SCRAPY

2023

SKILLS & ACHIEVEMENTS FRAMEWORK
Project number: **2021-1-FR01-KA220-SCH-000031617**

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Introduction

The design of a skills and achievements recognition framework will be based on the Open Badges (openbadges.org) framework and will be used for informal recognition to students that successfully complete a SCRAPY Lesson through the achievement of a predefined score in a relevant assessment test. The framework will be integrated into the learning environment checking conditions and awarding SCRAPY badges.

The main aims of the SCRAPY Skills & Achievements Framework are:

- To design the ecosystem where Open Badges will identify, recognize and validate certain skills of students.
- To set the quests/challenges for each of the SCRAPY Badges to be gained for each main module of the curriculum.
- To promote the use of innovative multi-level tools in the form of e-resources and hands-on material for educational play.
- To implement all technological actions to link the Open Badges Framework to the learning portal in terms of participating in quests/challenges, issuing and exhibiting Open Badges on students' and teachers' profiles.
- To initiate the creation of synergies between schools, institutions, STEM centers, NGOs, the labor market, and other stakeholders for the endorsement and accreditation of the SCRAPY Curriculum and the hard and softs skills of students.

This document provides detailed information regarding the following:

- Theoretical background of the methodology used.
- Description of the ecosystem in relation to the structure, criteria and description for issuers, graphic design, technological integration and endorsement procedure of Open Badges.
- Practical guidelines for issuing an Open Badge by using the learning portal developed.

The final Skills & Achievements Framework will be integrated into the Learning Portal which will check conditions and will award the SCRAPY Badges.

Open Badges

Open Badges are a digital representation of skills, learning outcomes, achievements, or experience such as:

- Hard skills: knowledge, competences, etc.
- Soft skills: critical thinking, communication, etc.
- Participation and community involvement
- Official certification
- Authorization

An Open Badge is an innovative system used in the USA and many EU countries for the validation and recognition of learning, using the OB technology offered as an open

educational resource. It is a technology which promotes open access and participation of all stakeholders involved in badges process, while allowing the creation of synergies between the learners-earners (i.e. young people, students), the issuers (i.e. schools, stakeholders, enterprises, NGOs including trainers/ volunteers as facilitators) and the badge consumers (i.e. formal education, public authorities, official bodies, (potential) employers). This will lead to the endorsement process leading to a transparent, transferable, valid and credible validation of a body of skills and knowledge related to a set of competences for students and teachers.

The Open Badges system is a very inclusive solution: it enables anyone to get actively involved in designing, testing, implementing, and promoting the learning outcomes and achievements. This is what major European documents on Recognition are calling for, as well as Erasmus+ in emphasizing the "transparency and recognition of skills and qualifications to facilitate learning, employability and labor mobility: priority will be given to actions promoting permeability across education, training and youth fields as well as the simplification and rationalization of tools for transparency, validation and recognition of learning outcomes. This includes promoting innovative solutions for the recognition and validation of competences acquired through informal, non-formal, digital and open learning" (Horizontal Priorities).

An Open Badge is visual verified evidence of achievement. It has a visual part (image) and meta-data, which is encoded in the image. Each digital badge must comply with the required standard data fields, such as: issuer, date of issue, description of the badge, link to assessment criteria, link to evidence of what a badge owner is claiming, link to a specific competence framework and tags, which puts an Open Badge in relation to specific context.

Some of the benefits of Open Badges are presented below:

- Badges can demonstrate a wider range of skills and achievements of a learner acquired through formal, non-formal and informal learning methods and activities.
- Badges are portable and verifiable digital objects. All this information may be packaged within a badge image file that can be displayed via online CVs and social networks.
- Each Badge includes the description of the achievement: i.e., it describes the path a learner undertook for his or her achievement, accompanied by the evidence to support the badge award.
- Each Badge includes information about the earner's identity, a link to information about the issuer and a link to a description of what a badge represents.
- Badges can be used to unlock learning and career pathways. They can be used to support individuals to achieve learning goals, to provide routes into employment, and to nurture and progress talent within organizations.
- Badges can represent personal attributes that matter to employers (digital skills and soft skills).
- Badges can be used in a professional or educational context. Thousands of organizations, including non-profit organizations, major employers or educational institutions, issue badges in accordance with the Open Badges Specification.

Key Elements

Issuer

- The issuer defines a competence that could be acquired by a user, designs the learning material for it and assesses the users with regards to the acquisition of the competence. The issuer then creates a relevant badge and makes it available for earning by any user. For each badge, the issuer should make available details of the criteria that an earner must meet to be awarded the specific badge. The reviewer of an assessment compares the evidence provided by the earner against the specific badge criteria.
- Any individual or organization can create an Issuer profile and begin defining and issuing Open Badges. This is done by a diverse range of organizations and communities, including:
- Schools and universities
- Employers
- Community and non-profit organizations
- Government agencies (including NASA)
- Libraries and museums
- Event organizers and science fairs (Including Intel)
- Companies and groups focused on personal development (such as the SCRAPY partnership)

An entity that can be described with a name, a description, a URL, an image, and an e-mail address is a potential candidate to become an issuer. Furthermore, it needs a technology platform that supports the Open Badges Framework to issue Open Badges.

Badge issuing platform

Many companies have badge issuing platforms, compliant with the Open Badges Framework. They provide a wide range of services which allow non-technical users to issue Open Badges credentials. The platforms used for issuing Open Badges offer a variety of custom services including online badge designers, badge discovery, issuing, assessment workflow, display, user profiles, social sharing and tools to integrate with existing learning systems. All Open Badges issuing platforms allow recipients to export their badges to other online options. This allows users to stack and share their badges earned on different platforms and to choose their own spaces to establish their identity on the web.

Earner

Open Badges help recognize skills gained through a variety of experiences, regardless of the age or background of the learner. They allow earners to get awards for following their interests and passions, and to unlock opportunities in life and work by standing out from the crowd. Earners have to register on the organization's platform and can claim a badge when the pre-defined criteria have been met during the evaluation phase.

Evaluation

There are different options for the assessment process:

- Asynchronous assessment: learners seek out the assessment when it is convenient for them instead of being required to take an exam at a pre-determined time.
- Stealth assessment: assessment and awarding badges can happen automatically and provide immediate feedback.
- Portfolio assessment: work samples, projects, and other artefacts the learner has produced can be used as evidence for claiming a badge.

Displayer

Open Badges are designed to be shared. By sharing them, individuals exhibit their achievements to others and turn them into a valuable currency to unlock new opportunities. Displayers can utilize the Displayer API for retrieving earner badges from the Mozilla hosted Backpack. Mozilla set up the first Backpack in 2011. Most issuing platforms provide users with the ability to connect and store their badges to this Backpack. When retrieving badges form the earner's Mozilla Backpack (using the account connected to the email address), the displayer will only be able to access those badges that the earner has chosen to be public.

Badges can also be shared:

- On blogs, websites, e-Portfolios, and professional networks
- In job applications
- On social media sites - Twitter, Google+, Facebook, LinkedIn
- In an e-mail signature

Technical Aspects

An earnable badge is defined as a badge class, using a variety of data items including descriptions, criteria and information about the issuing organization. When an issuer decides to award that badge to a specific earner, he or she creates a badge assertion. A badge assertion describes the data for an awarded badge. It includes the earner's identity and a link to the generic badge class, which in turn is linked to information about the badge issuer. All the data for the badge is defined using JSON structures. To award a badge to an earner the issuer creates a badge assertion in JSON.

The image for a badge should be a square PNG (or SVG). The file size should be a maximum of 256KB and should not be smaller than 90 px square.

Things you can verify and explore in a badge:

- Details about the organization issuing the badge.
- What the individual has done to earn the badge.
- The criteria that the badge has been assessed against.
- That the badge was issued to the expected recipient.
- The badge earner's unique evidence (optionally included).
- When the badge was issued and whether it expires.

Open Badges for SCRAPY

Open Badges provide portable and verifiable information about various skills and achievements. Students can unlock opportunities by sharing collections of badges representing desired skill sets in a dynamic, evidence-based way. Open Badges represent legitimate, authenticated achievements described within the badge and linked to the SCRAPY project.

Main characteristics of the SCRAPY Skills & Achievements Framework include:

The SCRAPY partnership has designed the SCRAPY Curriculum - learning material for the following modules (which are presented in IO1) based on the teachers' feedback, targeted to the needs of students, as well as on partners' suggestions based on their expertise and experience in the field:

Module 1: What is Electricity?
Module 2: What is a Circuit?
Module 3: Voltage, Current, Resistance, and Ohm's Law
Module 4: Electric Power
Module 5: Alternating Current (AC) vs. Direct Current (DC)
Module 6: Series and Parallel Circuits
Module 7: Introduction to Sensors
Module 8: Analog vs. Digital
Module 9: Binary
Module 10: Digital Logic
Module 11: Metric Prefixes and SI Units
Module 12: Polarity
Module 13: Diodes
Module 14: Light
Module 15: Capacitors
Module 16: Resistors
Module 17: Transistors
Module 18: Integrated Circuits

The SCRAPY partnership has created the corresponding badges for each of the modules.

Upon completion of all the modules and the developed activities, the students will be awarded the corresponding SCRAPY Badge, if they achieve a mark of 80% or higher on each of the assessments. These badges are made available for earning via the learning portal, which has been designed specifically for the learning and assessment purposes of the SCRAPY project.

- Students are invited to register in the learning portal and complete the SCRAPY Curriculum.

- The learning portal specifies to students the criteria for earning each of the badges shown below. These criteria will be elaborated in the following section.

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- Students must provide evidence to meet the badge criteria to claim a specific badge. This process is done automatically on the learning portal.

- The badges will be awarded automatically through the learning portal based on certain criteria, which are presented in the next section.

Students may achieve a badge for each of the modules in the SCRAPY Curriculum. The SCRAPY Expert badge (overall badge) will be awarded to students once they have completed all the topics and activities. Completing all the modules automatically rewards the student with the corresponding SCRAPY overall badge. Thus, in total 19 Open Badges will be developed and awarded (18 for the modules + 1 Overall).

Each Open Badge consists of the below:

1. **Name**: The name of the Open Badge is comprised by the name of the Module and the description of the level of difficulty

2. **Learning Outcomes**: A list of the learning outcomes to be acquired.

3. **Design of Open Badge**: The Visualization (image) of the Open Badge for each Module

4. **Main Objective**: A description of the Open Badge related to the main objectives.

5. **Assessment Criteria**: The criteria to be used to assess whether the learning outcomes have been achieved and whether the set of skills and competences of all modules have been acquired by the students. The criteria and the assessment methods that must be followed to receive a badge are described in the following sections.

6. **Evidence**: The proof and the evidence of the acquired skills i.e., quiz grades, etc. This process is fully automatized on the learning portal where the assessment tests are automatically graded.

7. **Issued by**: In this section the issuer of the Open Badge is specified, which in this case is the SCRAPY Partnership.

Awarding Criteria

SCRAPY offers 18 module badges and 1 overall completion badge. The specific criteria for these nineteen badges are presented below:

*   **What is Electricity badge:** to obtain the What is Electricity badge, the student needs to complete all activities of the "What is Electricity?" module and score a minimum grade of 80% in the assessment quiz.
*   **What is a Circuit badge:** to obtain the What is a circuit badge, the student needs to complete all activities of the "What is a circuit?" module and score a minimum grade of 80% in the assessment quiz.
*   **Voltage, Current, Resistance, and Ohm's Law badge:** to obtain the Voltage, Current, Resistance, and Ohm's Law badge, the student needs to complete all activities of the "Voltage, Current, Resistance, and Ohm's Law" module and score a minimum grade of 80% in the assessment quiz.
*   **Electric Power badge:** to obtain the Electric Power badge, the student needs to complete all activities of the "Electric Power" module and score a minimum grade of 80% in the assessment quiz.

- **Alternating Current (AC) vs. Direct Current (DC) badge:** to obtain the Alternating Current (AC) vs. Direct Current (DC) badge, the student needs to complete all activities of the "Alternating Current (AC) vs. Direct Current (DC) badge" module and score a minimum grade of 80% in the assessment quiz.
- **Series and Parallel Circuits badge:** to obtain the Series and Parallel Circuits badge, the student needs to complete all activities of the "Series and Parallel Circuits" module and score a minimum grade of 80% in the assessment quiz.
- **Introduction to Sensors badge:** to obtain the Introduction to Sensors badge, the student needs to complete all activities of the "Introduction to Sensors" module and score a minimum grade of 80% in the assessment quiz.
- **Analog vs. Digital badge:** to obtain the Analog vs. Digital badge, the student needs to complete all activities of the "Analog vs. Digital" module and score a minimum grade of 80% in the assessment quiz.
- **Binary badge:** to obtain the Binary badge, the student needs to complete all activities of the "Binary" module and score a minimum grade of 80% in the assessment quiz.
- **Digital Logic badge:** to obtain the Digital Logic badge, the student needs to complete all activities of the "Digital Logic" module and score a minimum grade of 80% in the assessment quiz.
- **Metric Prefixes and SI Units badge:** to obtain the Metric Prefixes and SI Units badge, the student needs to complete all activities of the "Metric Prefixes and SI Units" module and score a minimum grade of 80% in the assessment quiz.
- **Polarity badge:** to obtain the Polarity badge, the student needs to complete all activities of the "Polarity" module and score a minimum grade of 80% in the assessment quiz.
- **Diodes badge:** to obtain the Diodes badge, the student needs to complete all activities of the "Diodes" module and score a minimum grade of 80% in the assessment quiz.
- **Light badge:** to obtain the Light badge, the student needs to complete all activities of the "Light" module and score a minimum grade of 80% in the assessment quiz.
- **Capacitors badge:** to obtain the Capacitors badge, the student needs to complete all activities of the "Capacitors" module and score a minimum grade of 80% in the assessment quiz.
- **Resistors badge:** to obtain the Resistors badge, the student needs to complete all activities of the "Resistors" module and score a minimum grade of 80% in the assessment quiz.
- **Transistors badge:** to obtain the Transistors badge, the student needs to complete all activities of the "Transistors" module and score a minimum grade of 80% in the assessment quiz.
- **Integrated Circuits badge:** to obtain the Integrated Circuits badge, the student needs to complete all activities of the "Integrated Circuits" module and score a minimum grade of 80% in the assessment quiz.
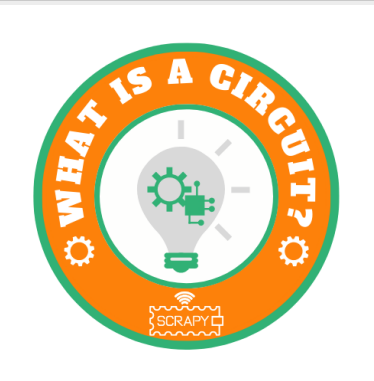
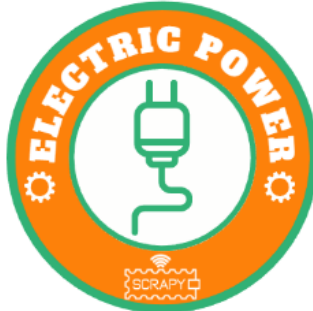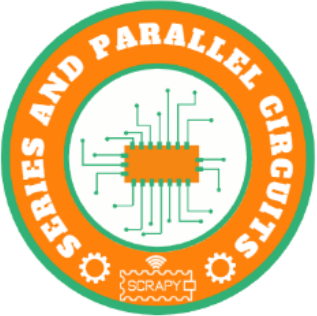- **SCRAPY Expert badge**: to obtain the SCRAPY Expert badge, the student needs to earn all 18 of the module badges as explained above.
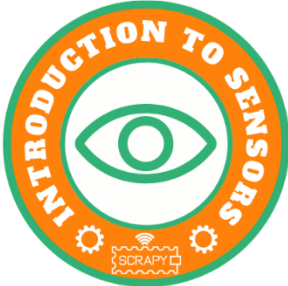
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Open Badges for all Modules
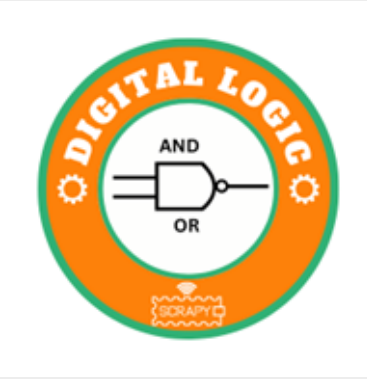
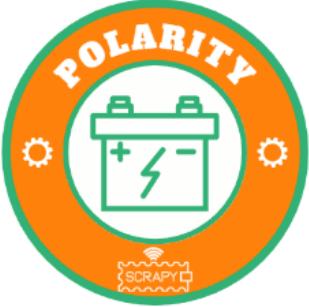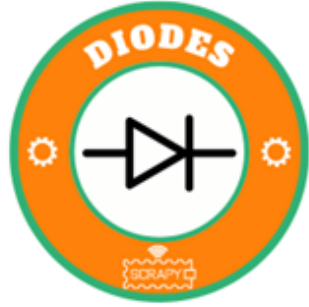| Name of OB	Learning Outcomes	Design of OB	Assessment criteria	Evidence	Issued by
What is Electricity badge	**Module 1: What is Electricity?. The student will learn about: Electricity**		Complete the „ What is Electricity " Assessment with an overall mark of 80%	The proof and the evidence of the acquired skills are the grade marks. This process is fully automatized on the e-tool where the assessment tests are automatically graded.	**SCRAPY Partnership**
What is a Circuit badge	**Module 2: What is a Circuit? The student will learn about: Circuit**		Complete the „ What is a Circuit " Assessment with an overall mark of 80%	The proof and the evidence of the acquired skills are the grade marks. This process is fully automatized on the e-tool where the assessment tests are automatically graded.	**SCRAPY Partnership**

Voltage, Current, Resistance, and Ohm's Law badge	**Module 3: Voltage, Current, Resistance, and Ohm's Law badge. The student will learn about:** 1. Voltage 2. Current 3. Resistenace 4. Ohm's Law		Complete the „ Voltage, Current, Resistance, and Ohm's Law" Assessment with an overall mark of 80%	The proof and the evidence of the acquired skills are the grade marks. This process is fully automatized on the e-tool where the assessment tests are automatically graded.	**SCRAPY Partnership**
Electric Power badge	**Module 4: Electric Power. The student will learn about:** **Electric Power**		Complete the „ Electric Power " Assessment with an overall mark of 80%	The proof and the evidence of the acquired skills are the grade marks. This process is fully automatized on the e-tool where the assessment tests are automatically graded.	**SCRAPY Partnership**

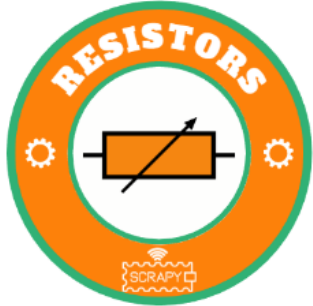| Alternating Current (AC) vs. Direct Current (DC) badge	Module 5: Alternating Current (AC) vs. Direct Current (DC) badge. The student will learn about: 1. AC 2. DC		Complete the „ Alternating Current (AC) vs. Direct Current (DC) " Assessment with an overall mark of 80%	The proof and the evidence of the acquired skills are the grade marks. This process is fully automatized on the e-tool where the assessment tests are automatically graded.	SCRAPY Partnership
Series and Parallel Circuits badge	Module 6: Series and Parallel Circuits. The student will learn about: 1. Series circuit 2. Parallel circuit		Complete the „ Series and Parallel Circuits " Assessment with an overall mark of 80%	The proof and the evidence of the acquired skills are the grade marks. This process is fully automatized on the e-tool where the assessment tests are automatically graded.	SCRAPY Partnership

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Introduction to Sensors badge	**Module 7: Introduction to Sensors. The student will learn about:** Sensors		Complete the „ Introduction to Sensors " Assessment with an overall mark of 80%	The proof and the evidence of the acquired skills are the grade marks. This process is fully automatized on the e-tool where the assessment tests are automatically graded.	**SCRAPY Partnership**
Analog vs. Digital badge	**Module 8: Analog vs. Digital. The student will learn about:** 1. Analog signal 2. Digital signal		Complete the „ Analog vs. Digital badge " Assessment with an overall mark of 80%	The proof and the evidence of the acquired skills are the grade marks. This process is fully automatized on the e-tool where the assessment tests are automatically graded.	**SCRAPY Partnership**
Binary badge	**Module 9: Binary. The student will learn about:** Binary numbers		Complete the „ Binary " Assessment with an overall mark of 80%	The proof and the evidence of the acquired skills are the grade marks. This process is fully automatized on the e-tool where the assessment tests are automatically graded.	**SCRAPY Partnership**

Digital Logic badge	Module 10: Digital Logic. The student will learn about: Digital Logic		Complete the „ Digital Logic " Assessment with an overall mark of 80%	The proof and the evidence of the acquired skills are the grade marks. This process is fully automatized on the e-tool where the assessment tests are automatically graded.	SCRAPY Partnership
Metric Prefixes and SI Units badge	Module 11: Metric Prefixes and SI Units. The student will learn about: 1. Metric Prefixes 2. SI Units		Complete the „ Metric Prefixes and SI Units " Assessment with an overall mark of 80%	The proof and the evidence of the acquired skills are the grade marks. This process is fully automatized on the e-tool where the assessment tests are automatically graded.	SCRAPY Partnership

Polarity badge	Module 12: Polarity. The student will learn about: Polarity		Complete the „ Polarity badge " Assessment with an overall mark of 80%	The proof and the evidence of the acquired skills are the grade marks. This process is fully automatized on the e-tool where the assessment tests are automatically graded.	SCRAPY Partnership
Diodes badge	Module 13: Diodes. The student will learn about: Diodes		Complete the „ Diodes " Assessment with an overall mark of 80%	The proof and the evidence of the acquired skills are the grade marks. This process is fully automatized on the e-tool where the assessment tests are automatically graded.	SCRAPY Partnership

Light badge	Module 14: Light. The student will learn about: Light		Complete the „ Light " Assessment with an overall mark of 80%	The proof and the evidence of the acquired skills are the grade marks. This process is fully automatized on the e-tool where the assessment tests are automatically graded.	**SCRAPY Partnership**
Capacitors badge	Module 15: Capacitos. The student will learn about: Capacitors		Complete the „ Capacitors " Assessment with an overall mark of 80%	The proof and the evidence of the acquired skills are the grade marks. This process is fully automatized on the e-tool where the assessment tests are automatically graded.	**SCRAPY Partnership**

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|					
Resistors badge	**Module 16: Resistors. The student will learn about: Resistors**		Complete the „ Resistors " Assessment with an overall mark of 80%	The proof and the evidence of the acquired skills are the grade marks. This process is fully automatized on the e-tool where the assessment tests are automatically graded.	**SCRAPY Partnership**
Transistors badge	**Module 17: Transistors. The student will learn about: Transistors**		Complete the „ Transistors " Assessment with an overall mark of 80%	The proof and the evidence of the acquired skills are the grade marks. This process is fully automatized on the e-tool where the assessment tests are automatically graded.	**SCRAPY Partnership**

Integrated Circuits badge	Module 18: Integrated Circuits. The student will learn about: Integrated Circuits		Complete the „ Integrated Circuits " Assessment with an overall mark of 80%	The proof and the evidence of the acquired skills are the grade marks. This process is fully automatized on the e-tool where the assessment tests are automatically graded.	SCRAPY Partnership
SCRAPY Expert badge	SCRAPY Expert Badge for completing each and every activity in SCRAPY online course.		Achieve all previously mentioned badges.	The proof and the evidence of the acquired skills are the grade marks. This process is fully automatized on the e-tool where the assessment tests are automatically graded.	SCRAPY Partnership

Open Badges Experiments

For the 12 experiments that were developed, one badge per topic will be awarded. These badges will be awarded automatically through the learning portal based on certain criteria, which are presented in the next section.
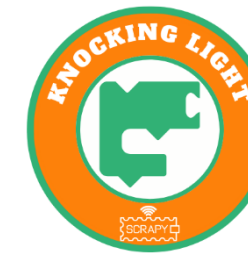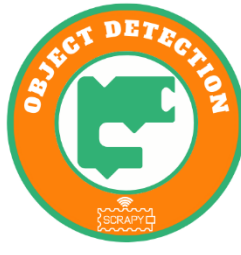
Awarding Criteria

SCRAPY offers 12 experiments badges. The specific criteria for these nineteen badges are presented below:

- **Experiment 1 - DIY Car backup sensor:** to obtain the DIY Car backup sensory badge, the student needs to successfully complete the DIY Car backup sensory experiment.
- **Experiment 2 - Light-tracking servo motor:** to obtain the Light-tracking servo motor badge, the student needs to successfully complete the Light-tracking servo motor experiment.
- **Experiment 3 – Spot the Intruder:** to obtain the Spot the Intruder badge, the student needs to successfully complete the Spot the Intruder experiment.
- **Experiment 4 – Traffic light Controller:** to obtain the Traffic light Controller badge, the student needs to successfully complete the Traffic light Controller experiment.
- **Experiment 5 – Move the Motor:** to obtain the Move the Motor badge, the student needs to successfully complete the Move the Motor experiment.
- **Experiment 6 – Object Detection:** to obtain the Object Detection badge, the student needs to successfully complete the object detection experiment.
- **Experiment 7 – Gardening System:** to obtain the Gardening System badge, the student needs to successfully complete gardening system experiment.
- **Experiment 8 – Temperature station:** to obtain the Temperature station badge, the student needs to successfully complete the Temperature station experiment.
- **Experiment 9 – Fire alarm:** to obtain the Fire alarm badge, the student needs to successfully complete all activities of the Fire alarm experiment.
- **Experiment 10 – Smart Clothes Dryer:** to obtain the Smart Clothes Dryer badge, the student needs to successfully complete the Smart Clothes Dryer experiment.
- **Experiment 11 – Knocking Light:** to obtain the Knocking Light badge, the student needs to successfully complete the Knocking Light experiment.
- **Experiment 12 – Sound Detection Warning:** to obtain the Sound Detection Warning badge, the student needs to successfully complete the Sound Detection Warning experiment.

Open Badges for all Experiments

Name of OB	Design of OB	Assessment criteria	Evidence	Issued by
DIY Car backup sensor		Complete the DIY Car backup sensor experiment	The proof and the evidence of the acquired skills are the successful completion of the experiment. This process is fully automatized on the e-tool.	**SCRAPY Partnership**
Light Tracking Servo Motor		Complete the Light Tracking Servo Motor experiment	The proof and the evidence of the acquired skills are the successful completion of the experiment. This process is fully automatized on the e-tool.	**SCRAPY Partnership**
Spot the Intruder		Complete the Spot the Intruder experiment	The proof and the evidence of the acquired skills are the successful completion of the experiment. This process is fully automatized on the e-tool.	**SCRAPY Partnership**
Traffic Light Controller		Complete the Traffic Light Controller experiment	The proof and the evidence of the acquired skills are the successful completion of the experiment. This process is fully automatized on the e-tool.	**SCRAPY Partnership**
Move the Motor		Complete the Move the Motor experiment	The proof and the evidence of the acquired skills are the successful completion of the experiment. This process is fully automatized on the e-tool..	**SCRAPY Partnership**

Object Detection		Complete the Object Detection experiment	The proof and the evidence of the acquired skills are the successful completion of the experiment. This process is fully automatized on the e-tool.	SCRAPY Partnership
Gardening System		Complete the Gardening System experiment	The proof and the evidence of the acquired skills are the successful completion of the experiment. This process is fully automatized on the e-tool.	SCRAPY Partnership
Temperature Station		Complete the Temperature Station experiment	The proof and the evidence of the acquired skills are the successful completion of the experiment. This process is fully automatized on the e-tool.	SCRAPY Partnership
Fire Alarm		Complete the Fire alarm experiment	The proof and the evidence of the acquired skills are the successful completion of the experiment. This process is fully automatized on the e-tool.	SCRAPY Partnership
Smart Clothes Dryer		Complete the Smart Clothes Dryer experiment	The proof and the evidence of the acquired skills are the successful completion of the experiment. This process is fully automatized on the e-tool.	SCRAPY Partnership

Knocking Light		Complete the Knocking Light experiment	The proof and the evidence of the acquired skills are the successful completion of the experiment. This process is fully automatized on the e-tool.	**SCRAPY Partnership**
Sound Detection Warning		Complete the Sound Detection Warning experiment	The proof and the evidence of the acquired skills are the successful completion of the experiment. This process is fully automatized on the e-tool.	**SCRAPY Partnership**

Conclusion

This document presented the theoretical background of the Open Badges framework, in addition to its benefits and endorsements. Most importantly the SCRAPY ecosystem of Open Badges was presented, with a detailed analysis of the benchmarks required to achieve each one.

By using the Open Badges system, the SCRAPY project will not only help students validate the skills they will acquire through this project, it also introduces them to the innovative practice of the Open Badges, which can be used throughout their lives to log their achievements, and potentially open new pathways for them in career and education.