Boomf benefit from 600% growth with ABB robot

The idea proved so popular that within a year the company’s manual production line at its factory in Reading began to struggle to keep up with orders. Much of the delay was happening at the cutting stage. The expectation of high quality meant that each product needed to be carefully cut, causing a bottleneck in the production flow. Difficulties in achieving a consistent high quality cut also meant that a lot of product was being wasted.

With the company specialising in such a niche product, the founders feared that solving this problem with automation would require custom-built equipment and machinery. In the words of James Middleton, “There was no marshmallow printing shop around the corner.”

James used his physical manufacturing background to begin researching solutions online. Looking at various cutting machines for the food industry on YouTube, he came across a video of a robot cutting application which used an ABB six axis robot and an ultrasonic blade to cut cakes. The automated system was integrated by Newtech, an ABB Robotics UK Authorised Value Provider.

Located in Sharnbrook, North Bedfordshire, Newtech specialises in automation for the food industry and was the first company in the world to create a commercial robotic cutting solution combining a robot arm with an ultrasonic blade.

“The idea was to provide a solution we need. We got on the phone, contacted Newtech and then we went up to trial some solutions,” enthused James.

Like any robot installation, trials are required to ensure the best results. Because the original machines were set up to cut cakes or cheese, they weren’t suitable to cut marshmallow which is an inherently sticky product. Through applying a mechanically PTFE-coated blade to the ABB IRB 1200, Newtech were able to come up with a solution. The blade passes through an oil reservoir before the cut is made in order to ensure a suitable surface for cutting. Once the marshmallow is portioned, the blade passes through a cleaning tank before repeating the process.

A clean-cut design is of the utmost importance to Boomf. James Middleton explained, “We make sure we have a precise square, not just something that’s almost a square, and we have very sharp angles and edges so that we have a good printing substrate.”

When the process was performed manually, Boomf employed ten people to cut the trays of marshmallow into 40mm by 40mm squares.

An ABB robot has been installed by system integrator Newtech at a company that specialises in the production of personalised marshmallow confectionery.

Started in 2013 by founders James Middleton and Andy Bell, Boomf enables its customers to print their choice of photos, graphics and messages on to marshmallows which can then be sent to a chosen recipient as a quirky alternative to flowers, chocolates or greeting cards.
After every five or six cuts, the blade would need to be cleaned. In total this took five minutes. Due to miscuts, there was also a lot of wasted product. Now that the process has been automated, the procedure takes 17 seconds. Newtech also integrated intelligent vision software into the robot cell to ensure that Boomf would get the perfect cut each time. According to James Middleton, “There’s next to no wastage now and that’s been a real benefit to the figures.”

Jaz Gill, Sales Manager at Newtech explained how the AVP uses vision technology in this and many other processes to accurately cut and track products as they come into the robot cell. “The vision technology scans images and then uses 2D vision from the top of the cell to recognise the product. The data is then sent into the robot to follow it – be it a tart, cheesecake or a sandwich, the camera ignores any other elements to achieve a perfect and accurate cut.”

In addition to improved product quality, the robot solution has raised productivity levels significantly. Now Boomf have the flexibility to respond to changes in demand.

The confectionery company receive a large increase in orders during holiday periods such as Christmas and Valentine’s Day and need the resources in place to cope with fluctuations. Improving the process has also enabled Boomf to focus on other areas of the business such as expanding delivery to more countries and looking at how other processes could be automated.

Jaz Gill informed us, “We develop a partnership with our customers and look at where we can add value across the whole of their production line. In Boomf’s case, we can cut the product perfectly, but they still have a challenge in manually putting the product into boxes.” Over the coming months, Newtech will begin trialling various using another ABB robot.

Further, using an IRB 1200 within a machine cell allowed Boomf to improve the health and safety at the site. James Middleton was a victim of the manual process before the automated system was installed. He severed a nerve in the end of his finger whilst cutting a batch with a knife. Removing the human interaction from the cutting process removes the risk of such accidents and the employees can apply their skills to other areas of the business such as operating the robot.

Overall, Newtech’s automated solution has been a real success for the company. Ease of use is ensured through the use of a HMI which enables staff to operate the cell following simple training. Jaz Gill insists this means companies “won’t have to worry about having an engineer on site.”

In terms of finances, Boomf were well aware that as a startup there would be a lot of cost. However, through investing in a robot the company has already experienced the benefits, and in their second year of business have grown at an astounding rate of 600%. James Middleton added, “It’s the benefits of having the robot that’s allowed us to grow that much in one year.”

Jaz Gill firmly believes that robotics and automation in general is completely underutilised within food and beverage. “It’s a whole culture change that we need to bring to our customers and their partners, for people to understand that the use of robotics, the use of automation, the intelligence, is not only far more economic than it ever been and yields a faster payback, it’s incredibly easy to use,” he concluded.

When asked about what he would say to UK manufacturers who were thinking of investing in robotic automation, entrepreneur James Middleton was encouraging. “I’d say go for it. The success that we’ve had with our robot speaks for itself. Any investment in robotics is a great decision for any company that wants to insure their future in an increasingly digital market.”