Background and details of DroneTeam
Objectives and expected results

Title: Making and designing a toy drone through multidisciplinary collaborative work

Acronym: **DroneTeam**

Programme: Erasmus +

Key Action 2: Cooperation for innovation and the exchange of good practices

Action: Strategic Partnerships

Project number: 2015-1-ES01-KA202-015925

Coordinator: IES La Foia – Ibi (Spain).

Partners:

Tehnicka Skola Sisak – Sisak (Croatia)

Zespol Szkol nr 10 – Zabrze (Poland)

Solski Center Krsko Sevnica – Krsko (Slovenia)

Asociacion de Investigacion de la Industria del Juguete – Ibi (Spain)

Project Start Date: 01/09/2015; Project End Date: 31/08/2018

Why a Drone?

- It is a powerful training tool (curiosity and creativity, attention, motivation).

- Brings together many competences: design, 3D printers, servo-motors, electronics and electricity, batteries, environment, mechanics, aerodynamics and flight skills, programming and communications, photography and video, etc.

- It allows collaborative work, multidisciplinary teamwork.

- Learning by projects.

- Use of English.

- It is a growing sector.

Consortium as a whole:

This project was born of knowledge and complementarity of the four participating VET Schools and toy expert:

(1) IES La Foia (Spain). Plastic parts expert and Mechanical, 3d modelling,

(2) Tehnička Škola Sisak (Croatia): Mechanical components and environmental considerations, 3d modelling

(3) Zespół Szkół Nr 10 (Poland): Open source software related to flight control. Moodle Plaftorm.

(4) Šolski Center (Slovenia): Mechatronics, testing (wind tunnel ,etc.) electronics and microcontrollers, 3d modelling.

(5) AIJU (Spain) expert in product development, specifically in the development of toys and knowledgeable about the World of Work. Quality and Dissemination.

DroneTeam Summary:

The project objective is to work on the concepts of:

- Product innovation,
- Project-based learning,
- Collaboration and peer-learning
- Multidisciplinary working relationships,
- Improving language proficiency
- Knowledge of technology and trends.

The aim is to generate high-quality curriculum materials that allow students to approach to the World of Work. In order to achieve this a base model will be used (Toy drone), on which students should learn and customisation in teams.

The target groups of this project are:

1) teachers from four schools VET involved
2) middle grade students of VET schools.

Figures: Tutor (English) & Coach (Technical)

Teams:
a **Spanish student** will have worked on the **plastic** structure of the drone, the **Polish student** will have worked on the software and **programming** device control. The **Slovenian student** will provide its expertise **in electronics and wind tunnel** evaluation. The **Croatian student** will contribute the development of several parts using **CNC** using special tools developed in their School. They all together in a team can learn from their peer formed in different disciplines.

Three years of project:

First year:

• Join teachers and experts in order to develop the base **Open Educational Resources** (OER).

Second year:

• Work with students. Multidisciplinary teams: with one student from each of the schools that will work together in a customisation of their basic drone. Each team will have a coach and a tutor.

Coach: Teacher with a technical background.

Tutor : English teacher (support and drive communications with other students of the same team from the others schools).

• New OERs

Third year:

• Work with students. Teams work in advanced drone.

• MOOC (Massive Open Online Course).

We will work in:

Each VET School will works in:

- Attending transnational meetings (Two per meeting)
- Working on materials that want to develop within the project environment (mainly the fist year: 2015-2016)
- Integrated into the curriculum of the courses 2016-2017 and 2017-2018. Working with students.
- Select students to form teams. Suggest one or two teachers as coaches.
- Supporting students by English teachers. Provide technical glossary and share with the consortium. Helping student communications with students from other schools.
- Travelling with 5 students in the two meetings planned to show the results. (Desirable but not Mandatory. Without specific funding).
-Dissemination. Multiplier Events.

We will work in:

Toy expert (AIJU) will works in:

- Attending all transnational meetings. (Two per meeting)
- Defining real innovation process.
- Supporting Schools tasks about toy development.
- Supporting coaches and tutors in their tasks with student teams.
- Assure all tasks are developed according to Quality Project Plan.
- Organize “drone competitions”.
- Dissemination. Multiplier Events.

8 Transnational Meetings:

M1: Spain (January 16). Kick off meeting. Agreement about drone components and assembly. Each school will agree about materials to develop with AIJU's support. Quality Project Plan. Dissemination Plan.

M2: Croatia (March-April 16). Working on learning materials. Strategy&methodology for teaching.

M3: Poland (June-July 16). Working on curricula materials. Learning platform. English Glossary.

M4: Slovenia (October 16). First prototype(developed by teachers&experts). Define Student teams. Forums for teachers and students. Organize second project year. Licensing Open Educational Resources (OER).

M5: Croatia (March-April 17). Review curricula materials and feedback. Working in new versions for third year (completing with new technologies).

M6: Slovenia (October 17). First Drone meeting with students. Assembly and test. Review teachers how they can work. (joining to TEHNOGENIJ event).

M7: Poland (March-April 18). Review of learning methodology, realignment. Second Licensing of learning materials as OER. Ready Mooc Course.

M8: Spain (June 18). Final meeting and Second Drone competition with high level toys.

9 DroneTeam Intellectual Outputs:

OER -1- Basic Toy drone frame	**Fist Drone**
OER-2 - Module of Flight Control	Multiplier Event Krsko
OER-3 - Module of Communication Control	
OER-4- Module of Advanced frame	**Second Drone**
OER-5- Module of GPS/Compass Control	Multiplier Event Foia
OER -6 - Module of Problem Management	
OER-7 - Module of Flight Stabilization System	
OER-8 - Module of First Person View	

O9: MOOC Course. Multiplier events all partners

Multiplier Events

According to Application Form. Fundend Events:

E1. Krsko. Technogenj. 20 participants (local= Slovenia)
E5. Foia. 20 participants s (local = Spain)
E9 Mooc. Spain. 25 local attendees & 5 Foreign participants
E10. Mooc. Croatia. 25 local attendees & 5 Foreign participants
E11. Mooc. Poland. 25 local attendees & 5 Foreign participants
E12. Mooc. Slovenia. 25 local attendees & 5 Foreign participants

Locals =140
Foreign=20

Exceptional Costs

Funding 75%.