

Skip Hire Magazine

The Voice of the Skip Hire and Waste Industry in the UK and Ireland

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SORTED! Robots revolutionise recycling

Also... Kerry Voellner looks at dangers workers face on site | Compass cover machinery and equipment safety | Enviroman discusses the revised waste duty of care code of practice | Crawford: The prevention of spontaneous combustion | WAMITAB look at the serious issue of flooding across the UK | Fire Prevention Plan Guidance from Gayle Whittaker and much more....

Sorted! Robots revolutionise recycling

Just once in a while, something very new, clever, innovative and ground breaking comes around the corner, which fundamentally changes the way we think about, manage and handle a process at the heart of our industry. The new development achieves a step change in current technology and practice ... and its impact, the implications and future potential are both disruptive and far reaching.

That has just happened in the recycling industry ... courtesy of a Finnish company called ZenRobotics, which has fully and successfully automated the process of picking and sorting mixed materials for recycling on a moving belt. SHM's Ainsley Fraser went to see it.

To put this development into context, a good manual operative will pick between 600 and 800 items per hour. Zen's new system can pick up to 2000 items per hour per robotic arm, running unsupervised, 24/7 ... and there are typically two, sometimes three robotic arms per installation. Accuracy and waste stream purity can head well north of 90%, depending on materials, with residuals as low as 5% of initial volume at the end.

Then add to that the seismic shift in operating safety – the single quantum leap improvement in de-risking a process which currently relies on the close proximity interface between human beings and moving machinery. Surely, this is a profoundly important step for our industry.

Skip Hire Magazine was fortunate enough to be one of a small cluster of industry journalists invited to Helsinki to see first hand just what has been achieved. It might sound a



bit geekish (if not sad) to describe a machine for the fully automated picking and sorting of recycled materials on a belt as 'inspirational'. But I use the word deliberately because the people are some of the most brilliant computer software scientists I have ever met ... and I've met a few. The whole system has been properly designed, developed, trialled, tested, improved, tested again and integrated over a lengthy period – before being launched to the world ... so although it's new to us, it's mature and it works.

Unsurprisingly therefore, the company and its technology has caught the immediate attention and imagination of the recycling

industries in markets around the world ... already including Japan and the United States. Europe is in there too – and to ensure that we have the same opportunities, ZenRobotics has just appointed Blue Group as its collaborative partner in the UK. That alliance is also reciprocal – which means that Zen's system can be built into a fully integrated turnkey recycling plant.

In 2007, two PhDs with a strong research background, teamed up with an entrepreneur to spin out an embryonic technology company from the University of Helsinki, to develop control software. To quote Tuomas Lukka, one of the founders, "We wanted to do something cool with robots!" And by the way, that comes from Finland's youngest ever 'doctor' – Tuomas having completed his first PhD at the age of 20.

They spent two years visiting Finnish companies looking for industrial applications with specific challenges and problems, with the idea of developing very advanced control system software and using robotic technology to break through what they described as a 'glass ceiling'.

Having looked at sectors including the automotive industry, bakeries and

