Proposal for EPS Student Project 2020-2021

EPS Brief J:

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Project Title:
Development of an intelligent bin system for recycling waste electronic and electrical products (WEEE)

Objective

The project is to develop an intelligent bin for consumers to recycle electronic and electrical products which reach at their end-of-life (EoL) stage. When a consumer recycles an EoL product via the intelligent bin, the consumer is awarded eco-credits. The credits could be paid in cash or vouchers. This project is part of the CIRC4Life project supported by the European Commission Horizon 2020 programme www.circ4life.eu.
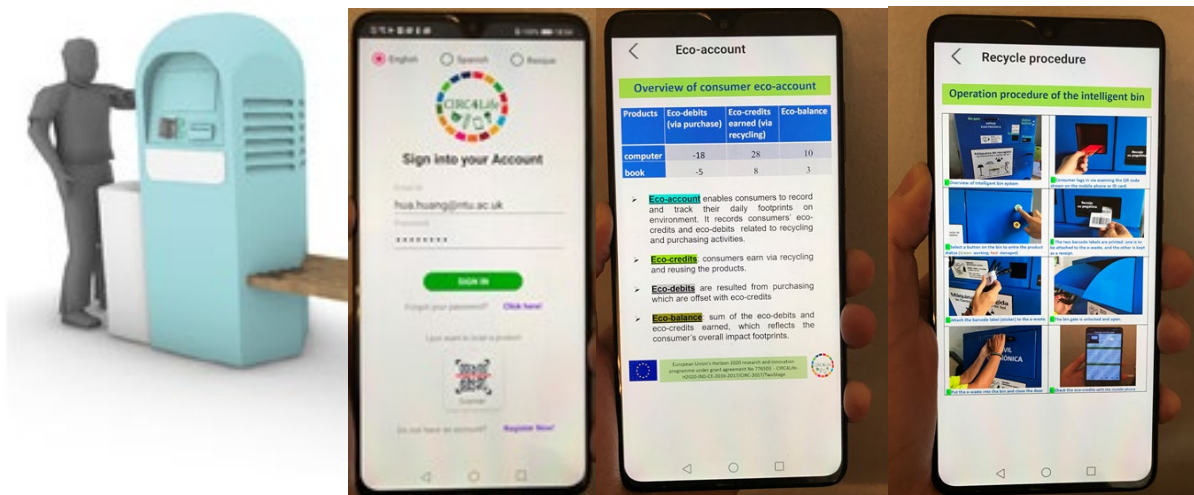

Figure 1 The intelligent Bin   Figure 2 The Mobile APP interface

Overview of the intelligent bin system

A prototype of the intelligent bin system has been developed, which consists an intelligent bin and a mobile APP as illustrated in Figures 1 and 2. This project is to assess/evaluate the prototype, and refine or redesign the system.

The intelligent bin utilises information & communication technologies to track the products recycled via Internet. The intelligent bin consists of an electronic control unit which monitors and controls the recycling process such as consumer log-in via mobile phone, scanning user ID code, switching on/off the bin lid, generating and printing the barcodes of products, and information communication with the central database.

The mobile APP shows the consumer eco-account including the eco-credits awarded due to the recycling the WEEE, and procedure of the recycling with the intelligent bin and eco-credits awarding.

Tasks

The students are expected to conduct the following:
1. Understand the functions of the control unit, scanner, printer, bin and the mobile APP. Assess/evaluate the system to find out its weakness for improvement
2. Demonstrate the intelligent bin with potential users and collect feedbacks from the users.
3. Conduct survey to get user feedbacks about the mobile APP interface to see if the APP is user-friendly or not, and opinions for improvement.
4. Based on the results of the assessment conducted in Task 1, the user feedbacks obtained from Task 2 and the survey results from Task 3, to conduct the following
   - Re-design the intelligent bin
   - Produce suggestions how to improve the mobile up user interface.

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For further information, please contact

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