PARTNERSHIP

- Warsaw University of Technology (Poland) – coordinator
- Edumotiva – European Lab for Educational Technology (Greece)
- FMD- Fondazione Mondo Digitale (Italy)
- AIJU - Technological Institute for children's products & leisure (Spain)
- I Liceum Ogolnoksztalcace im. Marii-Sklodowskiej – Curie w Sokolowie Podlaskim (Poland)
- 6o EK A' PEIRAIA (Greece)

& associated schools in Poland, Greece, Italy and Spain

HOLOMAKERS

THE HOLOMAKERS PROJECT

MOTIVATING SECONDARY SCHOOL STUDENTS TOWARDS STEM CAREERS THROUGH HOLOGRAM MAKING AND INNOVATIVE VIRTUAL IMAGE PROCESSING PRACTICES WITH DIRECT LINKS TO CURRENT RESEARCH AND LABORATORY PRACTICES

CONTACT:

Website: http://holomakers.eu

Email: info@holomakers.eu

Twitter: @holomakers_eu

Facebook: @holomakers

Erasmus+

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SUMMARY

The technology-driven economy and skilled workforce in STEM (Science, Technology, Engineering and Maths) fields are considered the driving forces for innovation and growth in the European economy. However, students' interest and enthusiasm in STEM education are not adequate and actions to motivate towards STEM related disciplines and careers are needed.

The Holomakers project aims at inspiring secondary school students (14-17 years old) in making STEM fields a career choice by introducing them in the magic world of hologram making and virtual image processing and design. In addition, the project focuses on teachers' professional development and skill-building through a number of teacher training sessions that span the project implementation period.

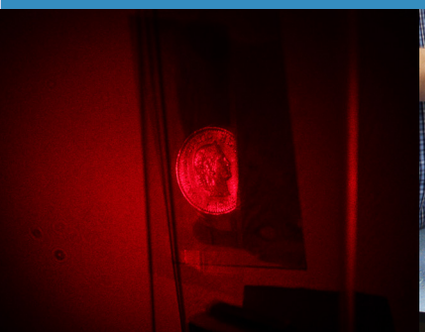
An innovative aspect of the project is the development of the portable holography kits that can be used by the students for making holograms in the classroom and for outreach purposes, during school events, science festivals and teacher training workshops.

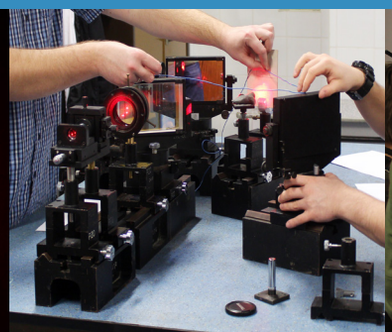
Pilot studies with secondary school students will be carried out in Poland, Greece, Italy and Spain.

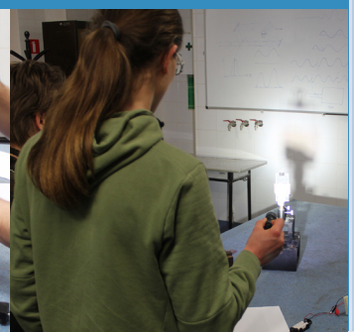
The project started in November 2017 and runs for 2 years.

WHY HOLOGRAPHY?

Holography has the advantage of allowing a deep study of a wide range of fundamental STEM concepts and principles. Through the appropriate interdisciplinary context, different areas of knowledge like physics, chemistry and visual arts can be meaningfully brought together. At the same time, the way holography reproduces reality sets a basis whereupon students' motivation, curiosity and interest in STEM can be enhanced.







PROJECT OBJECTIVES

The objectives for the project are to:

- Design and model an active, learner-centered teaching approach for engaging secondary school students into STEAM related projects through holography
- Encourage integration of Art + Design in STEM and combine disciplines which have been isolated from one another under the traditional educational model
- Support students in developing 21st century skills and interest in STEAM through learning interventions that build upon holography
- Motivate students in pursuing STEM careers and studies
- Enact activities and workshops that promote teacher professional learning and pedagogic change
- Create OERs that will support school community members to apply the Holomakers learning intervention
- Build synergies among schools, academia, research and innovation groups towards creative and meaningful engagement in STEAM education

PROJECT OUTPUTS:

The foreseen outputs:

- A technical reference guide that details the basics of holography, image processing and the making of holograms.
- Portable holography kits that enable the making of holograms in the classroom, outside a specialized scientific laboratory, along with guidelines on the reproduction of the kits by the teachers for educational purpose
- The Holomakers curriculum and Open Educational Resources for students and teachers
- 7 interdisciplinary projects in STEAM for computer generated and analog making holograms
- The pilot protocol that will guide the pedagogical implementation of the learning intervention
- The evaluation report that will present the results obtained during the pilot studies
- Workshops and events for the promotion of the project ideas and results