



The Big Bang UK Young Scientists & Engineers Fair



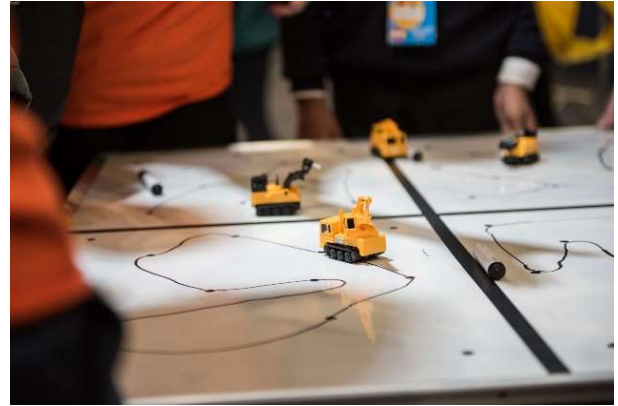
I am really pleased to announce the success that the Harper Adams Engineering Department had at the Big Bang Fair 2018. The reception we received from students, teachers, parents and guardians far exceeded our original hopes. When Engineering UK announced in their 2017 report that there is an annual shortfall of 20,000 engineering graduates in the UK it was time for Harper Adams Engineering Department to act. It was decided that there was no better place to begin the journey of inspiration than at the Big Bang Fair at the National Exhibition Centre. This national event happens annually and is orchestrated over four days to give young students the opportunity to explore and learn why STEM subjects are so important and to give them a glimpse of what they can make possible in future by following the careers paths that these subjects open up. To give an idea of the scale of this event we saw almost 80,000 people walk through the doors at the Fair.

Instead of leaving this project in the hands of the experts, the engineering department encourage their students to step up to the mark and take ownership over various projects. This particular mission which is very close to the hearts of the department members fell to us, a small group of fourth year students. It was our job to turn the idea of taking Harper Adams Engineering Department to the Big Bang Fair. We had five months to take the project from the concept stage right through to the final delivery which ended when we packed up the stand at the end of the exhibition on the 17th of March. The idea behind giving students command of such projects is to fundamentally teach us how to act as engineers in the future. The key project objectives were simple: To be there alongside the other exhibitors to help inspire the next generation of engineers; to create exciting and engaging activities that would not only draw in the crowds but allow students to get hands on with the engineering principles that we have in our tool box; to show them what a difference they can make as engineers. Finally, we needed to promote the importance of the Land-Based engineering sector and to break down many of the misconceptions held about not only the Land-Based engineering but also engineering as a career path.

After much negotiating we secured our place inside the exhibition centre. From there we were able to work out the stand design. We designed and produced the stand artwork and uniforms. Finally, our focus was on designing and making the interactive activities. Our primary activity which synthesised many of the engineering problem solving principles but also

brought into relief a lot of the robotics work that is happening at the university was the interactive robot activity.

The participant's jobs were to work out how to make these small electronic line-following vehicles follow a path between points along the shortest route possible. While this may seem simple, there are in fact many factors to consider to make this work. It was up to the students to not only solve the problem but to overcome the inherent challenges with the activity. Students could have a go individually or race against their friends.



We had such a positive response from students and their accompanying adults and teachers that we gave away half of our line-following vehicles to teachers who wanted to use them in their classrooms. On the other side of the stand we had the de-constructible JCB digger activity which was generously lent to us by the JCB team at the Big Bang Fair. This was an opportunity for the students and adults to work out using various modern manufacturing techniques how to reduce the build time which averaged 45 seconds for one person to beneath 15 seconds for a trained and practiced group.

Another of the key objectives was to make sure Harper Adams University engineering department was not over-shadowed at the show, to ensure that our message was not overlooked. What was really instrumental to this was the 3m wide circular hanging sign which was suspended 6m above the stand base.



As a result of the show being free to the public our budget was stretched thin just by being there. Thankfully, the Douglas Bomford Trust were there to help us out. Their generous donation meant that we could afford the overhead banner. As a result, the Harper Adams engineering stand could be seen from almost anywhere within the three halls in which the fair was being hosted. So

prominent was the stand as result of the banner that it was being used as a landmark for visitors to help them navigate around the show and meet up with lost companions. A huge thanks to the team at the Douglas Bomford Trust for their support.

By Jonathan Glen, HAU @ The Big Bang Fair 2018