![We are the makers logo]

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

We are the makers – IoT Learning Scenario
e-Nable Halocode

1. Title of the Scenario	***e-Nable Halocode***
2. Target group	Secondary school first grade (11-14 years)
3. Duration	3 meetings of 2h each TOT 6h + 3d printing time
4. Learning needs	Prerequisites: - basic knowledge of SketchUp software - basic knowledge of 3d printing - basic knowledge of Halocode device programming - aptitude of the class group to team work
5. Expected learning outcomes	- Know the meaning and use of IOT (Internet of things) and Wearable devices - Tackle a real problem by proposing innovative solutions - Knowing how to design a product by integrating theoretical knowledge in a collaborative way - Develop programming and three-dimensional modeling / printing skills - Develop a useful project for the community with a view to active citizenship - Orient students towards STEM disciplines
6. Methodologies	TINKERING which comprises: • Teamwork • Laboratory activity • Project based learning • Problem solving
7. Place / Environment	Laboratory equipped for design School and territory for experimentation
8. Tools / Materials / Resources	- 2 laptops per work group - 1 Halocode board per group - 3D printer (or trusted 3D printing center) - Electrical material (battery, cables, etc ...) - School material (felt-tip pens, colored pencils, sheets, notebook, etc ...) - Possible recovery material to customize - Softwares: SktechUp + MakeBlock mBlock software

We are the makers

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

9. Step by step description of the activity / content	Meeting n ° 1: 1. Introduction to IOT, Wearable devices and the "e-Nable" project: brainstorming 2. Launch Activity: My hand has superpowers! 3. Focus on the Halocode "Language Recognition" function 4. Division of students into pairs: one designer and one programmer 5. Comparison within the groups: first design indications and first feedback from the teacher Meeting n ° 2: 1. Design of the wearable device: modeling and customization of "case" with SketchUp + programming with Halocode. Final feedback from the teacher 3D printing phase of the "case" Meeting n ° 3: 1. Experimentation among classmates 2. Annotation of the criticality of your device and report of the activity carried out
10. Feedback	Ongoing and final considerations. Guided discussion on: difficulties encountered, interesting aspects, possible future improvements, etc ...
11. Assessment & Evaluation	• Ability to work in a team (formative assessment) • Addressing and solving problems (formative assessment) • Product quality: programming, model, originality (summative evaluation)