Future Classroom Lab by European Schoolnet

Scenario Tool

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RecycleIOT

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RecycleIOT is an advanced semi-automatic system that has the potential to revolutionize the entire waste collection process and the management of environmental resources.

The device is designed to promote correct waste sorting, reduce environmental pollution and encourage more efficient use of resources. The heart of the system is made up of rotating discs, which operate mechanically to sort waste based on its type. This sorting process is essential for recycling and sustainable waste management. Waste is directed to appropriate sectors, separating plastic, paper, glass, metals and other materials, ensuring accurate collection and efficient management.

But sorting waste is often annoying! For this reason the RecycleIOT is equipped with a camera with cutting-edge Computer Vision technology, which plays a fundamental role in the waste sorting process.

This camera is able to recognize the type of material that is placed in the appropriate opening of the device. Thanks to sophisticated visual recognition algorithms, RecycleIOT can accurately identify whether the material is plastic, paper, glass, metal or other. Each device is equipped with a small local computer with memory and a cloud connection. This IT system allows you to constantly monitor the operation of the device, record data relating to waste collection and differentiation and transmit this information to dedicated control centers.

The RecycleIOT user interface is designed to be accessible and intuitive. Users can interact with the device through a touchscreen or key display. This allows them to deposit waste correctly and, if necessary, actively participate in the differentiation process.

To guarantee the success of the system, public bodies must install recycling centers throughout the territory and set up control, collection and sorting centers. Users will receive an EcoCard or smart card which allows them to access the system and take advantage of services such as waste storage and the accumulation of points, which represent a further incentive for the correct use of Recycling. The data collected by RecycleIOT are sent to the control centers, where they are processed for various purposes. This data can be used to create targeted promotions, advertising campaigns focused on waste separation and consumption statistics.

This not only incentivizes users to actively participate in the differentiation process, but also provides valuable information for planning future interventions.

LEARNING OBJECTIVES

Understand the Concept: Develop a clear understanding of the concept and purpose of the Riciclotto, including its environmental benefits and potential impact on waste management.

Mechanical Design: Learn the mechanical components and principles behind the functioning of the prototype, including the rotating discs for waste sorting.

Computer Vision Technology: Gain knowledge about computer vision technology, its role in waste recognition, and its integration into the prototype.

Programming Skills: Acquire programming skills to develop the software for the prototype, enabling it to recognize and sort different types of waste accurately.

Data Management: Understand the data storage and transmission mechanisms within the Riciclotto prototype, including the use of cloud-based systems.

User Interface Development: Develop skills in designing a user-friendly interface for the Riciclotto, such as touchscreen or button displays.

Environmental Impact Assessment: Assess and analyze the potential environmental impact of the Riciclotto in terms of waste reduction, recycling, and resource conservation.

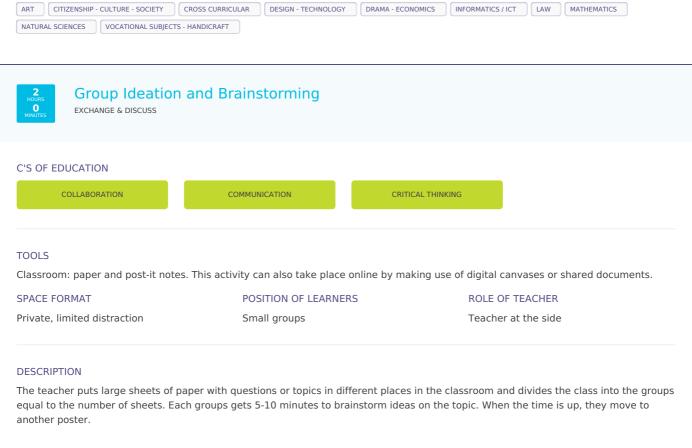
Collaboration and Teamwork: Work effectively in a team to design, build, and test the Riciclotto prototype, fostering collaborative skills.

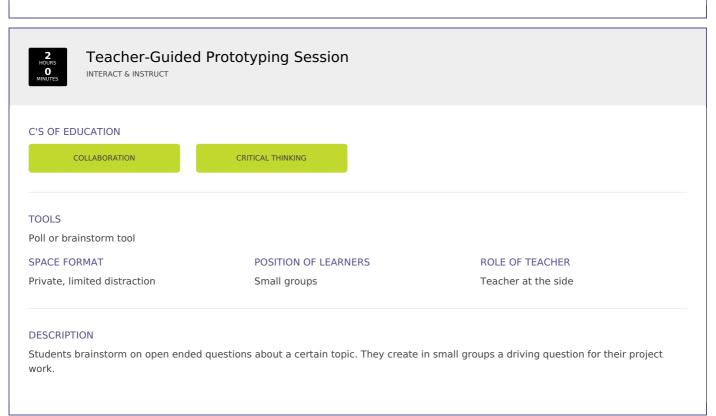
Problem-Solving: Develop problem-solving skills to troubleshoot and improve the prototype as issues or challenges arise during the development process.

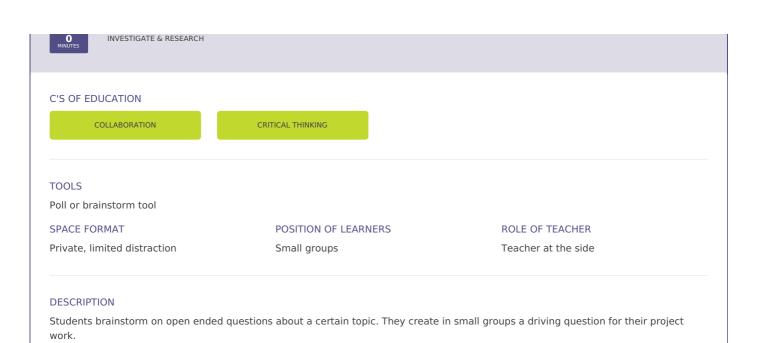
Presentation and Communication: Learn how to effectively present the prototype's features, benefits, and functionality to different stakeholders, such as local authorities or potential users.

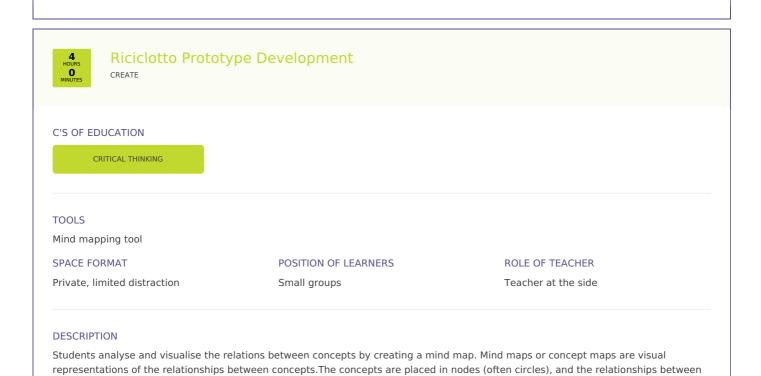
Sustainability Awareness: Understand the broader context of sustainability and the role that innovative waste management solutions like Riciclotto can play in promoting a sustainable environment.

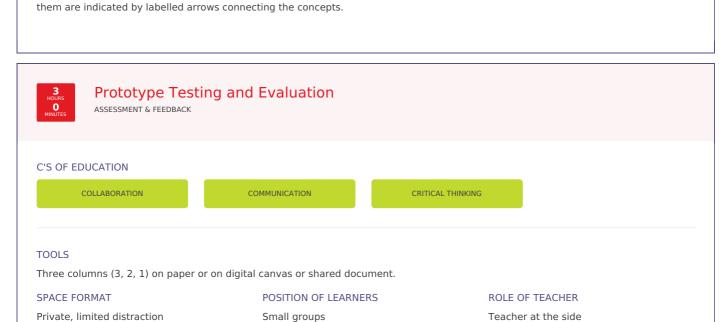












DESCRIPTION

Students must create three lists, (a) 3 ideas or concepts they learned, (b) 2 ideas or concepts that surprised them and (c) 1 thing they want to do based on what they learned or question they have about the content.



Community Showcase Event

PRESENT & SHARE

C'S OF EDUCATION

COMMUNICATION

CREATIVITY

TOOLS

Rubric tool

SPACE FORMAT

POSITION OF LEARNERS

Small groups

ROLE OF TEACHER

Teacher at the side

DESCRIPTION

Private, limited distraction

"A fair activity is a chance for groups to present their project simultaneously. In the first part of the lesson, half of the class (formed by the sum of the halves of all the groups) present their product at their stands. The other half of the class plays the visitors' role and they listen and at the same time assess the speakers. The visitors can walk around as if they where on a real fair. After half-time the students swap roles.

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