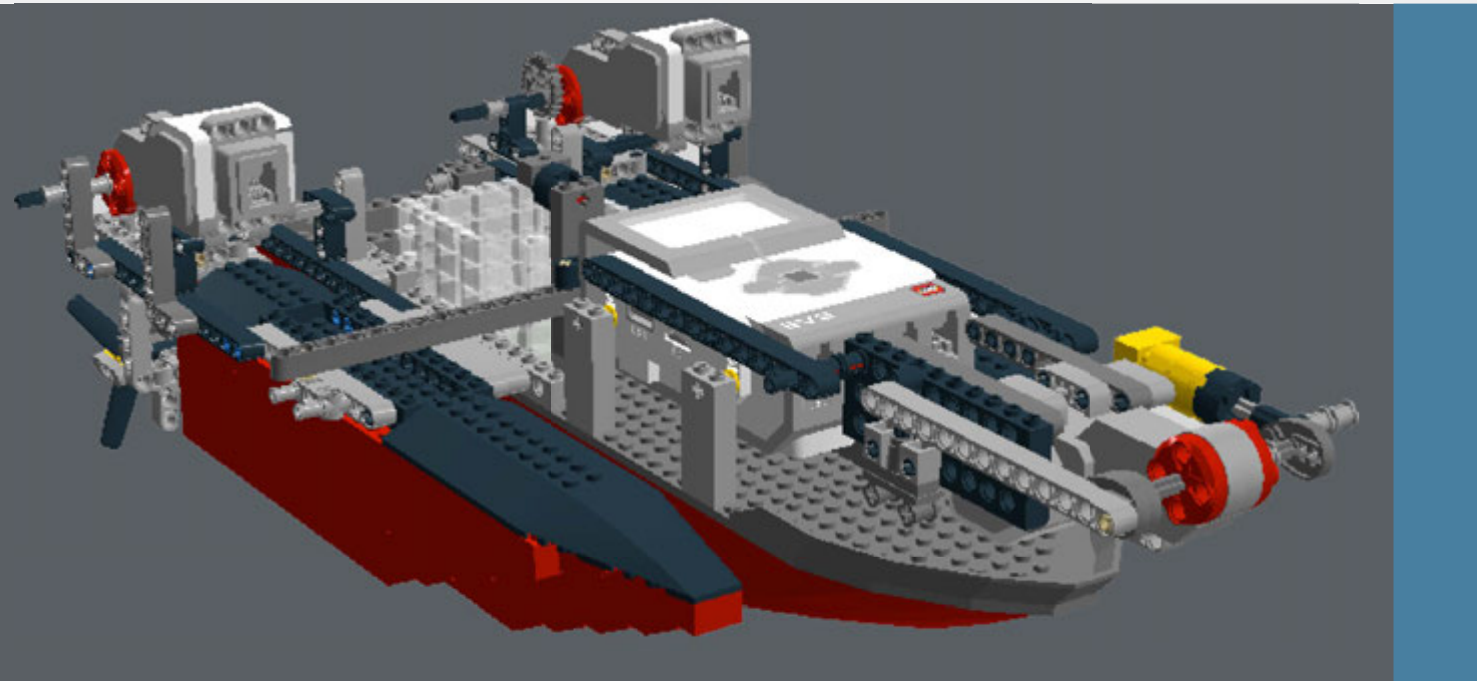
Mediterranean Sea

Indian Ocean

Pacific Ocean

Besides Oceans and Seas, Poseidon , can explore lakes and rivers, such as Jokulhlaup Lake, Boiling Lake, Horseshoe Lake, Karachay Lake, Lake Kivu, Lake Michigan, Mono Lake, Lake Monoun, Lake Nyos, The Yangtze River, The Parana River, The Congo River, The Amazon River, The Orinoco River, Mekong River, The Yenisei River, The Mississippi River

THE ROBOT



Innovations & Progress

The design of our robotics system is made in the most elaborate and innovative way. The use of Lego parts in our design made it hard for Poseidon to float and be stable in the water. Therefore we decided to use one big and two small hulls, that created a trimaran. Our second major challenge was the propulsion of our vehicle. Thus we designed our own propellers using a program called SolidWorks and we used the 3D printer to create them. The last but not least difficulty was the water pumping and analysis. We cattered to this problem by using a Lego pneumatic pump which compreses and depresses air in order to pump the nessesery water samples.

The aforementioned techniques help us to evolve our project in away we could barely imagine. All thnese challenges that we had to faced helped us to create many parts of the robot that now are perfect and we can not take any improvement at all, like our super accuarate propelars, or our modern and absolytely precise pumps. So to conclude every single one of our difiiculties help us to create this fully working and precise robotic system that it is being called Poseidon.

Progress

Is

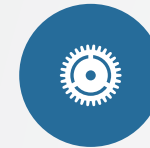
Success



Working Procedure

A detailed presentation of the function scenario.

Poseidon receives the wanted coordinates through a smartphone, it calculates the best possible route and starts its trip. On arriving, poseidon, pumps a sample to analyze. After that, saves the result and waits for new coordinates or the "Back" command. If Poseidon receive the "Back" command, it finds the Starting Position and returns there.



Hardware Analysis

The system consists 3D printed parts, multiplexed gears and pumping system, the assembly of which makes the robot complete.

- Propellers with different pitch were designed in 3D cad in order to serve our project.
- We use two pumps in order to be free to explore more than one location(one takes a sample the other takes out the sample).
- The multiplexed gears gives us the ability to be sure that motor is not turning and the propellers stuck.



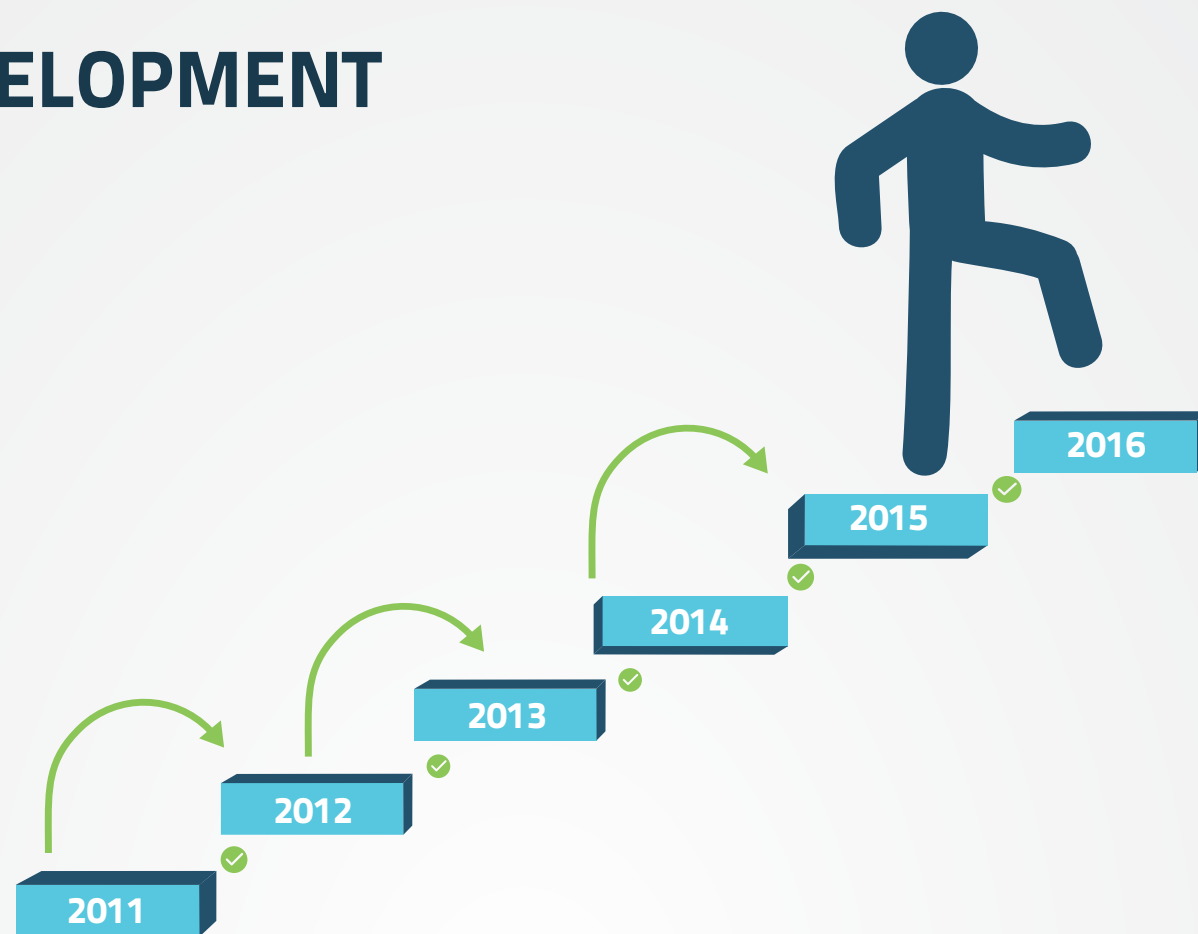
Software Analysis

Poseidon software is up-to-date and meets the requirements for the robot's proper function

Fully controlled function-wise.

- Automated program for finding best applicable route to its final location.
- Availability for returning to its base with the best possible accuracy.
- Sensors analyzing each sample.
- Results are saved to its memory and messaged to its base.
- Returning to base we have the ability to see every result to its trip.

DEVELOPMENT



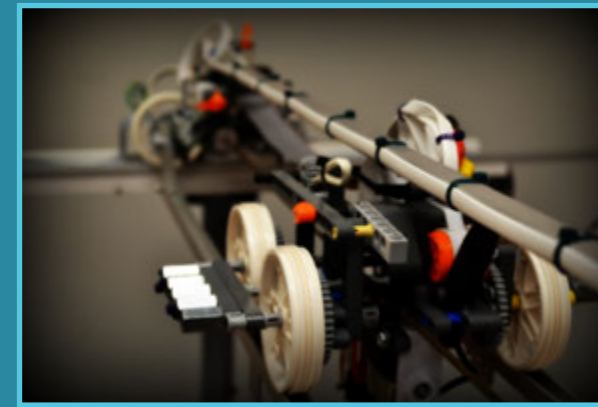
Through incessant will and continuous work, we have managed to improve and evolve not only throughout the years as a team, but also between the two competitions. Our well-organized team and way of cooperating have been fruitful in every aspect.



Hellas 2011



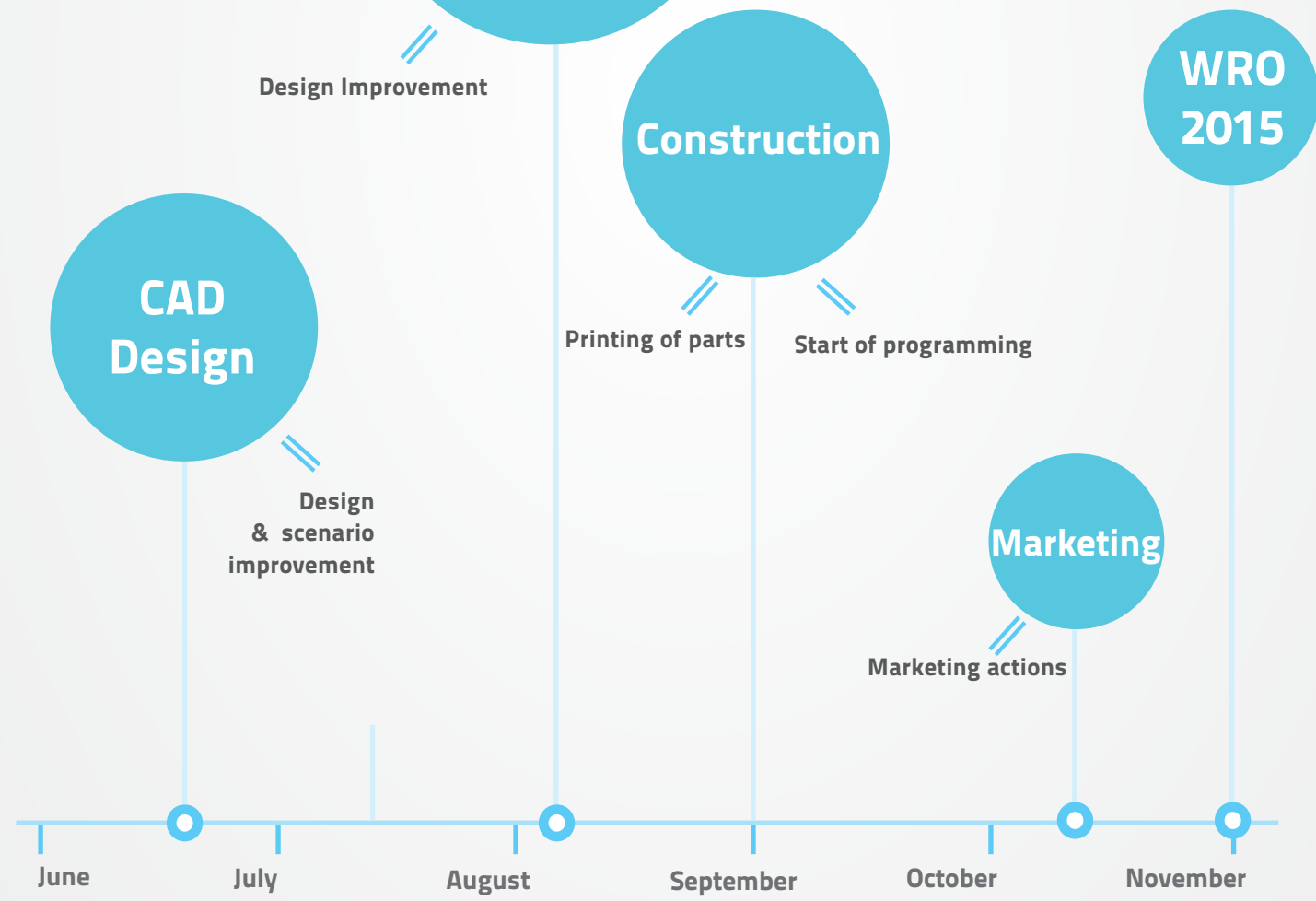
Sochi 2014



Jakarta 2013



Sochi 2014



MIND THE MINDERS!

Our passion for robotics fills our desire for another visual issue

Teaching Robotics & Teaching With Robotics 2014

In the aftermath of our success in the 2014 Teaching Robotics Panhellenic Competition, our team was invited to participate in the International Conference on Intelligent Autonomous Systems and in the "Robotics in Education 2014" exhibition, which took place in Padova University in Italy, in July 2014.

Our participation, gave us the chance to present our robotic system before an audience of experts at robotics and autonomous systems. It was definitely a memorable experience, through which we gained knowledge, which helped us achieve our goal in 2014 Robotics Olympics.

TEDx Academy 2014

We were given another chance to present our project by Drawlab, where we print out the 3D printed parts of our construction. Consequently, one of the parts of our construction was exhibited in the TEDx Academy 2014 stall, in the Opera House of Athens.



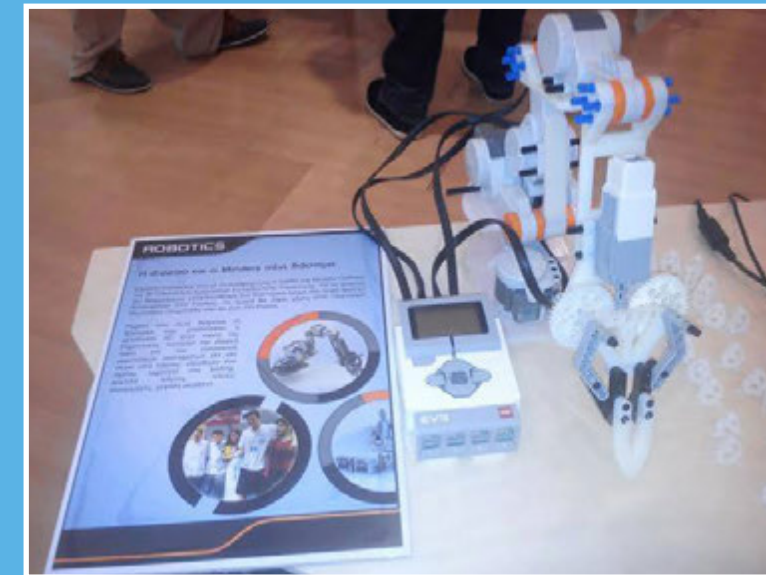
TEDx Youth 2015

One of our promotion actions and a great chance for our team, was the invitation we got for the TEDx Youth Academy 2015. We were given the chance to presentate the successful Shine Space project, some months after the 7th Place we got at Sochi.



Minders at Centro Congressi - Padova "A.Luciani"

Minders' Part of Shine Space Project at TEDx Academy 2014



Minders' Part of Shine Space Project at TEDx Youth 2015

MARKETING

Marketing is essential to the team's orderly function, since it ensures all the necessary funds, not only for our projects and travels, but also for the promotion of our team.

The sponsors on the next page funded our project and helped us realize our travel to Qatar.

The Team Brand

Clothing for the Competition



TV Interviews

In order to let more and more people know about our projects, we gave some interviews in big Greek TV Channels such as ERT1 and Star Channel.

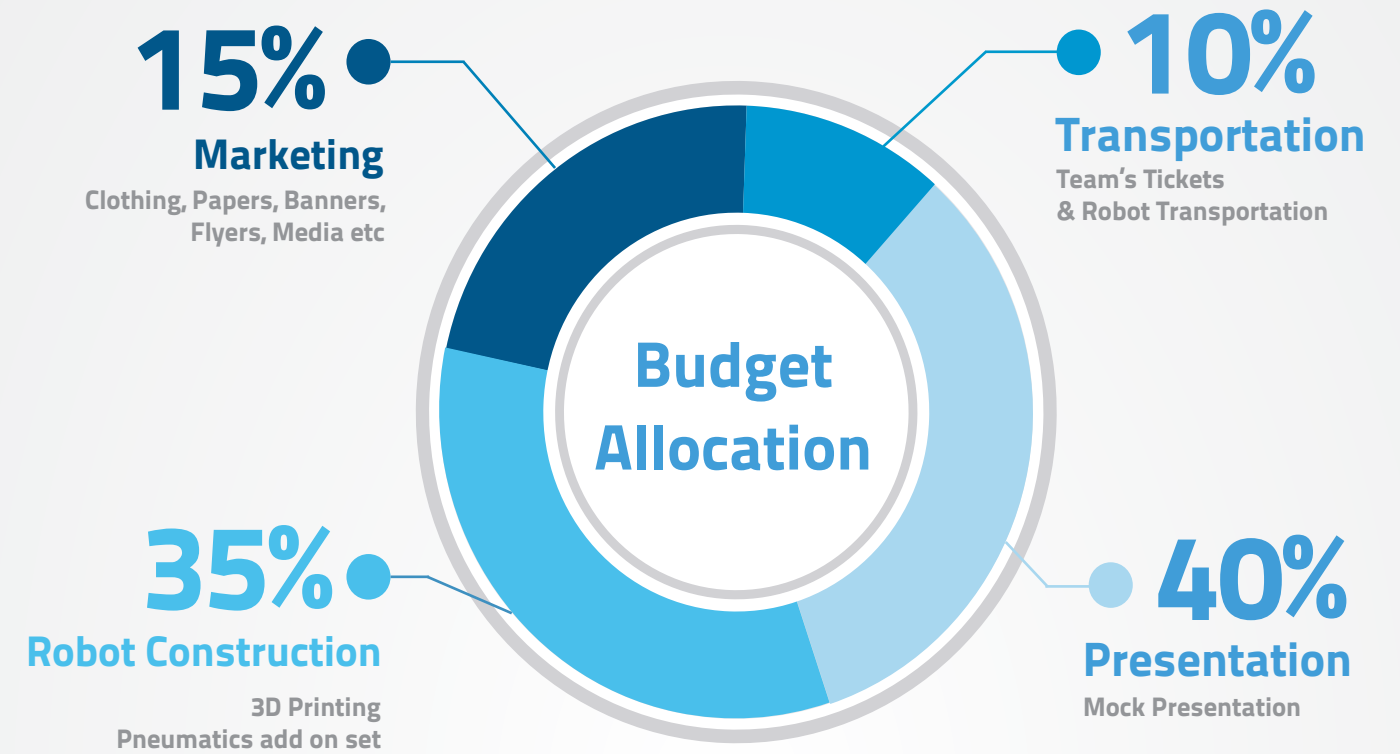


Minders 5th Generation at ERT1

Minders 4th Generation at Star Channel



Marketing Strategy



In order to ensure the aforementioned funding, we approached some companies, with the well-known "Return on Investment" system, which depends on reciprocation, meaning that the company's offers in terms of money, services, e.t.c., are returned in the form of the promotion.

The sponsors over the page have funded our project and helped our participation in Doha become a reality.

OUR SPONSORS



drawlab
CREATIVE DESIGN AND PROTOTYPING SERVICES



Clever point



UMAMI TALES



DOMBRA
SPORTS
Gamers Uniform
GREECE

Team Perspective

One of the assets of our team in the process of finding the right sponsors is the perspectives reflected by our project and the sense of confidence we inspire.

Therefore, we constantly try to invest on relations based on trust and interaction with our sponsors with the aim all parties benefiting from it.

Bearing the above in mind, our cooperation constantly improves and there is mutual respect, which eventually leads to success.





OUR PASSION IS OUR PATH TO SUCCESS

Throughout the years, the magical world of robotics has been an indispensable part of our everyday life, as well as a long journey with lots of experiences, the climax of which is the International Robotics Olympiad.

Our aim is the best possible representation of our country and the best possible rank.

We would like to thank all those who have supported our project and all those who dedicated their time to observe it.

The generations to come have even greater expectations and ambitions to walk in our path to success.

Minders 2015 - One Team - One Passion



ROBOT EXPLORERS
Al Shaqab Equestrian Facility
November 6 - 8

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