

INTERNET OF THINGS

Supporting Reading Year of Culture

A project to create a live heat map of Reading's leading arts events provided a real-life challenge and employment opportunity for UTC Reading students.

The Internet of Things project was developed by Mark Stanley, initiator of The Things Network Reading, as part of the 2016 Reading Year of Culture.

The idea was to create a heat map that would show the size of audiences at public events and enable audience members to rate and share the event via social media. For publicly-funded events, the project would provide a direct and objective measure of impact, and therefore an indication of value or return on investment. The project would be realised through a device, created and installed at each venue to count the number of mobile phones in the area and give an indication of audience size.

Having secured funding from Reading Council, Mark set about finding a team of bright young minds to make the idea a reality.

He said: "I had originally anticipated appointing university students to work on the project, but a contact of mine, who was also a teacher at UTC Reading, suggested that their students might be interested in the opportunity. After passing on my details, within a couple of days I had a handful of applicants' CVs. I decided to run a hackathon to test their skills and to whittle down the shortlist to the final team of four."

The project

Four sixth form students – Samkeliso Kimbinyi, Kieron Cardall, Simon Light, and Thomas Helyer - worked for two days a week over eight weeks, operating from incubation and co-working hub GROW@Green Park.

This project comprised:

- Articulating the project aims
- Writing up user stories, flows and sketching a data model
- Finding a common programming language
- Programming
- Creation and testing
- Analysing data
- Commissioning the design of a 3D printed device casing



AT FIRST THE PROJECT SEEMED REALLY DAUNTING. WE HADN'T WORKED ON A PROJECT LIKE IT BEFORE AND DIDN'T HAVE EXPERIENCE WITH THE TECHNOLOGY. WE HAD TO LEARN FAST, AND DEVELOP THE SKILLS AS WE WENT.

IT WAS GOOD TO BE EMPLOYED OVER THE SUMMER IN SUCH A RELEVANT ACTIVITY AND TO BE WORKING IN AN OFFICE ENVIRONMENT WHERE PEOPLE WERE ENGAGED IN SIMILAR THINGS.

THEY TOOK A REAL INTEREST IN WHAT WE WERE DOING AND SHARED THEIR IDEAS. AS THE PROJECT CAME TO AN END IT WAS REALLY SATISFYING TO SEE THE PHYSICAL PRODUCT AND TO SEE IT WORKING. THE WHOLE EXPERIENCE ALSO HELPED TO DEVELOP MY TEAMWORK AND TECHNICAL SKILLS.



Samkeliso Kimbinyi,
Sixth form student

Kieron said: "Taking on the scope of a real-world project was a big challenge. I was struck by how many things could go wrong at first. But it turned out to be a great experience and it taught me the importance of adapting your approach as you go, based on what you discover. The experience will serve me well when it comes to taking the next step after UTC Reading. I want to move onto an apprenticeship, and to be able to say I have already developed an app will be a real asset."

Simon said: "During the placement I learnt a lot about industrial app development, as well as better time management. I also learnt to apply problem-solving skills in a real world application and overcame limitations with methods used in the application's build. I learnt how to use source control and how project management works in production. Overall I had a great time and felt like I gained lots of valuable experience."

External feedback

The students' work was well received, both by project lead Mark Stanley, and co-founder of Grow, Louise Clarke.

Mark said: "Working with 16 and 17 year olds was a new experience for me, but I would absolutely do it again. The team were very bright, happy to argue their own ideas and added a great deal to the project. Their attitude was superb and they were 100% reliable. Working within the collaborative environment at GROW also added to the project, as other people were intrigued to find out what we were doing and therefore got involved."

Louise said: "Having Mark and the team of students at GROW over the summer enabled them to experience the start-up environment, and to be amongst other innovative minds. This project gave young talent the chance to work on a real life scenario and to be creative.



Watching how the team worked together and immersed themselves in our busy environment was really satisfying. It's what GROW is all about."

The result

In addition to giving the students valuable experience and paid employment, the project has realised the potential of the Internet of Things project.

The device is now being deployed across public arts venues including Reading Museum and South Street Arts Centre. It will also be used at outdoor events over the coming year.

Three of the four students have used their experience to take on a further Internet of Things project, run by Fujitsu.

