



## Smart Home

### **Eurovoca Projects - Host Organisation for KA1 in the scope of Erasmus+**

#### **General Erasmus+ Objectives**

The participating organisations should actively promote inclusion and diversity, environmental sustainability, digital education, as well as civic engagement and participation through their activities: by using the specific funding opportunities provided by the Programme for these purposes, by raising awareness among their participants, by sharing best practices, and by choosing appropriate design for their activities.

#### **Skills and competencies for all professions**

- The trainee is introduced to the company team and the organisational structure.
- The trainee is introduced to health and safety rules and regulations in the workplace and is given the adequate tools and resources and is informed where First Aid tools are located.
- The trainee is made familiar with the basic documentation of the company.
- The trainee learns basic foreign language communication skills. (English/Spanish)
- The trainee is provided with basic vocabulary and expressions associated with the internship they are fulfilling.
- The trainee is made familiar with the placement of tools, equipment and resources at the workplace.
- The trainee is able to communicate with mentors and supervisors.
- The trainee is able to maintain a professional work ethic and treat other participants and staff with respect.
- The trainee is able to be creative, consistent, deal with stress, take responsibility and complete assigned tasks.
- The trainee is able to work in a team and follow or give instructions to or from other team members.

#### **Placement**

- All internships take place at our premises to provide full support.
- Visits related to the profession will take place in companies and organisations.

#### **Modules**

- All of our internships can be tailored to the schools' curriculum or to the needs of the participants. Modules can be added or modified. A separate programme will be created for extraordinary internships with Eurovoca Projects.

#### **Skills and competencies for the smart home internship**

- The trainee is able to participate in an interview in a professional way.



- The trainee is able to use IT systems and software.
- The trainee is able to determine the professional tasks for smart home systems.
- The trainee is able to read technical documentation for electronics and architecture.
- The trainee is able to work with different smart home programs.
- The trainee is able to design a prototype to later produce.
- The trainee is able to work on 3D modelling software, including CAD.
- The trainee is able to make and produce floor plans.
- The trainee is able to design electrical plans.
- The trainee is able to make precise measurements for all plans.
- The trainee is able to produce schematics and PCBs on computer software.
- The trainee is able to solder electronics.
- The trainee is able to produce PCB boards.
- The trainee is able to 3D Print objects.
- The trainee is able to understand the use and function of different electronic components.
- The trainee is able to assemble electronic parts and modify them if required.
- The trainee is able to create documentation for their created product.
- The trainee is able to understand structures in civil engineering.
- The trainee is able to work with radio frequency controlled devices.
- The trainee is able to understand sensors and actuators used on the project.
- The trainee is able to understand the use of power units and calculate basic electric and electronic formulas.
- The trainee is able to program a micro-controller that works as the brain of the smart home.
- The trainee is able to use cross-platform services and third party services.
- The trainee is able to assemble a model house, including electronics to represent a scaled smart home.
- The trainee is able to make a full 3D model of the finished product.

#### **General tasks included in this internship**

- |                             |                         |
|-----------------------------|-------------------------|
| - IT software and hardware. | - Architecture          |
| - Blender                   | - Sensors and Actuators |
| - 3D Modelling              | - Engineering           |
| - Micro-controllers         | - 3D Printing           |
| - Electronics               |                         |

### **Detailed mobility schedule**

| Day   | Activities                    | Tasks                                                                                                                           |
|-------|-------------------------------|---------------------------------------------------------------------------------------------------------------------------------|
| Day 1 | Introduction to the workplace | The student will perform a simulated interview practice and learn the outcomes of the program. Health and safety rules at work. |



|              |                      |                                                                                                                                                   |
|--------------|----------------------|---------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Day 2</b> | Advanced 3D Modeling | The student will design moving 3D objects with articulated parts, sliding parts and fitting pieces. Objects must move smoothly and fit perfectly. |
| <b>Day 3</b> | 3D Printing Advanced | The student will start to print the objects we have designed and fix the settings, calibration and slicing if needed.                             |
| <b>Day 4</b> | Smart Home server    | The student will create a localhost server that links to our microcontroller to send commands remotely per WEB or per APP.                        |
| <b>Day 5</b> | GPIO Integration     | The student will program the microcontroller to allow direct communication between our localhost server and the GPIO port.                        |

**Mobility schedule for extracurricular activities**

|                              |                                                                                                                       |
|------------------------------|-----------------------------------------------------------------------------------------------------------------------|
| <b>Days off and weekends</b> | Trips, visits, acts and performances, museums, exhibitions, cultural activities, sports and team building activities. |
|------------------------------|-----------------------------------------------------------------------------------------------------------------------|

| <b>Day</b>    | <b>Activities</b>                    | <b>Tasks</b>                                                                                                                        |
|---------------|--------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------|
| <b>Day 6</b>  | Add devices and groups               | The student will make a floorplan on our server, add the switches or devices and make groups depending on rooms.                    |
| <b>Day 7</b>  | Scenes and automated tasks           | The student will create automated functions with a chosen programming language (Python, C++, Blockly, etc.).                        |
| <b>Day 8</b>  | Rendering and exporting              | The student will render their animation and export it to be able to use it outside the given software.                              |
| <b>Day 9</b>  | Merging different Smart Home systems | The student will create a common platform for different brands, to be able to control all systems from one.                         |
| <b>Day 10</b> | Voice control and smartphone use     | The student will program the Smart Home systems to be able to react to voice commands. Link our system to a smartphone application. |

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|                              |                                                                                                                       |
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|------------------------------|-----------------------------------------------------------------------------------------------------------------------|



**Host organisation**

**Eurovoca Projects S.L.**

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**Evaluation and validation**

The participants will be evaluated and monitored by our mentors and supervisor and also by their progress on completing tasks on our projects portal throughout the entirety of their internships with Eurovoca Projects.

Participants will be given daily updates from the project portal and their respective mentors on their success and will also be informed where they need to improve if required. Throughout the entirety of the mobility, teachers, supervisors or legal representatives will be informed on the progression and behaviour of the participants.

At the end of the mobility period, a final evaluation involving all parties will be provided in relation to each completed task with a score and time taken to complete. Certification will be provided.