Co-funded by the
Erasmus+ Programme
of the European Union

universidad de león

RoboSTEAM Project

2018-1-ES01-KA201-050939

Miguel Ángel Conde González

Universidad de León

Karlsruhe Transnational Meeting

Outline

- Context of the second part of the project
- Results
- Bragança Summer Camp.
- Challenges Design
- Managerial Issues
- Exchanges definition
- Dissemination plan and actions discussion
- Quality management
- Review of tasks to be done

Co-funded by the Erasmus+ Programme of the European Union

Outline

- **Context of the second part of the project**
- Results
- Bragança Summer Camp.
- Challenges Design
- Managerial Issues
- Exchanges definition
- Dissemination plan and actions discussion
- Quality management
- Review of tasks to be done

Co-funded by the Erasmus+ Programme of the European Union

We have done this

	MONTHS	M1	M2	M3	M4	M5	M6	M7	M8	M9	M10	M11
Project activity*												
A1 Overall project management												
A2 Quality Assurance												
M1 (Bragança)						M1						
O2 G. Designing Open Hardware PD&R/A1												
O2 G. Designing Open Hardware PD&R/A2												
O2 G. Designing Open Hardware PD&R/A3												
M2 (Karlsruhe)												
O2 G. Designing Open Hardware PD&R/A4												
O2 G. Designing Open Hardware PD&R/A5												
A3 - Pilot Phase 1												
C2 - Short-term exchanges of groups of pupils (Spain)												
C3 - Short-term exchanges of groups of pupils (Portugal)												
A4 - Pilot Phase 2												
C4 - Short-term exchanges of groups of pupils (Spain)												
C5 - Short-term exchanges of groups of pupils (Portugal)												
C6 - Short-term exchanges of groups of pupils (Finland)												
O2 G. Designing Open Hardware PD&R/A6												
M3 (Joensuu)												
E1 (Hackaton)												
O3 RoboSTEAM Environment/A1												
O3 RoboSTEAM Environment/A2												
O3 RoboSTEAM Environment/A3												
O3 RoboSTEAM Environment/A4												
C1 - Short-term joint staff train.event												
A5 Dissemination and mainstreaming												
E5 German Local Multiplier Event (Karlsruhe)												
E6 Finish Local Multiplier Event (Joensuu)												
M4 (León)												
E2 Final Conference												

Co-funded by the Erasmus+ Programme of the European Union

We should do this

	M13	M14	M15	M16	M17	M18	M19	M20	M21	M22	M23	M24
Project activity*												
A1 Overall project management												
A2 Quality Assurance												
M1 (Bragança)												
O2 G. Designing Open Hardware PD&R/A1												
O2 G. Designing Open Hardware PD&R/A2												
O2 G. Designing Open Hardware PD&R/A3												
M2 (Karlsruhe)												
O2 G. Designing Open Hardware PD&R/A4												
O2 G. Designing Open Hardware PD&R/A5												
A3 - Pilot Phase 1												
C2 - Short-term exchanges of groups of pupils (Spain)	C2											
C3 - Short-term exchanges of groups of pupils (Portugal)	C3											
A4 - Pilot Phase 2												
C4 - Short-term exchanges of groups of pupils (Spain)					C4							
C5 - Short-term exchanges of groups of pupils (Portugal)					C5							
C6 - Short-term exchanges of groups of pupils (Finland)						C6						
O2 G. Designing Open Hardware PD&R/A6												
M3 (Joensuu)						M3						
E1 (Hackaton)							E1					
O3 RoboSTEAM Environment/A1												
O3 RoboSTEAM Environment/A2												
O3 RoboSTEAM Environment/A3												
O3 RoboSTEAM Environment/A4												
C1 - Short-term joint staff train.event										C1		
A5 Dissemination and mainstreaming												
E5 German Local Multiplier Event (Karlsruhe)												E5
E6 Finish Local Multiplier Event (Joensuu)												E6
M4 (León)												M4
E2 Final Conference												E2

Co-funded by the Erasmus+ Programme of the European Union

Reminder (I)

- Overall Project Activity
- Quality Assurance
  - Quality Plan available
  - Questionaires to fulfil
  - M12, M18 and M24 reports
- Dissemination Mainstreaming
  - Dissemination plan
  - M12 and M24 reports

Co-funded by the Erasmus+ Programme of the European Union

Reminder (II)

- Complete Pilot Phase 1
  - A3. Pilot Phase 1 (M9-M17)
    - 5 secondary schools are involved with their students from 12 to 16 years old
      - Diagnostic phase
      - Challenges will be posed for small students' groups
      - Results will be analysed
        - » Time employed, grade obtained, external people involved, assessment of CT and STEAM and self perception about the experiment

Co-funded by the Erasmus+ Programme of the European Union

Reminder (III)

- Complete Pilot Phase 2
  - A3. Pilot Phase 2 (M12-M19)
    - Same secondary schools
    - Same students groups
    - Use the methods and tools from other socioeconomic contexts
    - Results comparison with non participant, with other contexts and with those of the first pilots

Co-funded by the Erasmus+ Programme of the European Union

Reminder (IV)

- Continue populating the RoboSTEAM Environment
- Exchanges
  - Portugal->Spain (October)
  - Spain->Portugal (November)
  - Finland->Portugal->Spain (February)
  - Portugal->Spain->Finland (March)
- Joensu transnational meeting in March
- Hackaton Bragança (April international week)
- Teacher Training Week (June - Germany)
- Local Multiplier Events (German and Finnish - September)
- Final Mainstreaming conference

Co-funded by the Erasmus+ Programme of the European Union

O2.

O2. Guides for designing Open Hardware PD&R (February 2019– May 2020)

- O2. A1. – Analysis of the existing PD&R
- O2. A2. – Definition of competencies related requirements depending on age and cultural contexts
- O2. A3. – Identification of the contexts to be tested (1 or 2 per partner)
- O2. A4. – Design of Open Hardware Kits to be applied during the learning challenges
- **O2. A5 – Application of the kits to STEAM challenges in the defined contexts**
- **O2- A6 – Evaluation of the experiences**

Co-funded by the Erasmus+ Programme of the European Union

O3. RoboSTEAM Environment (January 2019–October 2020)

- O3. A1 – Design and implementation of a virtual environment as the base of the portal
- O3. A2 – Compilation of STEAM challenge tools and guides
- O3. A3 - RoboSTEAM user manual and tutorials.
- **O3. A4 – Environment maintenance**

Co-funded by the Erasmus+ Programme of the European Union

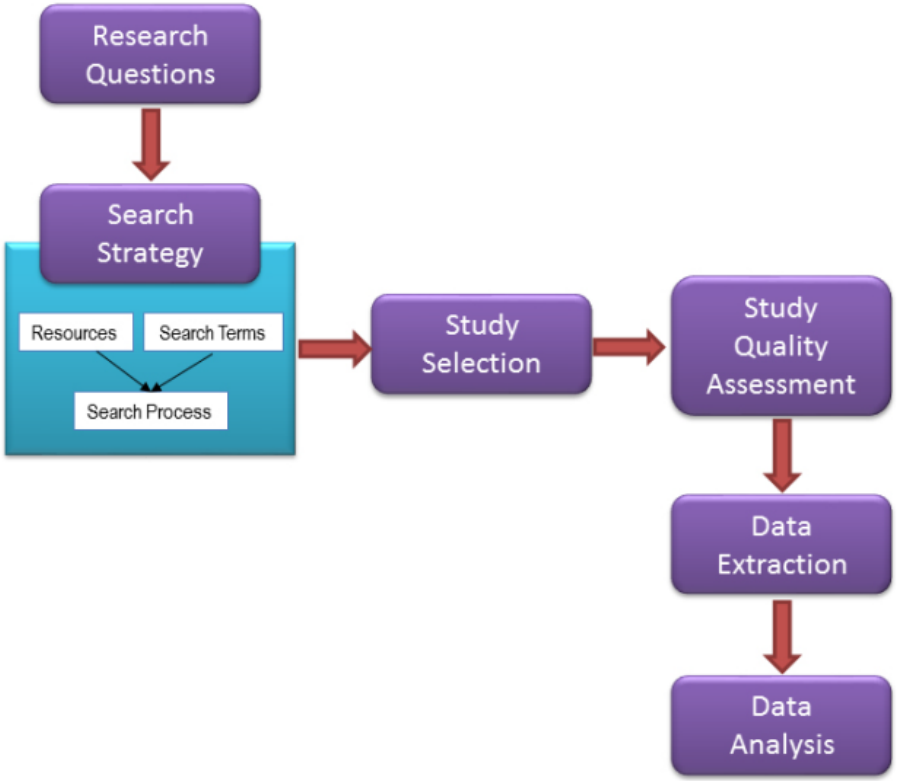
Outline

- Context of the second part of the project
- **Results**
- Bragança Summer Camp.
- Challenges Design
- Managerial Issues
- Exchanges definition
- Dissemination plan and actions discussion
- Quality management
- Review of tasks to be done

Co-funded by the Erasmus+ Programme of the European Union

O2.A1. Analysis of the existing PD&R

- **SLM** vs SLR
  - Methodology
  - Skills and competences
  - Age and context



Co-funded by the Erasmus+ Programme of the European Union

O2. A1. Planning

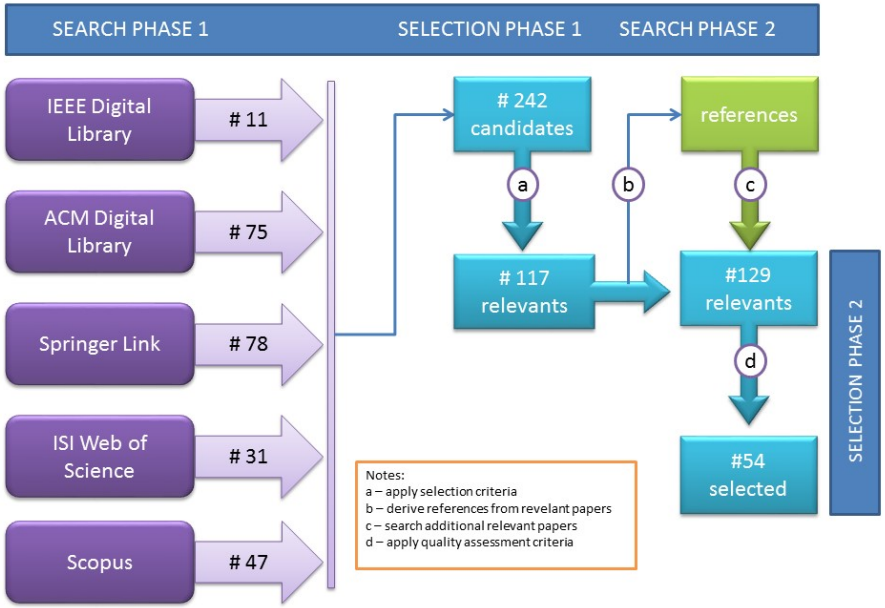
- Are there initiatives or projects that apply Robots or Mechatronics for the development of Computational thinking or STEM in education?
- Do these initiatives apply learning methodologies based on challenges?

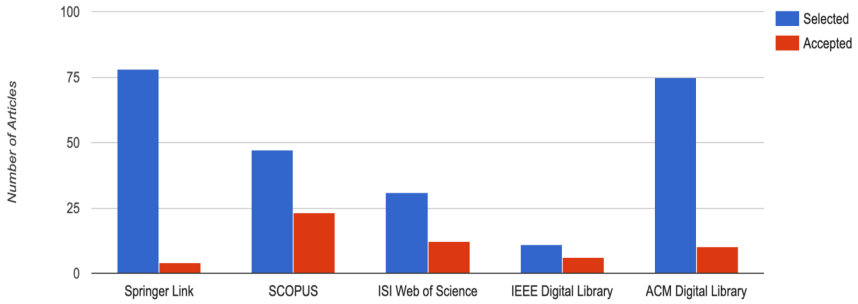
((“robotics" OR "mechatronics" OR "physical devices”) AND Education AND ("STEAM" OR “STEM”) AND (“Computational Thinking" OR "challenge based learning" OR "CBL" OR "Problem-based Learning" OR "Project-based Learning" OR "Problem Based Learning" OR "Project Based Learning" OR "PBL"))

ACM DL, IEEE Explore, WOS, Scopus and Springer Link

Co-funded by the Erasmus+ Programme of the European Union

O2. A1.Conducting





Co-funded by the Erasmus+ Programme of the European Union

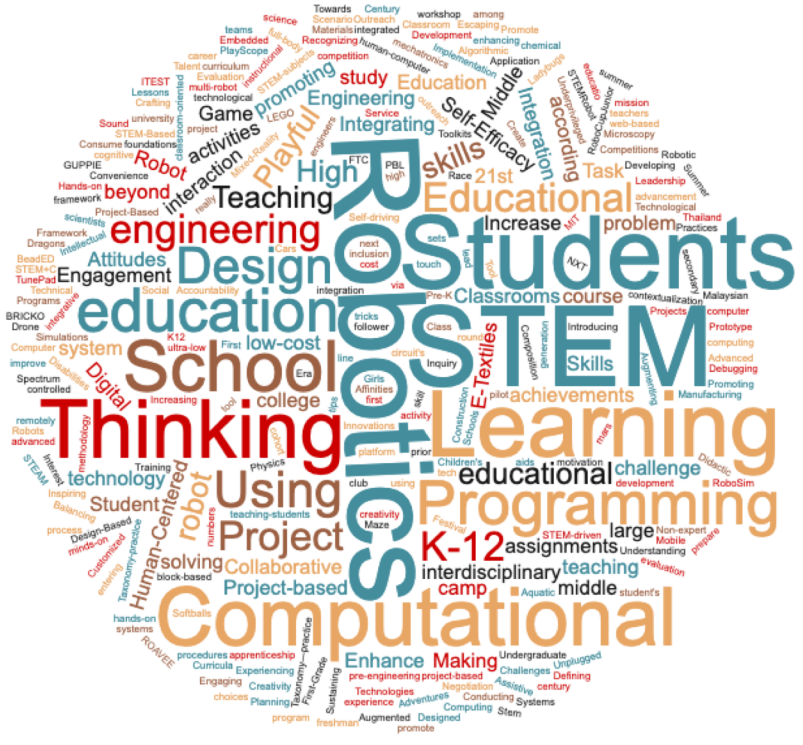
O2. A1. Results - Application

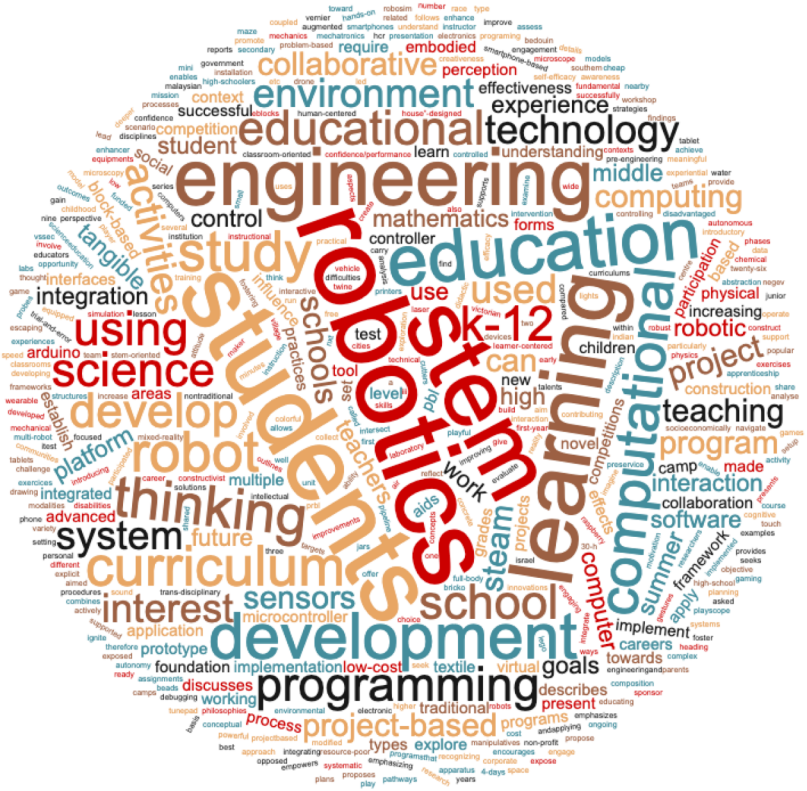
- T1. Effects of the application of robotics in education by using methodologies such as PBL, PrBL and ChBL
- T2. Engaging students in STEAM by applying PD&R
- T3. CT by applying PBL, PrBL and ChBL and PD&R
- T4. Tool and techniques for STEAM Education

TOPIC	Nº PAPERS
Topic 1	8
Topic 2	23
Topic 3	17
Topic 4	19

Co-funded by the Erasmus+ Programme of the European Union

O2.A1. Titles and aims

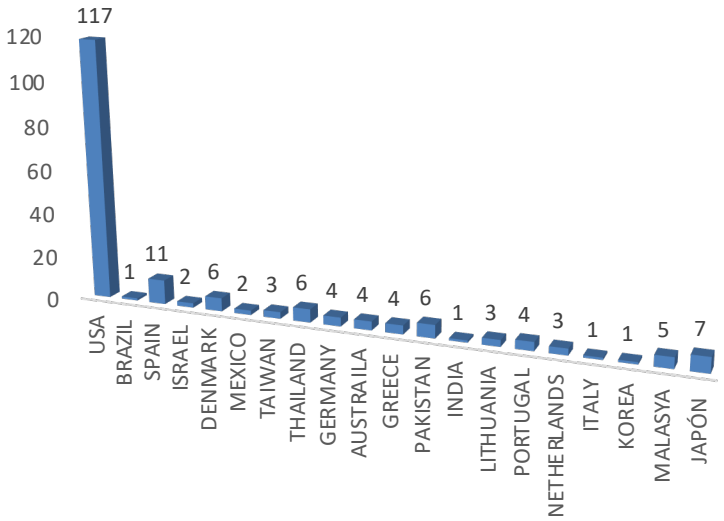


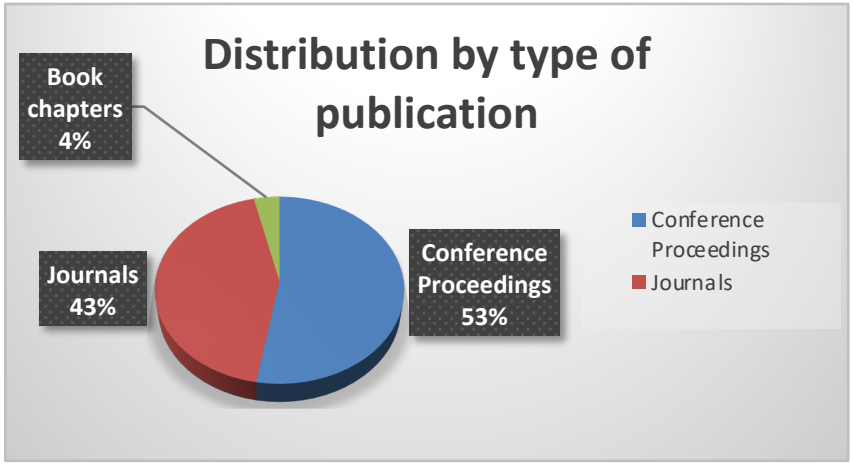


Co-funded by the Erasmus+ Programme of the European Union

O2. A1. Authors and sources

Authors	Scopus H-Index	Authors	Scholar H-Index
Maurizio Porfiri	49	Muhammad Arshad	85
David L. Blustein	41	David L. Blustein	60
Cindy E. Hmelo-Silver	31	Maurizio Porfiri	55
Cindy E. Hmelo-Silver	31	Yasmin B. Kafai	54
Illah Nourbakhsh	27	Chi-Cheng Chang	46
Robert Shin	27	Manuel Castro	36
Sertac Karaman	26	Alexander Repenning	36
Yasmin B. Kafai	26	Sertac Karaman	34
Manuel Castro	25	Robert Shin	33
George Hademenos	23	Brian Magerko	28
Jane Connor	22	Mike Barnett	28





Co-funded by the Erasmus+ Programme of the European Union

O2. A1. Methodology and Devices

Tool Employed	Number of works
Robotics	26
Physical Devices	15
Both	13

LEGO and Arduino

Methodology	Number of works
PBL	14
PrBL	29
ChBL	9
Other	3

Most studies are focused on Secondary Education and Higher Education

Co-funded by the Erasmus+ Programme of the European Union

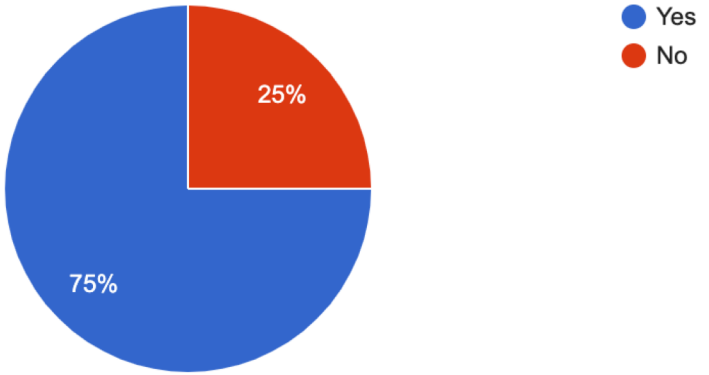
O2. A2. Definition of competencies related requirements

- Definition of competencies related requirements depending on age and cultural contexts. Based on the previous analysis it is possible to extract the competences that facilitate PD&R application in school contexts but attending to age and cultural contexts
- Form
  - Competencies
  - Age and cultural differences
  - Applied methodology
  - Assessment

Co-funded by the Erasmus+ Programme of the European Union

O2. A2. Competencies

Differences between ages



Co-funded by the Erasmus+ Programme of the European Union

O2. A2. Age and Context Differences

- Depends on the context and age
  - Understand how to prototype a robot and CT versus Programming
  - 12-14 age
    - Spatial vision, Digital identity
    - Basic algorithmic thinking, procedural programming principles, understanding of interplay between the hardware and the software
  - 14-16
    - Maths, Computational Thinking and Critical Thinking
    - Wider applications PD&R in students' everyday life
- Gradual
  - The competences are the same but their acquisition is usually gradual from 12 to 16.
  - Depending on the age, graphical programming can be substituted by text programming.

Co-funded by the Erasmus+ Programme of the European Union

O2. A2. Tools

- General evaluation instruments you use
  - Observation
    - With the application of rubrics
  - Specific tests to asses competences
  - Experiments, Competitions, Exibitions, Debates
  - Questionnaires realted to the topics
  - Assesing projects
  - Making videos
  - Presentations
- Other
  - Semi-structure qualitative interviews, debates, portfolio, online activities
- Depending on AGE
  - Enquiries made to the students.
  - Adapted depending on age
    - Youngers, questions or items should be simple and graphical
    - Shorter Projects and easier tasks for youngest
    - For older even share their projects
    - Desirable Levels of performance adapted

Co-funded by the Erasmus+ Programme of the European Union

O2. A2. Methodology for assessment

- Observation of the students progress
- Group interviews
- Evaluation of problem, project and challenge based initiatives
  - Progress and Results
- Analysis of the results from specific tests
- Other possible methodologies
  - Interviews
  - Students evidences
  - Questionnaires
- Depends on the activity and there is not only one solution
- Tools for assesment

Co-funded by the Erasmus+ Programme of the European Union

O2. A3. Identification of the contexts to be tested

- With the previous information it is possible to define possible different contexts to apply challenges based on PD&R and to take into account what context related issues could have an impact in the learning experiment.
- Form
  - Context
  - Students
  - Expertise

Co-funded by the Erasmus+ Programme of the European Union

O2. A3. IES Eras de Renueva

Name of the context	I.E.S. Eras de Renueva. High School
Requirements of the context	We have two differents levels: - First level (3º ESO)- Students haven`t studied before anything related to Robotics. During this years, students can study subject called Control and Robotics, in which they have learn about electrical circuits an programming with Scratch. - Second level (4º ESO)- Most of the students have had a two hours/week subject called called Control and Robotics in 3º ESO, During this years, students can study other subject called Programming.
What is your students age	3º ESO (14-15) and 4º ESO (15-16)
How many time could be devoted for the activity	1 hour a week
Type of kits and challenges desirable	Specific Kits (i.e: Arduino kits).
What do you expect from the activity	The participation in this project will be an opportunity for the students to learn about Robotics through a callenge what always represents a special motivation to learn. Sharing their experiences with students from others countries will be an enriching environment for learning.
Have you or your partners ever apply a challenge based learning methodology	Yes
Have you used robots or physical devices in your classes	Yes
Describe the robots or physical devices that have been used in the context	Students have desingned and created their own physical device using electrical components such as motors, switches, limits switches. In Control and Robotics they desing basic circuits with Arduino kits.

Co-funded by the Erasmus+ Programme of the European Union

O2. A3. Carl Benz School

Name of the context	Carl Benz School Karlsruhe, Vocational school
Requirements of the context	This issue was discussed with the school, I am awaiting the response
What is your students age	16-20
How many time could be devoted for the activity	15,75h
Type of kits and challenges desirable	Arduino LilyPad Smart textile
What do you expect from the activity	the pupils are planning, designing, constructing, wiering, programming and presenting interactive objects. they invent things according to their creative ideas
Have you or your partners ever apply a challenge based learning methodology	No
Have you used robots or physical devices in your classes	Yes
Describe the robots or physical devices that have been used in the context	Lego Mindstorms, Arduino Lilypad wearables

Co-funded by the Erasmus+ Programme of the European Union

O2. A3. AEGG

Name of the context	Agrupamento de Escolas Emídio Garcia
Requirements of the context	Science aerea and artistic (music/visual arts) background
What is your students age	15-16 year-olds
How many time could be devoted for the activity	from 4 to 8 H
Type of kits and challenges desirable	Specific Kits (i.e: Arduino kits).
What do you expect from the activity	enhance students' competences such as: problem solving, critical thinking, creativity, computational thinking, communcation skills and give them the oportunity to have an intercultural experience
Have you or your partners ever apply a challenge based learning methodology	No
Have you used robots or physical devices in your classes	No
Describe the robots or physical devices that have been used in the context	

Co-funded by the Erasmus+ Programme of the European Union

O2. A3. UEF

Name of the context	SciKids' technology club (informal, extracurricular setting)
Requirements of the context	A variety of students from different schools, the club is a hobby for them. Gathering every second week for 2-2,5 hours.
What is your students age	10-15 mostly
How many time could be devoted for the activity	2 hours / twice in a month during the school year
Type of kits and challenges desirable	Mobile robots
What do you expect from the activity	Developing students' understanding about the robotics environments as well as basic CT skills. The students are engaged to design, programming, and testing cycle of robotics sets (typically tasks such as line following or maze solver; sometimes RoboCup rescue or soccer).
Have you or your partners ever apply a challenge based learning methodology	Yes
Have you used robots or physical devices in your classes	Yes
Describe the robots or physical devices that have been used in the context	Lego robots, variety of Arduino-based mobile robot building kits.

Co-funded by the Erasmus+ Programme of the European Union

O2. A3. CIC

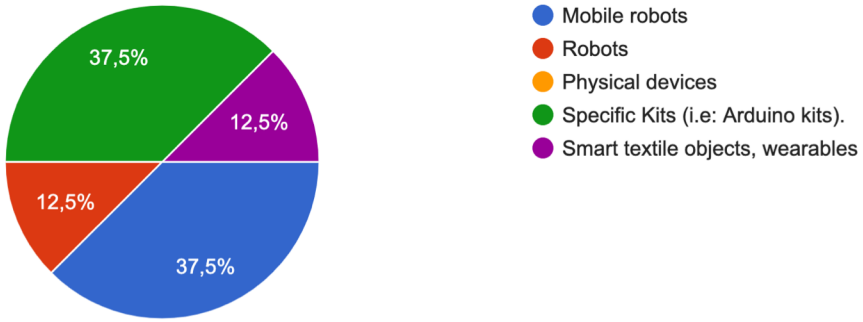
Name of the context	Logistic management of a warehouse
Requirements of the context	Students have virtually no programming and robotics background. They need to know how to get the information and what to do with it. They need to solve small problems in a short time.
What is your students age	15, 16
How many time could be devoted for the activity	Minimum 1 hour maximum 3 hours per week, but not every week.
Type of kits and challenges desirable	Specific Kits (i.e: Arduino kits).
What do you expect from the activity	that develop logical thinking and build their own knowledge.
Have you or your partners ever apply a challenge based learning methodology	No
Have you used robots or physical devices in your classes	No
Describe the robots or physical devices that have been used in the context	

Co-funded by the Erasmus+ Programme of the European Union

O2. A3. Information

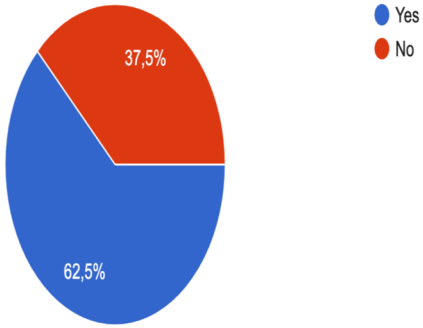
Type of kits and challenges desirable

8 respuestas



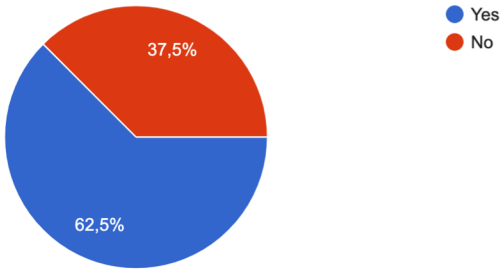
Have you used robots or physical devices in your classes

8 respuestas



Have you or your partners ever apply a challenge based learning methodology

8 respuestas



Co-funded by the Erasmus+ Programme of the European Union

O2. A4. Design of Open Hardware Kits

- Definition of some PD&R kits taking into account the competencies that students should acquire and the best way to facilitate this acquisition taking into account the socioeconomical contexts where challenges take place

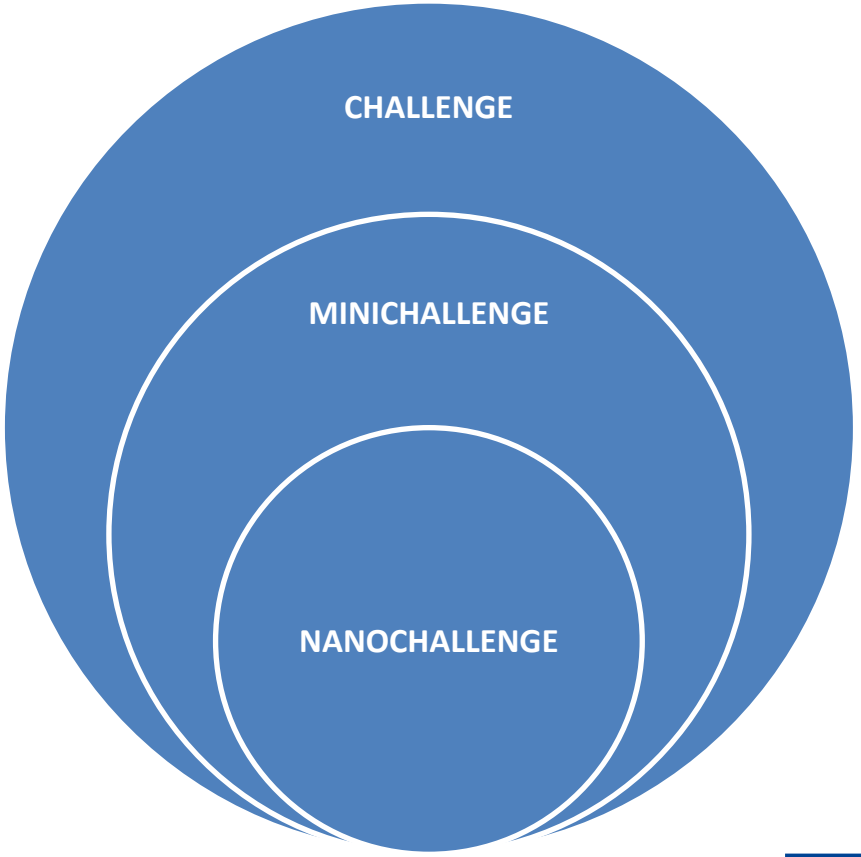
Co-funded by the Erasmus+ Programme of the European Union

O2. A4. Definition of Challenge and granularity

- Challenge
  - More general
  - Define a big Idea
  - Around 80 hours (40-60 class hours, 20-40 Personal Work)
- Minichallenge
  - More concrete, Big Idea is defined for students
  - Around 40 hours (20-30 class hour, 10-20 personal work)
- Nanochallenge
  - Focused on a particular content, area or skill
  - 10-16 hours (6-10 class hours and 4-6 personal work)

Co-funded by the Erasmus+ Programme of the European Union

O2. A4. Concept



Co-funded by the
Erasmus+ Programme
of the European Union

O3.A5. Application

- Application of the kits to STEAM challenges in the defined contexts. This will be done during the pilot activities that are developed in A3 and A4. For the first pilots kits defined specifically for each specific testing contexts are used. The second will use again the same kits and other achieved from other socioeconomic environments
  - To be done in the piloting
  - Pre-piloting Bragança

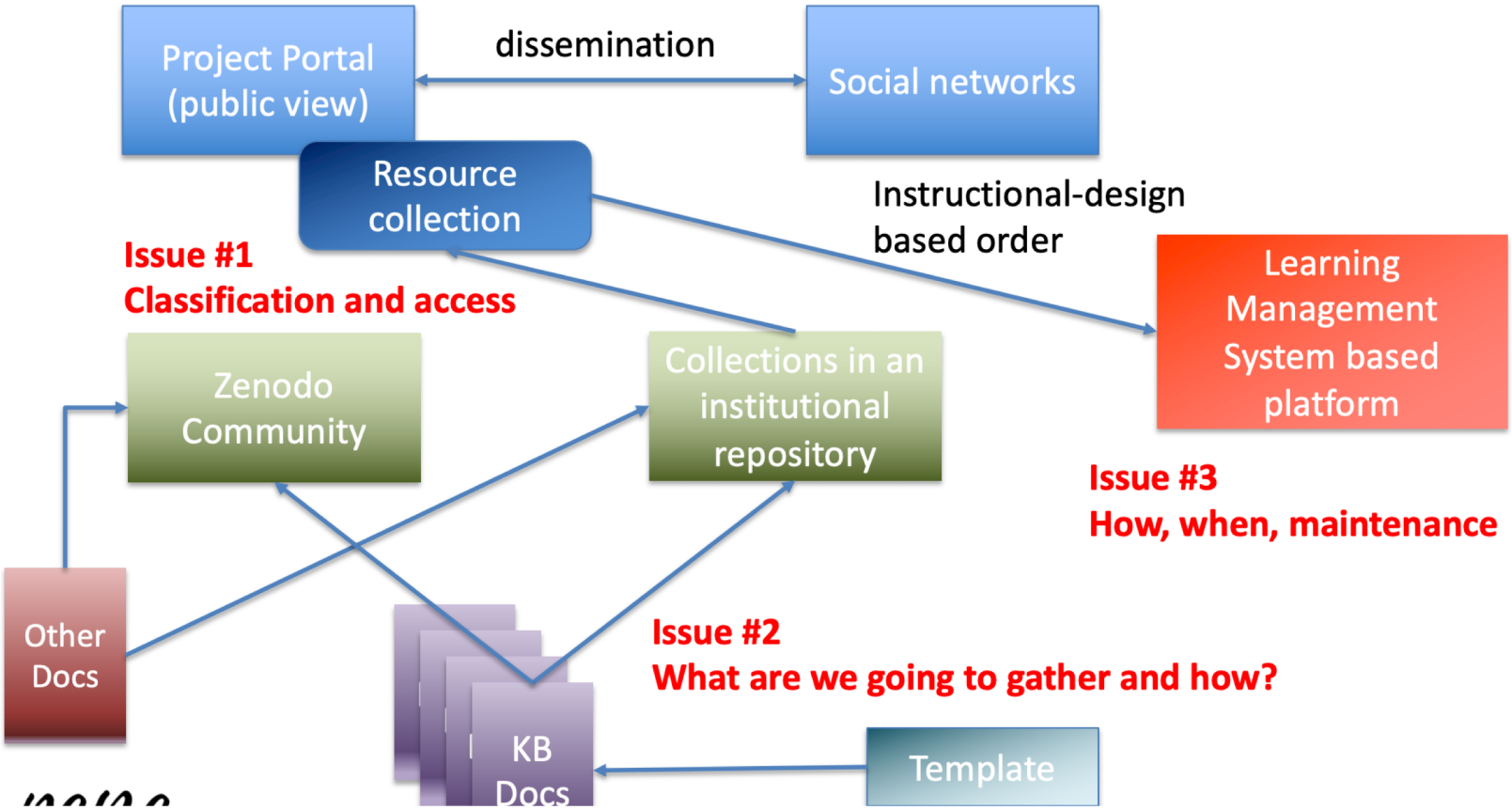
Co-funded by the Erasmus+ Programme of the European Union

O3.A1

- Educational environment which will offer to schools and teachers a complete set of tools, activities, guides and support to manage the implementation of STEAM challenges
  - Design and implementation of a virtual environment as the base of the portal (It should include functionalities such as: web site, virtual campus, software repository for STEAM challenge, software repository with evaluation and diagnosis tools, video conference, social media capabilities, intranet system regulated by roles, etc)

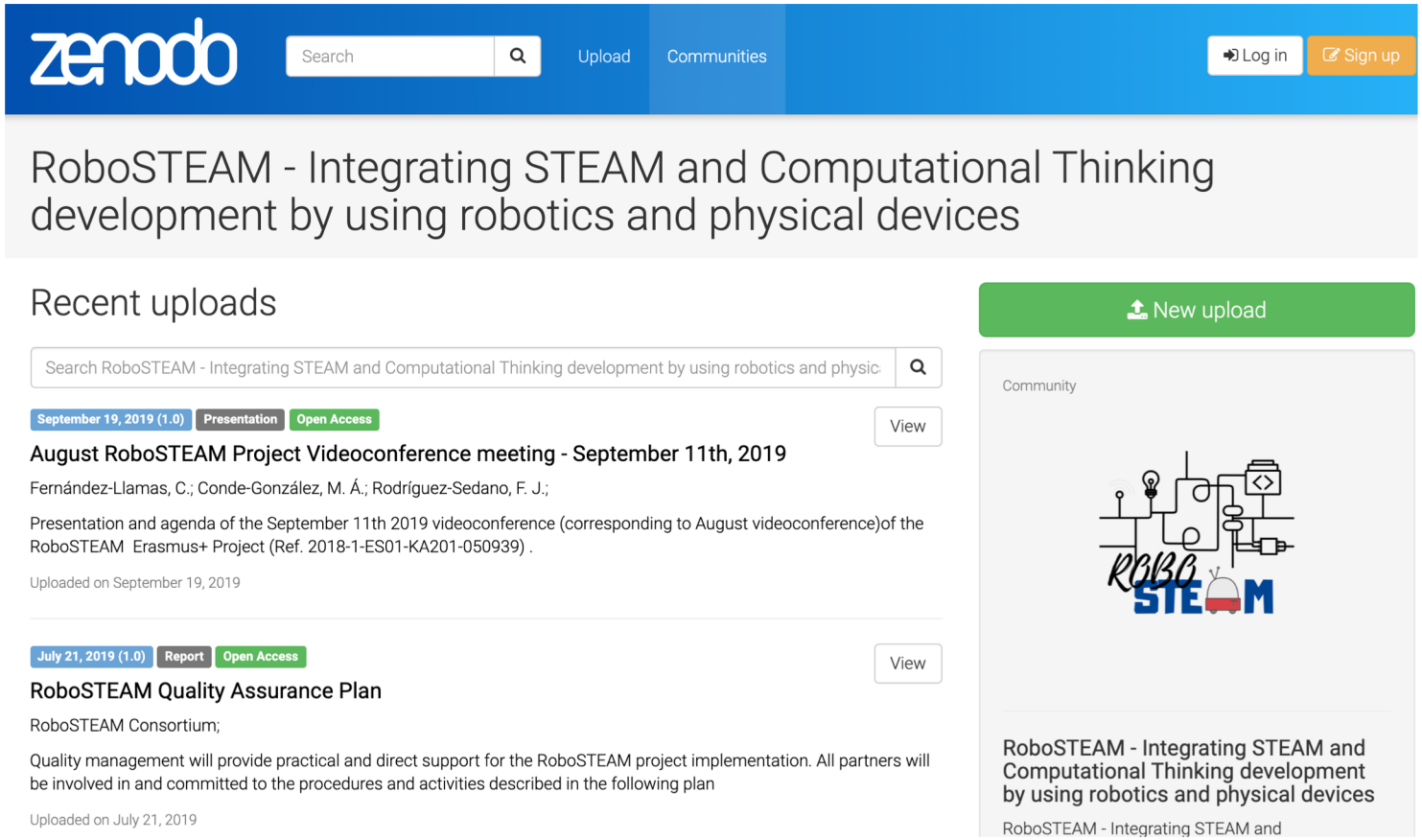
Co-funded by the Erasmus+ Programme of the European Union

O3.O1.Proposal



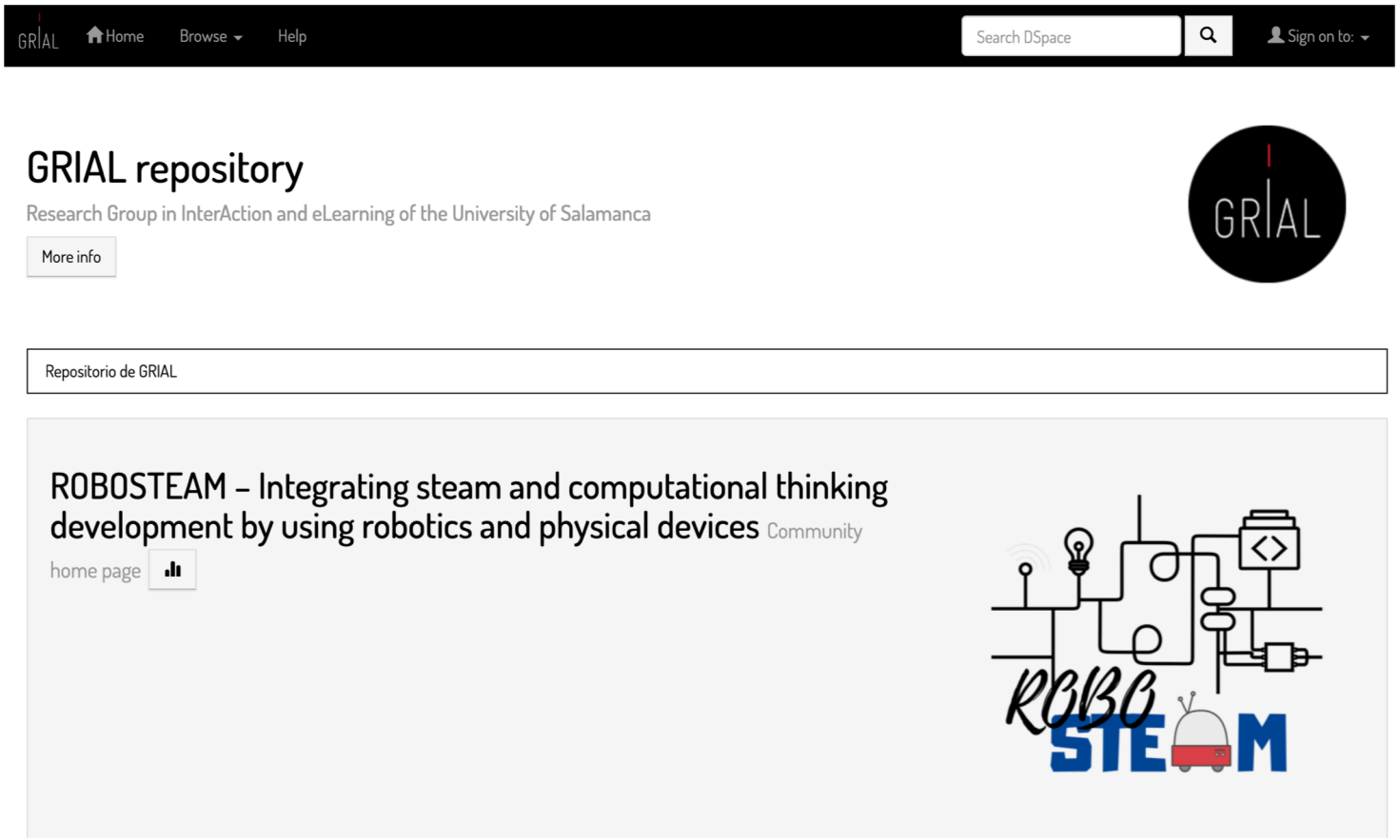
Co-funded by the Erasmus+ Programme of the European Union

O3.O1 Zenodo Collection



Co-funded by the Erasmus+ Programme of the European Union

O3.O1 Institutional Repository

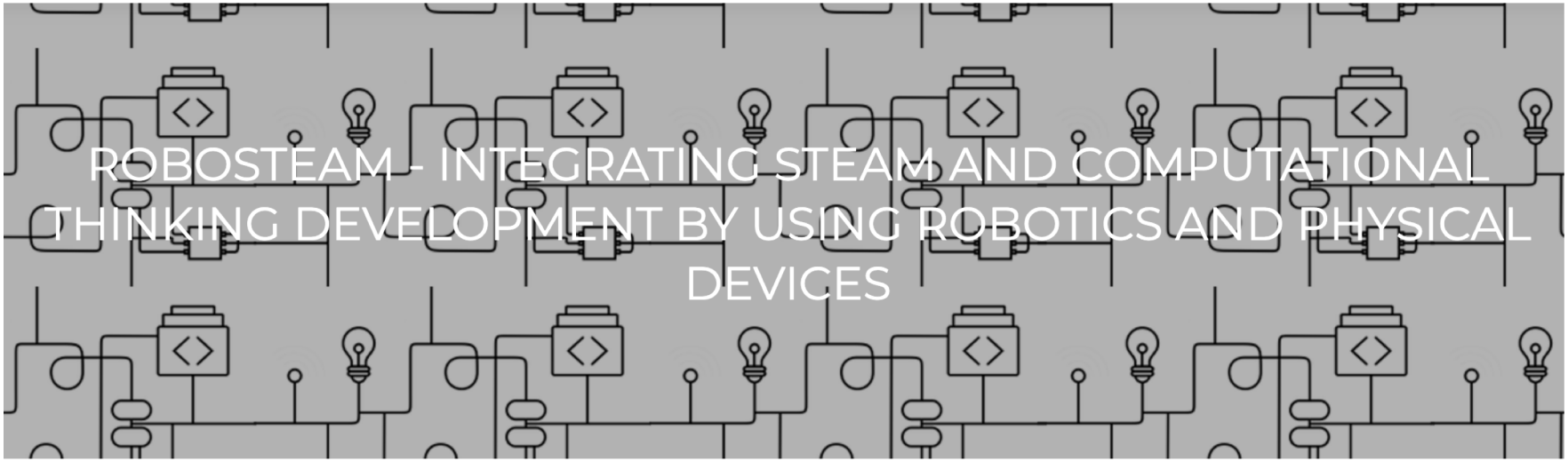


ROBO STEAM

Co-funded by the Erasmus+ Programme of the European Union

O3.O1.Portal

RoboSTEAM Project

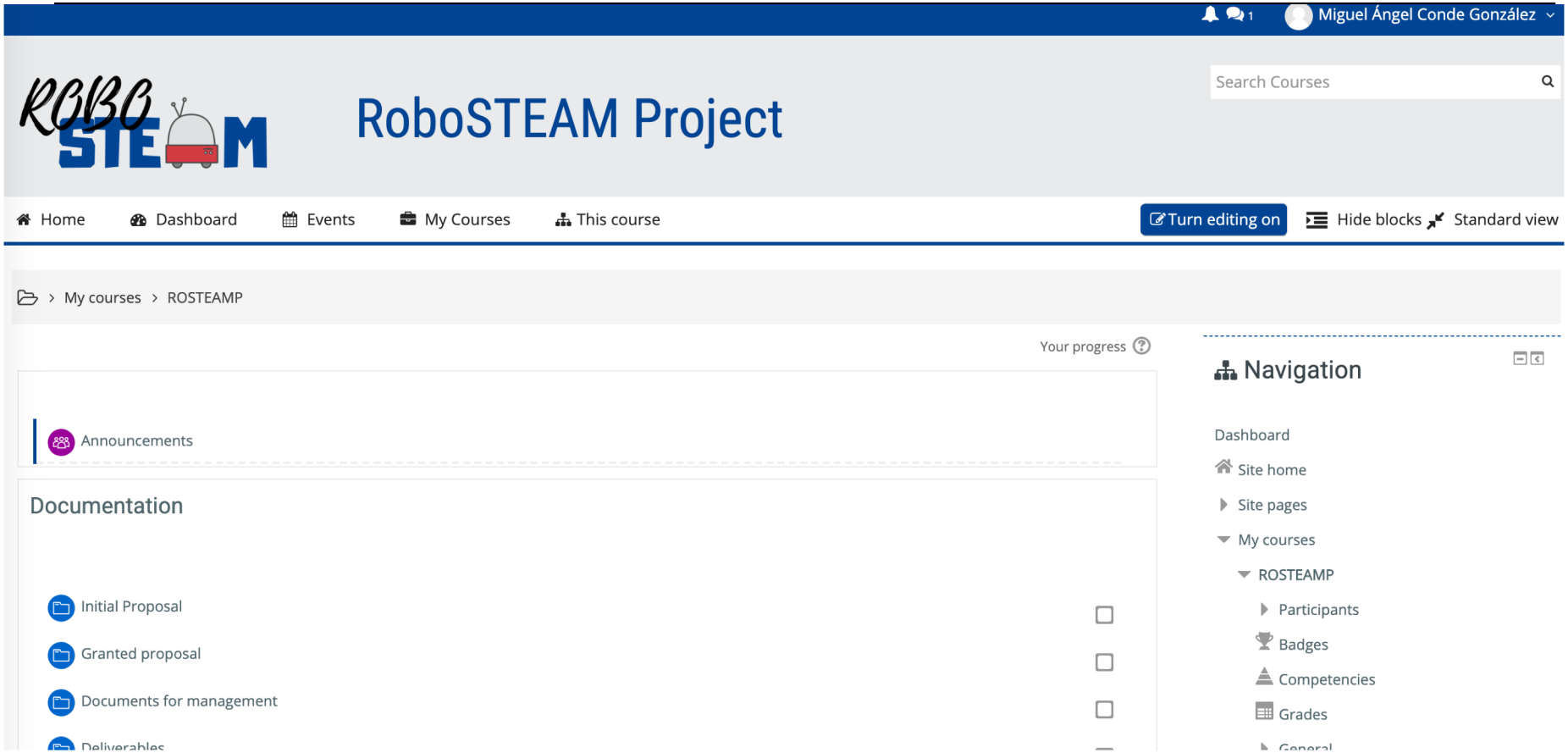


WHAT IS ROBOSTEAM?

European project co-funded by Erasmus + KA2 – Cooperation and Innovation for Good Practices. Strategic Partnerships for school education

Co-funded by the Erasmus+ Programme of the European Union

O3.O1. Moodle Working Platform



Co-funded by the Erasmus+ Programme of the European Union

O3.O1. Connection

Co-funded by the Erasmus+ Programme of the European Union

O3.A2

Compilation of STEAM challenge tools and guides (definition and/or compilation of tools and guides that may be used to carry out STEAM challenges). This is the core functionality of RoboSTEAM environment. These compilation should include:

- Online and desktop software for designing action/activity plans.
- Online questionnaires about integrating STEAM
- Integration systems with open source LMS environments (Moodle, Sakai, etc.)
- Report generator tools
- Learning analytics tools

Co-funded by the Erasmus+ Programme of the European Union

O3.A2. Template

Co-funded by the Erasmus+ Programme of the European Union

Resources Features

Template for a resource description

Draft. Version 1.
June 1th, 2019

Title: The resource title

Description: A short, but significant resource description

Link: Link to the resource if it is available

License: What kind of licensing system the resource has, if available.

Languages: In which languages the resource is available

Target groups: Which are the main target groups of this resource

Known uses: Examples of the use of the resource, it they exist (including videos, text based descriptions, links, etc.)

Pedagogical level: Resource pedagogical level

Classification: The classification of the resource taking into account if it is (Tools to develop STEAM Challenges, Questionnaires about integrating and assessing STEAM, Frameworks, Report Tools, Learning Analytics Tools)

Quality: Perceived quality of the resource [scale 1-5]

Open comments:

Co-funded by the Erasmus+ Programme of the European Union

O3.A3 USER MANUAL

RoboSTEAM user manual and tutorials. It has two main documents:

- Collection of multimedia, video and HTML guidelines and tutorials for the use of the system. Special attention to accessibility requirements will be paid to facilitate the use of the environment to any user, regardless his/her technical expertise and/or eventual disabilities. These materials will be accessible in their own contexts as "help tips", but also in a specific section.
- Complete User Manual for teaching staff and students people.

Co-funded by the Erasmus+ Programme of the European Union

Outline

- Context of the second part of the project
- Results
- **Bragança Summer Camp.**
- Challenges Design
- Managerial Issues
- Exchanges definition
- Dissemination plan and actions discussion
- Quality management
- Review of tasks to be done

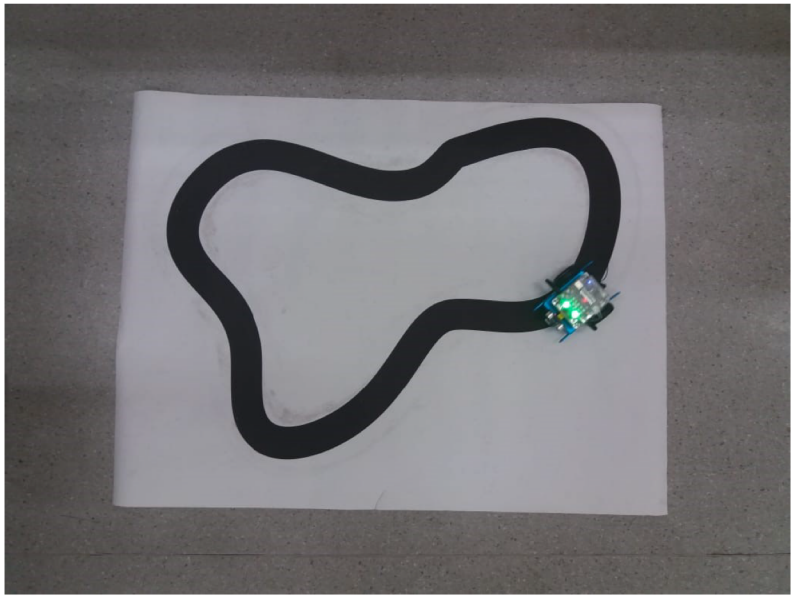
Co-funded by the Erasmus+ Programme of the European Union

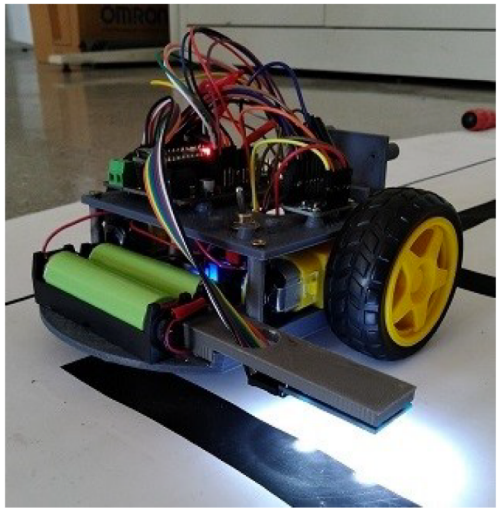
Bragança Summer Camp

- Summer Camp at IPB
- More activities beyond the technical ones
- 3 proffesors, 4 monitors and 16 Secondary Students
- ChBL Approach

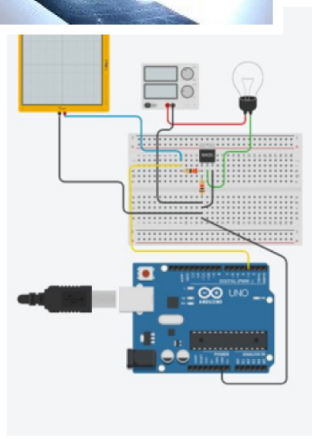
Co-funded by the Erasmus+ Programme of the European Union

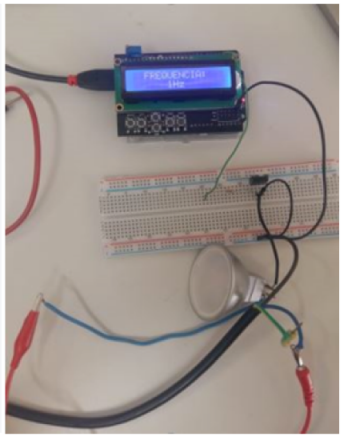
Nano Challenges





(b)





Co-funded by the Erasmus+ Programme of the European Union

Evaluation

- Time employed to solve the challenge
- Degree of success using or building a robot that follows a line
- Time required to complete the robot navigation through an scenario
- Number of mobile robots used
- Number of people involved in the challenge (students, experts, parents, etc.)
- STEAM Engagement Improvement

Co-funded by the Erasmus+ Programme of the European Union

Outline

- Context of the second part of the project
- Results
- Bragança Summer Camp.
- **Challenges Design**
- Managerial Issues
- Exchanges definition
- Dissemination plan and actions discussion
- Quality management
- Review of tasks to be done

Co-funded by the Erasmus+ Programme of the European Union

Context

- Contexts
  - IES ERAS, AEGG, CIC, Carl Benz School, UEF
- Discussions about the Challenges and KITs posed

Co-funded by the Erasmus+ Programme of the European Union

Issues to deal with

- Duration
  - Per week
  - Number of weeks
- Challenge, **Minichallenge** or **Nanochallenge**
- Diganosis phase
  - Which tool (STEAM Semantic Survey?)
  - How many students (as many as possible)

Co-funded by the Erasmus+ Programme of the European Union

KITs and Challenges

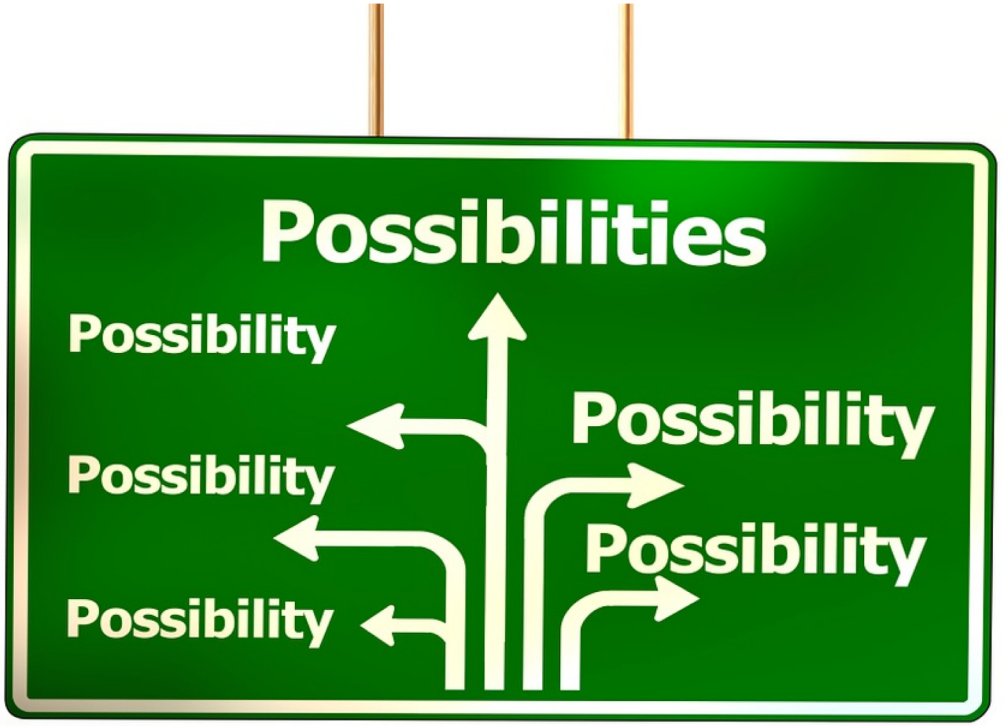
Co-funded by the
Erasmus+ Programme
of the European Union

Evaluation

- Comparable indicators
- Specific tests defined for the activities
- CT test adapted to English
  - What dimenssions?
- Rubric to evaluate the process
- STEAM Semantic Survey again

Co-funded by the Erasmus+ Programme of the European Union

Other Possibilities?



Co-funded by the
Erasmus+ Programme
of the European Union

Outline

- Context of the second part of the project
- Results
- Bragança Summer Camp.
- Challenges Design
- **Managerial Issues**
- Exchanges definition
- Dissemination plan and actions discussion
- Quality management
- Review of tasks to be done

Co-funded by the Erasmus+ Programme of the European Union

Managerial issues

- Interim report
  - Timesheets
  - Information from partners
- Short-term exchanges of groups of pupils
  - Travel and individual support

Managerial issues

- Interim report – Due 31st October 2019
  - Timesheets: Some missing!
  - Project management and implementation
    - Achievements at this point
    - Activities supported by project management and implementation carried out until now
    - Monitoring of the project
    - Partners contribution
    - Difficulties?

Managerial issues

- Interim report – Due 31st October 2019
  - Transnational project meetings
  - Intellectual outputs
  - Multiplier events
  - Learning and teaching activities
  - Follow-up
    - Impact
    - Dissemination and use of project's results
- Second payment – 40%

Managerial issues

- Short-term exchanges of groups of pupils
  - Travel: Assistance certificate signed by the target institution
    - Name of participant
    - Purpose of the activity
    - Beginning and end date
    - Proof of relationship of participants and beneficiary institutions
    - If not travelling from origin institution to target institution -> additional proofs of travel

Managerial issues

- Short-term exchanges of groups of pupils
  - Individual Support: Proof of assistance
    - Certificate signed by the target institution
      - Name of participant
      - Purpose of the activity
      - Beginning and end date
    - Attendance sheets
- Every institution has to safeguard all travel documents and invoices

Outline

- Context of the second part of the project
- Results
- Bragança Summer Camp.
- Challenges Design
- Managerial Issues
- **Exchanges definition**
- Dissemination plan and actions discussion
- Quality management
- Review of tasks to be done

Co-funded by the Erasmus+ Programme of the European Union

Portuguese students to Spain

- 21th-27th October
- Hosting options
  - HOSTAL DON SUERO ***
    - AV. SUERO DE QUIÑONES, 15, 24002 LEÓN
    - Telephone: 987230600
    - SINGLE ROOM 26 €, DOUBLE ROOM 40 €. PRICE PER DAY.
    - BREAKFAST 3-4 €, LUNCH 10 €, DINNER (COMBINATION PLATE, SANDWICH, ….)
    - http://www.hostaldonsuero.es/
  - RESIDENCIA/ALBERGUE SAN FRANCISCO
    - AV. ALCALDE MIGUEL CASTAÑO, 4, 24005 LEÓN
    - Telephone: 637 43 98 48
    - SINGLE 33€, DOUBLE AND TRIPLE ROOM 18€/PER PERSON/PER DAY
    - BREAKFAST INCLUDED. LUNCH 7 € AND DINNER 7 €
    - https://www.alberguescapuchinos.org/albergue/albergue-de-peregrinos-san-francisco-de-asis-en-leon/
  - HOTEL QUINDOS***
    - GRAN VÍA DE SAN MARCOS, 38, 24002 LEÓN
    - Telephone: 987 23 62 00
    - SINGLE ROOM 40 €, DOUBLE ROOM 45 €, TRIPLE ROOM 53 €. PRICE PER DAY
    - BREAKFAST INCLUDED
    - https://www.hotelquindos.com/

ROBO STEAM

Co-funded by the Erasmus+ Programme of the European Union

Portuguese students to Spain

- Working at the school
- Social Activities
  - City Center
  - HP
  - ULE
  - Cement Factory

Co-funded by the Erasmus+ Programme of the European Union

Spanish Students to Portugal

- 18th-24th November
- Hosting options
- Working at the school
- Social Activities
  - Sightseeing tour by tourist train
  - Visit to the Castle
    - Military Museum / Domus Municipalis / Iberian Mask Museum
    - Walk around on the castle walls
  - Visiting the Contemporary Art Centre Graça Morais, including an activity
  - Visiting The Science Centre, including an interactive experience
- Evaluation

Co-funded by the Erasmus+ Programme of the European Union

The other exchanges

- Dates
- Activities
- …
- …

Co-funded by the Erasmus+ Programme of the European Union

Outline

- Context of the second part of the project
- Results
- Bragança Summer Camp.
- Challenges Design
- Managerial Issues
- Exchanges definition
- **Dissemination plan and actions discussion**
- Quality management
- Review of tasks to be done

Co-funded by the Erasmus+ Programme of the European Union

Outline

- Context of the second part of the project
- Results
- Bragança Summer Camp.
- Challenges Design
- Managerial Issues
- Exchanges definition
- Dissemination plan and actions discussion
- **Quality management**
- Review of tasks to be done

Co-funded by the Erasmus+ Programme of the European Union

Outline

- Context of the second part of the project
- Results
- Bragança Summer Camp.
- Challenges Design
- Managerial Issues
- Exchanges definition
- Dissemination plan and actions discussion
- Quality management
- **Review of tasks to be done**

Co-funded by the Erasmus+ Programme of the European Union

Before the 15th of October

- Classification of 2 resources of each type per partner and upload them to the repository
- User manual for the RoboSTEM Environment
- Timesheets signed
- Fulfill the questionnaire about quality

Co-funded by the Erasmus+ Programme of the European Union

Before the Finnish Meeting

- Develop the pilots
- Exchanges
- Support the schools
- Evaluation of Pilots
- Dissemination

Co-funded by the Erasmus+ Programme of the European Union

Questions

Co-funded by the
Erasmus+ Programme
of the European Union