

The man bringing VR to glassmaking

The Virtual Reality Machine Training (VRMT) booth at the recent glasstec was one of the most popular, with people queuing to enter the stand late into the last day. Greg Morris spoke to the company's co-founder Tony Pawinski, who discusses how he hope VR can transform IS operator training.



▲ Tony Pawinski.

The lightbulb moment came at the glasstec event in 2016.

While working at the trade show, Tony Pawinski, saw the power of Virtual Reality and how delegates reacted to it.

It immediately struck him how important the technology could be for a glassmaker and for IS training in particular.

“I saw the response, and straight away it was obvious that this could be something for a glassworks.

“It was clear this type of technology had huge potential especially for IS education.

“Having worked all my life in a glass factory at every level, it was clear how hugely helpful it would be to train people in a safe environment and allow them to understand the glass process.”

Tony had personally had no previous experience of VR but had worked on various projects with a freelance design engineer, Mark Henshaw, for the past 20 years.

Mark had never seen an IS machine before but, in Tony's opinion, he was a world class design engineer capable of producing the work required for the various disciplines required for VR coding.

In March 2017 the pair set about building an IS machine in the virtual world. Tony supplied drawings, videos and used his array of contacts from more than 32 years in the glass industry to provide Mark with the intricate details of an IS machine.

“We spent a long time ensuring that all the actual movements of an IS machine were independent so that we could eventually make the application function like the real thing,” Tony said.

In December 2017, Rotherham, UK-based container glassmaker Beatson Clark bought an

early version and agreed access to its factory while Tony and Mark agreed to develop the NNPB process to mirror Beatson's needs.

Beatson Clark has remained a pivotal customer and a case study of its experiences with the VR is provided below.

After several meetings with British Glass the association declared an interest in the project. In February 2018 VRMT was formed with Tony, Mark and British Glass's commercial arm, Glass Technology Services (GTS), as shareholders. A news story about the technology attracted a record amount of hits to the Glass International social media site. At the recent glasstec event delegates were still queuing to use the technology last on the last day of the show.

The concept

The aim of the company is to digitise IS training globally. VRMT has used Oculus Rift to view the hot end in a virtual manner. The aim is to give companies a training tool that can be used to demonstrate general principles in Health and Safety around an IS machine as well as training new staff.

The system is also targeted at experienced operators who can benefit from a ‘train the trainer’ principle.

The system is being constantly updated thanks to feedback from Tony's industry contacts.

“I can only give Mark credit for his programming skills, each week I saw it I was impressed by something. An example is the ability to cut the machine in half to provide the wow factor. It allows the complexity of bottle manufacturing to be demonstrated in a unique manner.

“At first he didn't think he could do it but he

“Having worked all my life in a glass factory at every level, it was clear how hugely helpful it would be to train people in a safe environment and allow them to understand the glass process.”

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▲ Hot end department in virtual reality.

worked and worked on it and then a few weeks later at one of our weekly meetings he had done it.”

The machine originally just had one section but has now increased to three sections and an independent training section. The VR programme allows an operator to do a mixture of walking and teleporting to other areas of the factory such as the lehr and feeder.

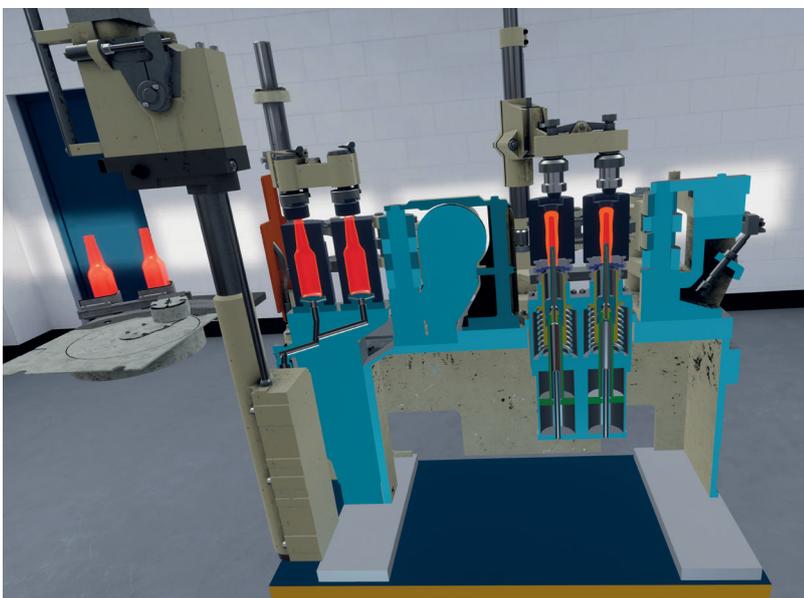
Such has been the interest that the ‘plant’ now includes five Tiama machines, after the pair secured funding from the French inspection company to display its branding.

Some of the functions available are the ability to swab one or all of the sections against a recordable training course. It also included the Blow Bow and NNPB processes and has the ability to split the section in half. Up to four people anywhere in the world can use the system at any one time - an important feature for glassworks with several sites.

▼ Up to four people from multiple sites can use the system at the same time.

Lifestyle choice

Mr Pawinski is well-known in the glassmaking industry. He began working in the industry as



an apprentice engineer for the UK’s Allied Glass in 1980. He worked for the container glassmaker for 32 years and in that time worked his way up to the become Head of Engineering. He worked on a variety of projects around the globe, which included project engineering in the cold end, furnace installations and IS machine installations.

“I have a lot to thank Allied for. It was thanks to them that I travelled around the world buying machinery and gained an awful lot of knowledge about glassmaking. I have got nothing but respect for them and they have been a major part of me understanding all aspects of glass bottle plants. They have played a major part of my life and I made a lot of friends there.”

The company also enabled him to gain a Bachelor of Engineering degree with first class honours in Electronic Engineering from Leeds Metropolitan University at the age of 50, eight years ago.

As time wore on he decided he wanted a lifestyle change and to enjoy more time with wife Heather and the five children they have had between them.

After a short spell working for Asmech Systems he took on a consultancy role for Leeds-based Talos Packaging, a company which provides bespoke machinery for glassworks.

“I worked with Mark on a simple Virtual Reality application to promote a machine at glastec for Talos.

“With my industry knowledge and Mark’s passion and experience for design and coding VR, we decided to try and re-create a working IS machine. Working at a glass plant had given me the understanding of how difficult it is to teach engineers and production staff in the art of glassmaking in a safe and standardised forum.”

The decision to leave Allied and to take more control of his life has been the right one states Tony.

“I love my working life now. The glass industry people are a unique bunch and I feel I have a chance to make a mark, that I’ve got something that the industry will use forever.

“Everyone who has seen it so far has gone ‘wow’. That’s a great feeling.

“While Mark and I have driven this to where it is, glass people have reinforced the idea, they’ll suggest things and I’ll go and discuss it with other people in the industry. It’s right to build up a picture of what the industry wants rather than just one person’s picture.

“I genuinely believe we have a tool to set standards in the industry. Traditionally, the industry would lose a person’s glassmaking knowledge on the day they retired. There are people who have worked for years in the industry who have and can put their ideas into this machine, so their ideas will live on forever.

“This is an opportunity to digitise peoples knowledge, which will improve the glass industry’s efficiency as a whole.” ■

Beatson Clark has been using the equipment to train new recruits to operate IS production machines.

The UK container glassmaker has been working with VRMT to develop a training system to help staff understand more about the glassmaking process.

Here, Trevor Phillips, Production and Engineering Director at Beatson Clark, discusses how it was used by his colleague, Karen Scholey, a buyer at the glassmaker.

“I was interested to see how quickly someone could learn, from having no knowledge of the forming process at all to being able to explain how it works without any help. Karen Scholey, our buyer, volunteered.

“Firstly I showed her our real single-section training machine and various pieces of mould equipment. I then asked Karen questions about the section and found that she could not remember what we had talked about.

“Then she went onto the virtual machine and I took her through the programme so that she could actually see the forming process. I then slowed the section down to a quarter of its normal speed and talked her through what was happening.

“We spent 45 minutes on the VR machine, after which Karen could write down what was happening step by step. She also explained when



re-heat times started and ended and could quite easily identify each piece of mould equipment.

“A week later I asked Karen to take me through the process again, which she did with ease. She said that she simply visualised the section again, like recalling a film or TV programme she had watched, and she could still explain what was happening and why.”

▲ Beatson Clark employee Karen Scholey using the VR training system.