Project Overview

Background

Recycling facilities are designed to process many different types of materials. The rubbish that arrives at each facility contains all of these recyclable materials piled together. Because each of these materials has a different recycling method, they must be sorted and separated from each other. This sorting and separation can either be performed manually by humans or can be automated using machines.

Synopsis

In this project, learners will learn how to create a program to control a robotic arm and clean up magnetic recyclable waste that has been spilt onto the facility floor! Along the way, they will learn how rubbish is recycled, why recycling is important, some of the advantages and disadvantages of automation, and different methods of sorting items.

This project is divided into five lesson plans

01. Let learners **Define** the situation by playing and discussing a short video. Learners will work in groups to explore the Project theme to accurately **Define** the problem that has occured.

02. Facilitate a class discussion around the topics and questions that your learners previously covered to help your students **Imagine** their own solutions. This lesson will end with an explicit definition of the problem and the tools available to solve it.

03. Learners will get a chance to **Research** the tools available on our platform that they will use to construct their solution. This lesson will end with a session where learners will **Plan** how they will build their solutions.

04. Learners will use our platform to **Code** and test their solutions to the problem inside our simulated environment.

05. Learners will use our platform to **Improve** upon their previous solutions, applying the skills they have learnt and the knowledge they have gained to solve more advanced problems. They will then take the time to **Review** their entire work on the Project.

Project Overview

Subject Areas

- Technology
- Engineering
- Computer Science
- Automation
- Social Science
- Maths

Learning Outcomes

In this Project, **learners** will:

- Understand the basics of programming a robotic system.
- Practice converting human decisions into an instruction set for a robot.
- Understand examples of how robots can help humans perform everyday tasks.
- Learn how to use action blocks in the Flow editor.
- Learn about the purpose of recycling facilities and what we can do to improve their efficiency.
- Understand why it is important to only put the correct items in recycling bins.

Equipment List

Learners require:

- Access to our digital platform through a laptop, PC or tablet (no account needed at this stage)
- Access to our learning journal through either Google docs or Microsoft Word

Educators require:

- The situation video (link included in lesson plan)
- Access to this Lesson Plan (either printed or digital)
- Easy access to the answer document, printed or digitally (file included in lesson plan)