AI4 WASTE

FOSTERING AWARENESS AND INNOVATION IN ADULT EDUCATION

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TOOLKIT

Computer Vision Centre – CVC (Spain): AI applied in Waste Management

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In recycling plants, mixed waste passes through a series of specialised machines that separate the input stream into different homogeneous streams of materials (plastic, metal, glass, etc.). This separation is essential for recycling to be viable and efficient. One of the key elements in this process is the use of computer vision systems, which allow the waste to be automatically identified and sorted as it moves along conveyor belts.

How CVC uses AI in waste management

- **Waste detection and classification using neural networks:** The CVC has developed a conveyor-mounted vision system that uses deep neural networks to detect and classify waste in real time. This system has been trained on a large collection of images of different types of waste - such as plastics, bricks and cans - to ensure high accuracy in identification.
- **Using generative AI for dataset creation:** Creating datasets to train object detection models often requires large amounts of time and resources. To optimise this process, the CVC has implemented generative AI models to create synthetic images of debris. These images are used to train the detection models, thus facilitating the development and continuous improvement of the system. In other words, artificial intelligence models are used to train other artificial intelligence models.
- **Automatic generation of datasets with generative AI:** idea of creating synthetic images with generative AI models to train artificial intelligence models can be used in many other fields.

Benefits of CVC solutions

- Significant reduction of costs and time required for dataset creation.

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