AI4 WASTE

FOSTERING AWARENESS AND INNOVATION IN ADULT EDUCATION

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TOOLKIT

Computer Vision Center - CVC (Spain): EcoMate, AI applied to recycling

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Case study: Computer Vision Center - CVC (Spain): EcoMate, AI applied to recycling

EcoMate is a mobile application designed to facilitate the recycling process through artificial intelligence and an educational and gamified user experience. Its main objective is to help citizens to correctly identify the waste they generate in their daily lives and to deposit it in the appropriate container, thus contributing to a more efficient and sustainable waste management.

How EcoMate uses AI in waste management

- **Automatic waste identification through computer vision:** The main function of EcoMate is the automatic identification of waste from a photograph taken by the user. To do this, the app uses a deep neural network trained on thousands of images of different types of waste. Once the system recognises the object, the application consults a database that relates each type of waste to the corresponding container. This automation helps to resolve the user's doubts when it comes to recycling.
- **Gamification as a learning tool:** EcoMate incorporates gamification elements to motivate and educate the user. After identifying the waste, the app invites the user to guess the right bin. If the answer is correct, the user accumulates points, which can be part of a reward system. In case of an error, the app provides the correct answer. This approach turns the recycling process into a fun and educational activity.
- **Educational application in real contexts:** EcoMate has been successfully implemented in the Recerca Creació Servei (RCS) programme, an initiative that promotes collaboration between educational centres and research entities. In this context, secondary school students act as betatesters of the app, providing suggestions for improvement and generating valuable data to assess their knowledge about recycling. The results have shown an improvement in students' recycling practices, demonstrating the educational value of the app.

Benefits of EcoMate solutions

- To facilitate the recycling process for users, allowing waste to be sorted more efficiently.

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