

Inspiring generations of students for 21 years at IBM's Blue Fusion

HURSLEY, U.K. - 14 Mar 2016: Europe's largest software development laboratory, IBM Hursley, was filled with 270 excited young voices as they encountered new technologies and competed against local schools at the Blue Fusion event recently. Celebrating its 21st year, the educational programme is run annually with the aim of inspiring young people to take up STEM subjects, through five fun days full of challenges created by young developers. Teachers from 45 local schools brought in students in teams of 6 to experience something quite different.

The first two days are designed for teams of gifted and talented students aged 12-13; this is immediately followed by three days for students aged 14-15. Blue Fusion is always an exciting and lively event, and offers different activities each year. The organising team is made up from recent joiners to IBM's graduate programme, who bring an enthusiasm for new technologies and their own educational experiences to make the event the success it is.

Bryn Lloyd, Science teacher at Purbrook Park School attended the event this year and explained: "I brought our students on Monday, and again today because I want them to be inspired about STEM subjects. They are really engaged and working as a team in a way they haven't before. The benefit of coming to IBM is they encounter technology they wouldn't at school, such as programming hardware in Hackberry and the TwitterDrone."

Young developers on IBM's graduate programme delivered a new set of hands-on challenges including:

- **HackBerry** This activity is intended to demystify hardware for a generation of students whose main interaction with technology is through software. The students' goal is to wire up a small Arduino processor to create an RFID card-reading device, complete with card reader and display. They then use this device to

read a series of RFID cards – when all six cards are read, they contain a scrambled password which the students must figure out before they can access a laptop, which in turn holds the key to a safe. This activity also aims to educate students about the importance of security in technology, and how a single exploit can have a domino effect, exposing information and data much further along the pipeline than the initial security flaw.

- **TwitterDrone** In this activity, students use Twitter to tweet code-like instructions which navigate a flying drone around an obstacle course. The drone listens for commands via a Bluetooth connection, using an open source Python library to interpret the instructions. By using familiar technologies in new ways, the students are shown the power and potential of the technology they use every day.
- **Pi-Maze** In this activity, students use Python and a simple GUI to program a custom-built Raspberry Pi robot to navigate a series of mazes, using iterative development to improve upon their algorithms within a time limit. This activity aims to introduce the students to the world of lo-fi, accessible robotics which they can build and use themselves, either at home or at school.
- **RoboSumo** In this activity, students program a specially built Raspberry Pi robot to try and defeat their opponent in a sumo wrestling-style bout, earning points by pushing other robots out of the arena. The activity introduces the students to if-then logic statements, and has them using the C programming language to code their robot's responses using a variety of parameters. Just like the Pi-Maze activity, the robots in this activity are made from components that the students can easily acquire and build themselves.

Students' feedback included: "More creative than your everyday technology", "It was interesting and fun to see how far technology has advanced", "I found many new experiences in coming to IBM", "A-mazing!".

IBM Executive Sponsor for Blue Fusion since 2008, Hugh Proudman, gave his perspective: "Our goal each year is to ensure that the students have fun and hopefully learn something new about the world around them. Through the activities created and delivered by IBM employees, we also hope to show students the wide range of careers on offer in science and engineering. It is always rewarding to work alongside the organising team who delivered another exceptional event.

"It has been particularly rewarding in Blue Fusion's 21st year, to meet four IBM employees who attended previous Blue Fusion events as young children, and have now achieved successful careers at IBM. It's fun to think that Blue Fusion helped influence their choices in some way, as well as those of over 5,000 young people who have attended the event over the years."

About IBM Hursley's Community Programmes

In 1958, IBM took ownership of Hursley House and the surrounding grounds. Over the past 50 years, the Hursley Laboratory has continued a commitment to corporate citizenship that dates back to IBM's founding; encouraging employees to take part in charitable events locally, within the wider community and even internationally.

This timeless site plays host to a range of programmes to engage school-aged children in Science, Maths, Technology and Engineering subjects. By engaging talent at an early age and encouraging prolonged study in industry related subjects, IBM continues to employ expertise in technology to address social and education issues.

Beyond Blue Fusion, for younger students of primary school age, IBM also hosts events such as XploreIT and Try Science as well as think.IT. The latter is designed especially to inspire girls to take an interest in continued study of Science, Technology, Engineering and Mathematics (STEM).

<https://uk.newsroom.ibm.com/2016-Mar-14-Inspiring-generations-of-students-for-21-years-at-IBMs-Blue-Fusion>