



“Vex was the adventure of a lifetime and I will treasure it always. I made lifelong friends and will never forget the feeling of representing my country while doing what I love.”

An Education in Robotics

The path to bringing Vex Robotics to Ireland by
Martin O’Flaherty, Dell Technologies

As an employee of Dell Technologies, I am very fortunate to work in a company that actively seeks to address the low number of students taking up STEM subjects in schools and colleges. In 2012 I had been working with the Cork Institute of Technology (CIT) to find a way to use some of our excess test equipment to help with science labs in underprivileged schools. While working on that idea, the opportunity to kick off the VEX Robotics Competition in Ireland came along and, frankly, it was a much better, more fun and ready-made solution to support STEM education in schools.

The VEX Robotics Competition is a worldwide programme organised by the Robotics Education & Competition Foundation (RECF), of which Dell is a global sponsor. VEX Robotics is a fun exciting program where kids learn about STEM and much more without realizing it as they design, build, program and drive their own robot in a spectacular competition.

Continuing to work with the CIT we reached out and recruited eight underprivileged secondary schools to take a leap of faith with us as we started on our VEX

“The skill set I left school with was definitely bolstered by my participation in the competition, and it also gave me the confidence to apply myself in situations at third level that I could not imagine being a part of otherwise.”

Robotics journey. These eight schools were part of the DEIS action plan (Developing Equality of Opportunity in Schools).

The competition was a huge success with overwhelmingly positive feedback from students, teachers and mentors alike. On the back of this success we were able to acquire more funding internally to introduce the competition to primary schools and grow year on year to the 100 schools participating in 2018.

Collaboration was key to nurturing the program in the early years – not just with CIT, but with Lifetime Lab, Science Foundation Ireland, Cork City Hall and organisations like the Bishopstown Rotary Club. Those bodies helped kick start a program that to date has engaged more than 5000 students directly in robotics teams.

It takes a community

Being solely an industry or company initiative was never in the plans. We knew that we (industry) alone could not make a program like VEX Robotics a success. We therefore worked closely with CIT from the outset to connect with schools, in particular DEIS schools. As the program grew however, the need to connect into the educational system to a greater extent became clear. Lifetime Lab came on board to help us with getting our primary school program off the ground and over the past 12 months we've linked with Mary Immaculate College in Limerick. Mary I now support both their student teachers and existing teachers through course modules and summer courses, building on existing VEX Robotics curriculum. They also sponsored kits for a number of schools in the Mid-West region.

In addition, for the first time, the Educational Support Centres successfully piloted teacher training/support classes to help create a community of teachers competent and confident with VEX Robotics in their schools. Furthering the connections with the education system to make this an enriching and easy program to bring to schools will be critical to success in the future. Holding a regional competition outside of Cork Institute of Technology



in the Dell plant in Limerick was a major milestone for the program this year.

Science Foundation Ireland have also been a wonderful source of support for the program, not only with funding but with connections to help it become a stronger, more viable, long term success.

Finally, this program could not happen without the support of all of the employees at Dell who volunteer their time and their talent. We thank them for making a difference in the lives of so many students. It was clear from the very beginning that this program touched a nerve in a lot of employees – people got something from it – be it a chance to be involved with their own kid’s school, give their own kids the chance

to participate in the program, connect back with their own alma mater, sharing their love of science with students, or simply taking joy in the smiles and reactions of the students as they have fun learning and engaging in STEM.

Which schools participate in the program?

The program began with secondary schools and was then introduced to primary schools. We have observed that the continuation of the program from primary to secondary level is critical and we have focused on creating a feeder system so that students have the option to continue their robotics exposure

throughout their entire time at school.

We started out with underprivileged schools and their inclusion will remain a core element of what we do.

Currently we have 100 teams in seven counties. With the support of SFI our goal is have over 300 teams nationwide by 2020. Close collaboration between Dell, CIT, Mary I and other third level institutes and organisations/companies will be key to manage the growth successfully.

Female participation has been important to us from the beginning. As a parent, I wanted to create something that would be of interest to my own daughter, or at least give her the opportunity to learn a little more about STEM. So far we’ve had 50%



“I have spoken about my history in VEX Robotics to representatives of companies during work interviews and I believe that this was key to securing work placement for my degree.”

participation from girls at primary level and that has remained steady each year. Participation at second level was 20-25% every year but this took a significant jump this year and increased to 46%. We are thrilled with this progress.

Why VEX Robotics?

In a world where there are many STEM programs to consider, VEX Robotics stands out because it offers the following benefits:

It captivates children at a very young age – we have kids as young as 9 or 10 years old designing robots

It involves large teams – typically full classes at primary level, so engages everyone. This is really key to building that pipeline of talent that the technology industry needs to thrive

Teamwork is a key element of the program if you want to be successful, a really important life skill.

It's not exclusively a school based activity. Several Coderdojo clubs are involved, realising the benefits of seeing a real-life output from the coding skills they acquire. Other clubs/societies are also welcome.

It provides a wealth of opportunities for people to get involved within the community, from those who want to

help mentor their local school, to individuals who volunteer at an event as a referee, judge, inspector or more

As a sponsor it is a great opportunity to connect with the local community, creates networking and team building opportunities as well as being a showcase for employees to demonstrate their project management capabilities

STEM is at the core of the program but the Arts are an important element, which really comes to the fore when the children present their research project results. This is done in various forms – poetry, dance song, acting, video, power-point presentations and more

It is also highly PR friendly, so the children who participate have a chance to see themselves covered in local or national media. Media profile also helps for gaining and maintaining financial support!



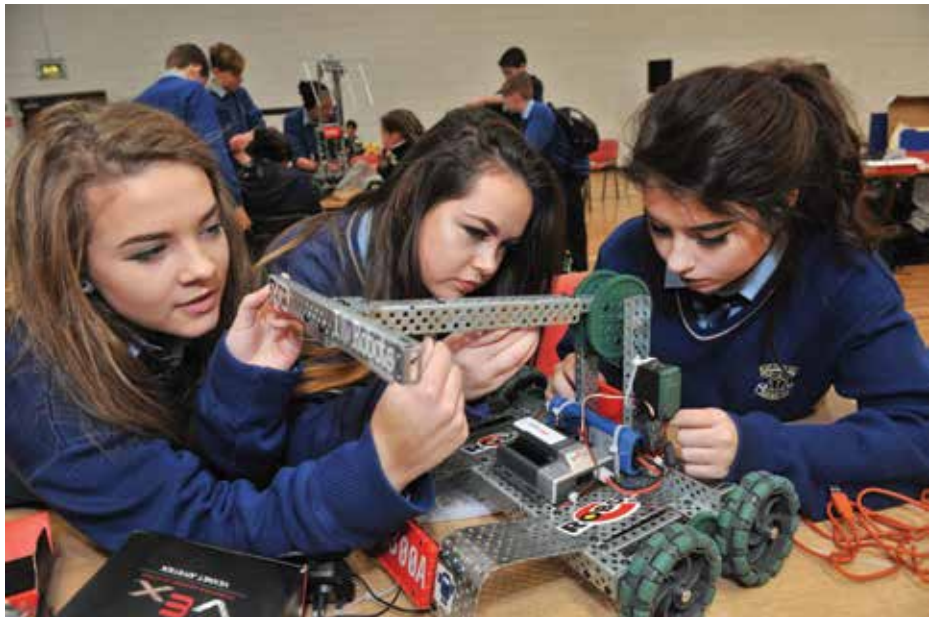
An introduction to VEX Robotics

The VEX Robotics Competition is a worldwide programme organised by the Robotics Education & Competition Foundation (RECF), a US-based non-profit with a mission of promoting interest in Science Technology, Engineering and Math (STEM) through robotics. More than 18,000 teams from 40 countries competed this year in the largest and fastest growing programme of its kind in the world.

Students build and program a robot of their own design to compete in an exciting competition, picking up valuable engineering skills while having fun, but also gaining life skills such as teamwork, perseverance, communication, collaboration, project management, and critical thinking. The technical challenge of the competition facing the students refreshes each year, so last year's robot is disassembled and a new design begins.

Students representing Ireland were among 15000 others who helped set a Guinness World Record in April 2016 as the largest student-led robotics competition ever.

The program has 3 platforms: VEX IQ for primary schools, VEX EDR for secondary and VEX U for third level. To date, both primary and secondary level platforms have been successfully launched in Ireland.



“I’d love to go into IT mgmt or programming
- I had no interest in IT before...”



What we have learned

As the program has grown there have been many learnings. We listen to feedback from teachers, students and volunteers, and adapt and try new things. We don't always get it right but, just as we encourage the students to experiment with their robots, so we have to try different

things to improve and bring the program to more students. Listening and gaining insights to improve what we do will remain a core activity.

It's been great fun and rewarding work building a great team in Cork initially to bring VEX Robotics to Ireland. It's been inspiring to see the work that our teachers do to help expose our kids to the opportunities



Martin O'Flaherty

Martin O'Flaherty is a senior advisor in Dell Global Operations. Based in Ovens, Co. Cork, Martin is with responsible for the company's manufacturing innovation program.

Based in Ovens, Co. Cork, Martin is with responsible for company's manufacturing innovation program. A graduate of GMIT, NUIG and the Tyndall Institute, he joined EMC in 1998 as a failure analysis engineer. In his spare time he is the lead of an incredible team of volunteers driving VEX Robotics in Ireland since its introduction to Cork in 2012, to achieving the 100 team milestone in 2018 and looking forward to an anticipated 300+ teams nationwide by 2019/20.

that an interest in STEM may yield. But ultimately it's the reaction of the children, their sense of achievement, the energy they bring to the events and the work that goes in beforehand, their feedback and that of their teachers and parents that drives us forward.

We would like to see every school in the country have the opportunity to participate in the Vex Robotics program. We won't be able to bring it to everyone by ourselves and would love for you to join us!

So, if you are interested...

We've created a simple portal to help navigate you through the basics of getting involved in Ireland. Contact us through that website at www.RoboticsEducationIreland.com. We'd love to hear from organisations that might be willing to get involved in supporting or sponsoring schools in their locale, or from schools themselves that are interested in participating.