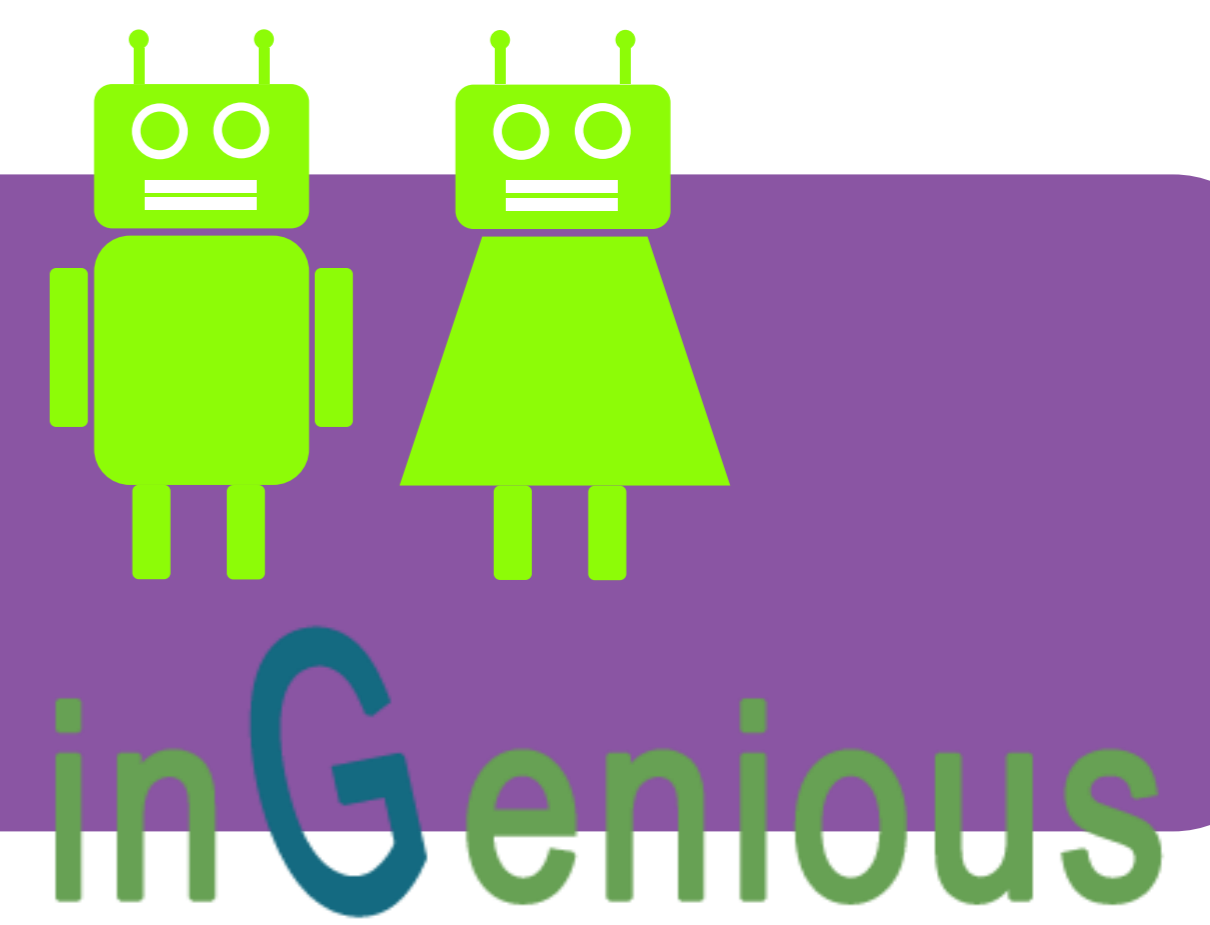


# AGRUPAMENTO DE ESCOLAS DE ESMORIZ OVAR NORTE

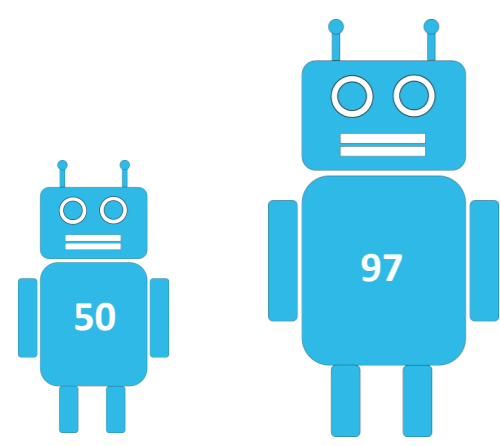
 [WWW.AE-ESMORIZ-OVARNORTE.PT](http://WWW.AE-ESMORIZ-OVARNORTE.PT)



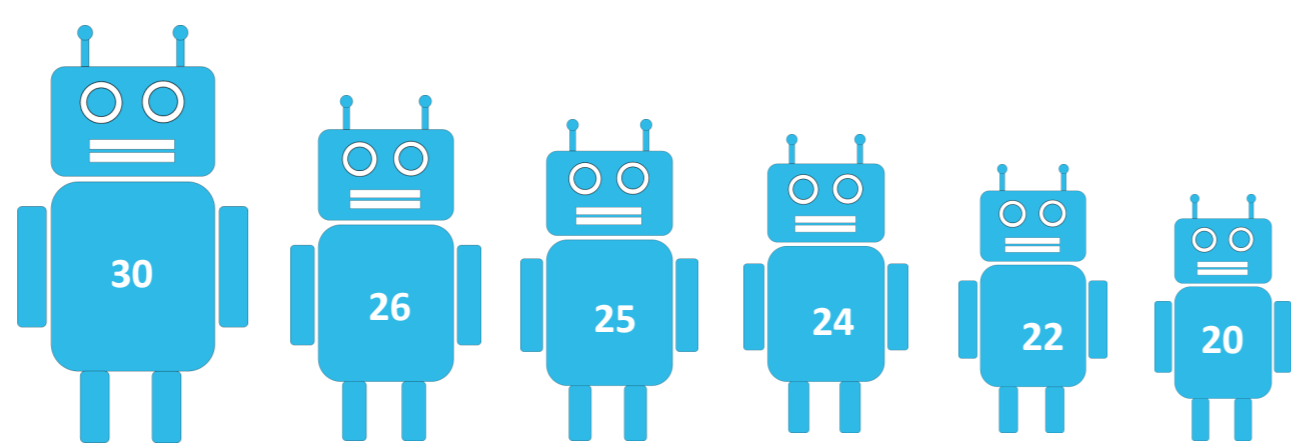
## INTRODUCING ROBOTICS IN THE CLASSROOM

To complement the practices carried out under the InGenious project, our school provided the opportunity for students to participate in extra curriculum activities centered on LEGO NXT Mindstorm Robots. When used in the classroom, they promote an active learning environment, stimulating students to develop skills of design, construction and programming as well as the opportunity to explore introductory STEM concepts. Using project-based learning methodologies, these activities promote interest in math, science, technology and engineering, giving the students both opportunities for creativity and a sense of achievement.

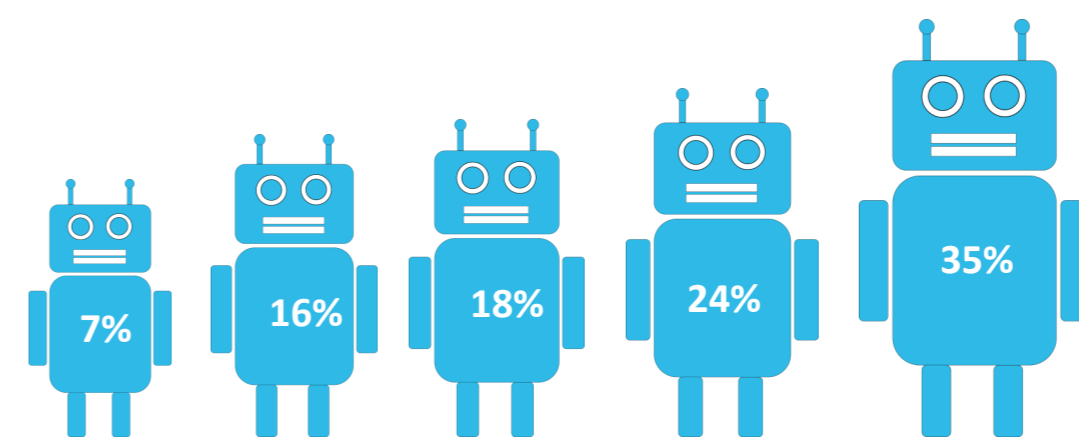
### NUMBER OF STUDENTS



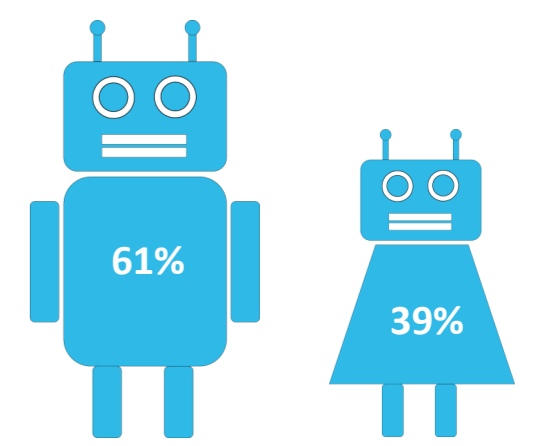
### STUDENT CLASSES DISTRIBUTION



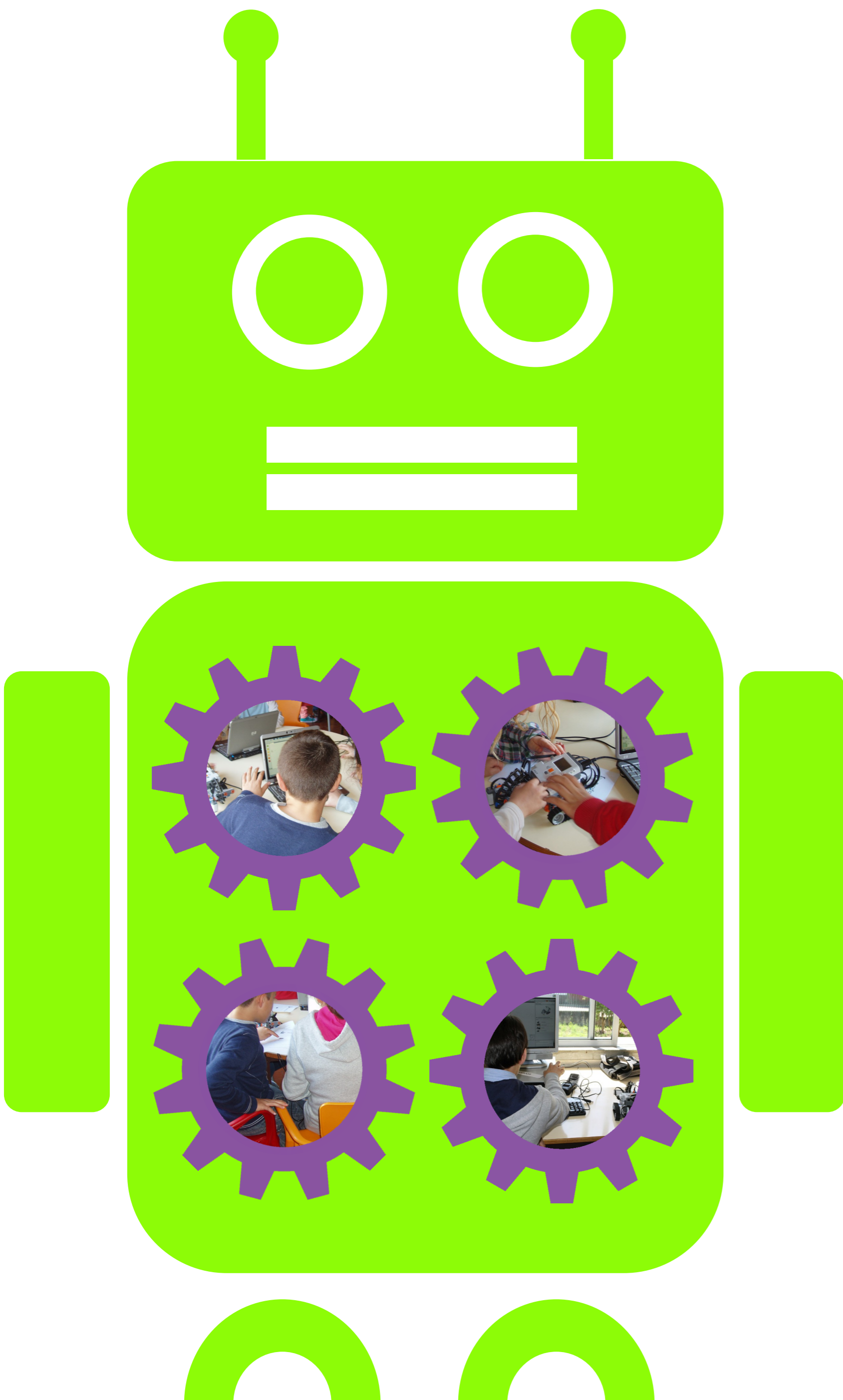
### STUDENT AGE DISTRIBUTION



### STUDENT GENDER DISTRIBUTION



### PHOTO GALLERY



### PROJECT TASKS

#### TASK 1

Discuss robotics in the classroom:  
Types of robots and applications.  
Structural Design options.

#### TASK 2

Design and build robotic devices  
using LEGO components.

#### TASK 3

Learning about robotics:  
Sensors (Touch, Light, Ultrasonic  
Vision, Sound)  
Actuators (Electric Motors)

#### TASK 4

Write simple software programs:  
Moving straight ahead.  
Using light and sound sensors.  
Controlling turns and speed.  
See and touch sensors.  
Controlled loops and making  
decisions.

#### TASKS

Program and test robotic devices to  
successfully complete each project  
task.

### PEDAGOGICAL STRATEGY: PROJECT-BASED LEARNING



## CONCLUSIONS

These activities give the opportunity to make the educational environment more attractive, introducing young students into science and technology.

Due to the interdisciplinary nature of robotics students get introduced into a wide variety of STEM subjects. We think that this kind of contexts can promote scientific thinking and technological skills, stimulating interest for further explorations into these fields.

The final evaluation is very positive because the feedback obtained from the students that participate in the activities is highly positive. Using this model, we think that we can attract more students for STEM careers.