BRING IT ON Company Challenge – Unipres

What is the Engineering Challenge?

Unipres have a very efficient production line but materials and products still need to be transported from place to place for different processes. Traditionally this was done by small forklift type carts driven by employees around the factory. Unipres identified that these diesel driven trucks were not only using fossil fuels but also were not very efficient. They have started to invest in automated electric carts instead that can drive themselves around the factory using sensors and pre-programmed routes.

The class challenge is to create an example of how a cart like this can be programmed to work effectively.

Ideas

This challenge can be attempted a number of ways:

- Using on screen programs, such as Scratch, the children can demonstrate their coding skills to make a sprite move around an imaginary factory floor. The sprite could be taken from a design/draw task on paper then uploaded. Teachers can make the shop floor as complicated as they want or leave it to the children. Again a drawing can be uploaded and used as a background or sprites added to the screen workspace to create the 'maze' in which to move the sprite.
- If a class has robots with sensors, these can be programmed to navigate around a maze created in the classroom. Robots such as Dash or LEGO Mindstorms are ideal for this sort of task and can even carry objects from one place to another. A simple version of this can also be achieved to show the use of a colour sensor by using a coloured tape to follow on the floor. Many actual factory robots use this sensor technique to keep them on track.

Who are Unipres?

Unipres are an international engineering company that has a huge base in the NE. It supplies components for major car makers from around the world and many of its Sunderland products end up in the vehicles that Nissan make next door. Unipres is very much focussed on developing local talent, taking on many apprentices each year and running a skills Academy to help develop their skills.

Curriculum Links

Computing - design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts

Useful Links

Unipres website for info about the company: https://unipres.co.uk/
Scratch online: https: //scratch.mit.edu/

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