

STIMEY Project. STEM for young people H2020 Project.

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Initials Last name (12 pt, Arial font bold)

Job title/position (12 pt, Arial font)

Affiliation (12 pt, Arial font)

Town, Country (12 pt, Arial font)

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Conference Key Areas:

Curriculum Development, Attractiveness of Engineering Education

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INTRODUCTION

STIMEY is a learning platform which combines current technologies, supported by pedagogical investigations, with the aim to familiarize the population between 10 and 18 years to *STEM knowledge*.

With this paper we try to give some guidelines and tips for developing a project H2020 with guaranteed success. This project presented has a rating of excellent, maximum 15 points out of 15, which made us think it was possible to share this information so that other students can use.

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STEM, as readers will know, is an acronym of the words science, technology, engineering and mathematics, academic disciplines in which lots of university degrees are founded. They're the base in which humanity's scientific progress backs up, as well as subjects of wide acknowledgement. The STIMEY project wants to approach this important knowledge to the young people in a friendly and fun way, with the intention of eradicating negative predisposition. It has the goal to remodel the teaching system, which is still tied to the past in many european countries, thereby *increasing the interest in degrees related with STEM*.

This project is born with the intention of not only to change the vision of the students, but also to affect universities, high schools, teachers and even parents, making possible that all of them contribute to the improving of learning quality. With STIMEY, teachers will have more and better access to didactic resources, always verified and up to date. Parents will obtain a simpler way to watch their children trajectory, and education centers will be benefited with the increase of interest in STEM degrees

STIMEY INTERNATIONAL

STIMEY is quite an ambitious project, already recognized by the european financing program Horizon 2020, and it's developed by various entities disseminated by Europe. The implicated members are five universities, a multimedia company, a radio channel and an organization oriented to the development of current technologies in society.

The diversity of its participants is an insurance to make STIMEY a successful product, with nice quality guarantees. Next, the entities that contribute to this project are shown, localized in Spain, Germany, Belarus, Greece and Finland, respectively.



Cádiz University, Spain



Emden/Leer University,
Germany



Polotsk State University, Belarus



Macedonia University, Greece



JYVÄSKYLÄN YLIOPISTO
UNIVERSITY OF JYVÄSKYLÄ

Jyväskylän University, Finland



MLS Multimedia AE, Greece



Baby Radio SL, Spain



kompetenzzentrum

TECHNIK • DIVERSITY • CHANCEGLEICHHEIT

Kompetenzzentrum Technik-Diversity-
Chancengleichheit, Germany

Although the premise is to apply the current technologies to improve education, STIMEY is not only based in the present. Elements of the past and the future are also included, with the aim of attracting a bigger number of users.

PRESENT TECHNOLOGIES: SOCIAL NETWORKS AND ENTREPRENEURIAL TOOLS

Social networks like Twitter, Facebook or Instagram are nowadays vastly extended and used in all levels of society. Their multiple features and variants have managed to redefine the concept of socialization, turning it into something completely new.

Social networks give young people the power to express opinions, ideas and feelings in an easy and constant way. STIMEY pretends to use this power by developing a web platform where students can share their opinions and be in contact with people of their same interest while they get immersed in STEM knowledge. The familiarization of social media features, as "share", "like" or "comment", will suppose an already walked path, and will help with the integration of the new pedagogical methods.

Analyzing the set of basic competences of the standard european student, a lack of entrepreneurial skills has also been detected. In schools and high schools, students learn mathematics, grammar, literature, english... but there's usually no subject which helps the students to develop their capacity to produce ideas, to grow them and to finally present them to the world.

In the long-term, these skills are extremely important in the working world, and STIMEY pretends to boost them by the creation and development of STEM projects in the educational platform. By this, students will be able to observe other people's projects and work together, earning a feeling of realization and usefulness in the process.

PAST TECHNOLOGIES: 24 HOURS RADIO

Although is not something new, the radio is still a quite extended communication method. STIMEY is an ambitious enough project to also use this element, and counts with the collaboration of the spanish radio channel Baby Radio

The old target of this radio channel where little kids and babies. But in the present, an expansion of the business is being considered to satisfy STIMEY's needs, including scientific dissemination programs and news related to STEM topics

TECHNOLOGIES OF THE FUTURE: PET ROBOT

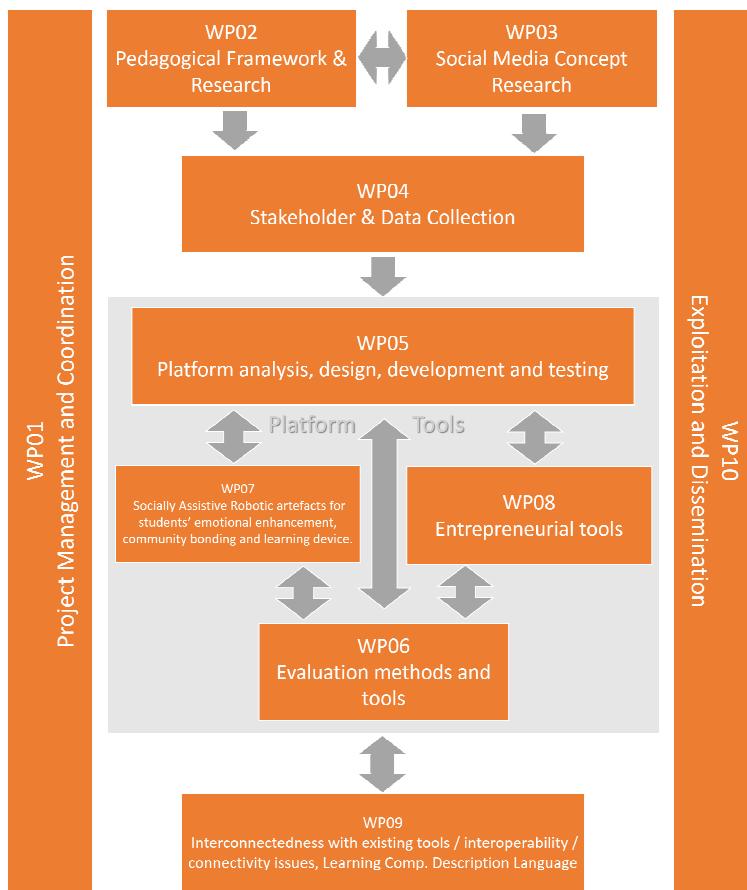
And usual resource when trying to attract young people's interest is to create a showy and pleasant "pet", and use it as a business's image. Such an element can augment the initial familiarity with the product, promoting at the same time the creation of adds or even merchandising.

In STIMEY's case, this resource is used by the concept of "pet robot". This will provide a modern and futurist image, giving the user the impression that the knowledge they acquire in the platform is the key to the progress and to their future.

The pet robot will have the ability of being modified and upgraded, depending of the academic achievements of the user. Therefore, the individual pet of each user will be a visual representation of his/her progress, thereby promoting a healthy competition between them.

WORK DIVISION

A project with such magnitude must always start with a clear and concise work plan, in which everyone focuses in their specialty. STIMEY uses a Work Breakdown Structure, with a chronological position in the process. It is very importante to pay attention to the way of splitting the workload. This project's work is divided in ten Work Packages, that are the following:



As we can see, the Project Management and Coordinating is fundamental in the work flow of STIMEY, because it holds a lot of responsibilities, not only with the other groups but also with external organisms. It also last the whole life of the project, having main responsibilities like supervise the planning of the project, keeping the funding entity well informed of the state of the project.

Also responsibilities of this central coordination are the information spreading about the project and increase its impact in society.

Of course we cannot forget quality, and indicators (in any EU project or Engineering project) So we have:

- To create a work management group of the project, which will standardize the documents and plan regular meetings.
- To make an initial estimation of the risks of the project.
- To use a quality control mechanism during all the development process.

Currently with this coordination area we have the Exploitation and Dissemination Plan. Both in the development and in the commercialization process, the main aim here is to increase the media impact of the STIMEY product, reaching to the different stakeholders that play a role in the project. We do want to reach as much people in EU as possible. Students, high school and university managers, parents, educational authorities, labour market...

One of the most important parts of this project is the social network, so we have to pay extra attention the task of designing a fully functional Social Network, in the inner level (user profiles, forums, comments), in the outer level (connection with Facebook, Twitter), and in the management and supervision level(SimilarWeb, Google Analytics). For that, we must to investigate and ensure the security, privacy and rights of the users.

Our platform must have a remarkable pedagogical aspect, so we must study the educational methods that will change young people's opinion about STEM. This Is one of the early steps of the project, doing interviews to teachers, parents, STEM experts and business managers. And after that studying the possibilities of local differences between the implied countries.

Another challenge is to include all stakeholders (teachers, students, parents, experts) somehow in the project. For that we must identify the considered social groups, as well as their roles in the STIMEY platform. Make an estimation of their profiles and main needs related with the project, and then obtain dissemination strategies based in the synthesis of gathered information.

During, and after the development of the main STIMEY platform (using the architecture's concept, as well as its security and privacy), we must implement educational tools to boost creativity and help learning STEM. And then, integrate it with other Work Packages's multiple results in a chronologically correct way. For that, we must develop the tools to evaluate the correct flow of the project, defining estimation parameters and indicators, and use them to theoretically control STIMEY development in both technological and financial scopes.

Another important point, is the design and develop of the so-called "pet", aka the robotic artefact, as well as its upgrade options. Each model will adapt to the users depending of age, language, sex and other criteria.

We think that besides the robotic artefacts, the Entrepreneurial aspect of the project, made him interesting for the Commission. So we have to redact pedagogical and educational fundamentals to create a well documented theoretical base. Also develop serious videogames, making them accessible from STIMEY platform and create online tests and apply them to obtain a well controlled development.

CONCLUSIONS

We have two kinds of conclusions about what has been explained. First we have shown some guidelines (and more will be showed) on good drafting a proposal for H2020 projects, partnership, multidisciplinary, synergies..., engineering becomes larger if supports elements such as sociology, ethics, pedagogy...

It is also important to note the approach to entrepreneurship, from an early age on, also the technician labor market, they should receive some benefit from such projects. They are the destination that all students must come, and must come as better prepared as possible, so that they are in our Universities.

On the other hand, we have gone into some detail about the project, as an offer to participate both in this (as host institution activities, or personally in a one-person-participation as a teacher), or to study collaboration for the new imminent project which this coordination is preparing, a more ambitious project if possible, and with higher expected results. We think big for our students to work well.