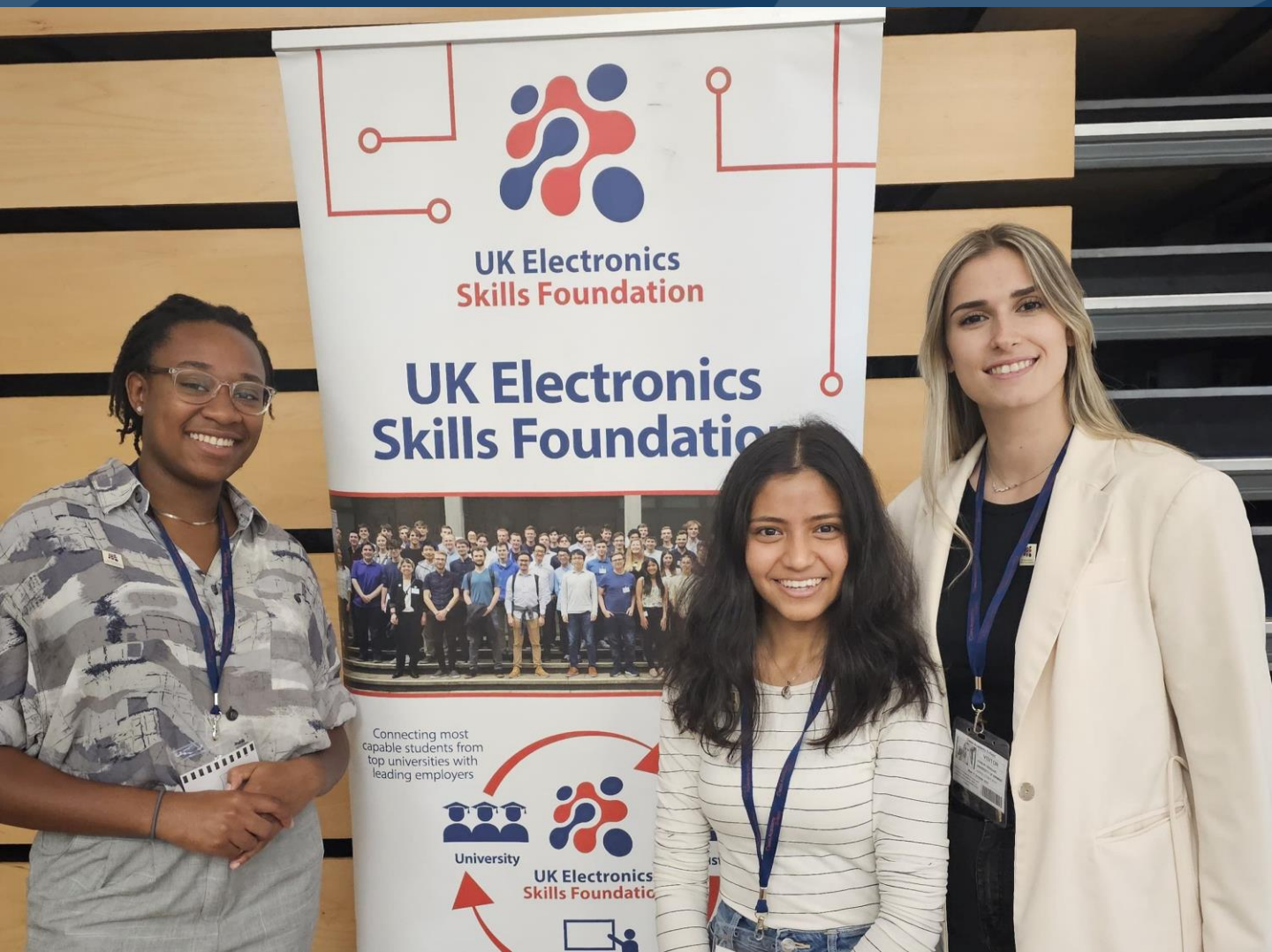
UK Electronics Skills Foundation

UKESF Impact Report 2023/24

Engaging, inspiring and supporting future Electronics Engineers



“Applying for a UKESF Scholarship was the best thing I could have done for my career and has completely transformed my life”
Vasiliki Xiradaki
University of Birmingham/EnSilica

Contents

The big numbers

In the 2023/24 academic year:

221
Schools received our resources

620
Pupils attended our events nationwide

75
Companies and universities collaborated with us

79
UKESF Scholarships Awarded

374
Participated in Girls into Electronics

Welcome to our 2023/24 Impact Report.

The Report showcases the great work that we've undertaken with our partners, a fantastic effort by all involved with our charity this year. Pleasingly, we are seeing increasing interest in Electronics as we increase our schools engagement and we had more applications than ever for our award-winning Scholarship Scheme.

Although there is more to do, our work to address gender imbalance is beginning to be rewarded; "Girls into Electronics" continues to be a tremendous success and a quarter of Scholarships were awarded to female students.

As we look ahead to 2025, our 15th anniversary year, we are planning to engage, inspire and support more future Electronics Engineers.

Congratulations to the entire UKESF team for delivering its best-ever suite of engaging and influential activities and programmes.

UKESF is the only organisation entirely focused on raising the profile of UK Electronics in primary and secondary education, as well as supporting undergraduates who are already studying Electronics – not to mention helping UK companies build a robust skills pipeline through its Scholarship Scheme.

We now have well-established programmes, successful pilot projects and funding proposals. With government and industry support, we can build upon our existing integrated skills programme to ensure support is available at all levels, from interactive Electronics resources in primary schools, through to encouraging entrepreneurship.

Stewart Edmondson

CEO & Director
UKESF

Neil Dickins

Chair & Director
UKESF

Founder / Director
IC Resources

Our year in pictures

August 2023
Coventry University joins the Scholarship Scheme

September 2023
UKESF Scholar Workshop takes place in York

October 2023
Record number of Scholarship Applications

November 2023
UKESF wins Elektra Award

December 2023
Scholar of the Year awarded at the TechWorks Gala

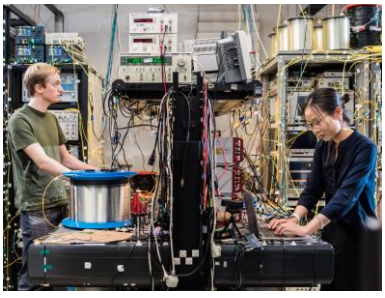
January 2024
Spark their Imagination ramps up activity in Wales

February 2024
UKESF delivers RI STEM Masterclasses

March 2024
UKESF speaks at the GSA International Semiconductor Conference

April 2024
Women Leaders in Electronics Award

May 2024
Our CEO visits Number 10.

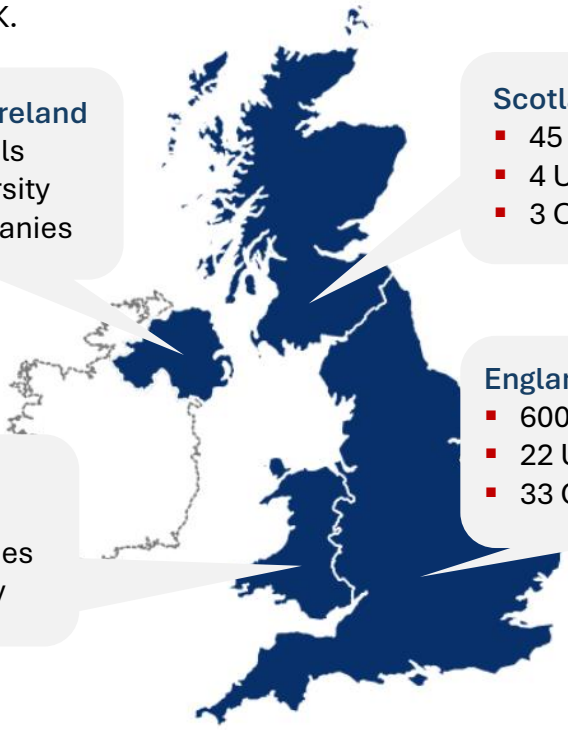


June 2024
UCL joins the Scholarship Scheme

July 2024
Hundreds attend Girls into Electronics events

Working together across the UK

We have worked with Schools, Universities and Companies all over the UK.



Northern Ireland
- 9 Schools
- 1 University
- 2 Companies

Scotland
- 45 Schools
- 4 Universities
- 3 Companies

England
- 600 Schools
- 22 Universities
- 33 Companies

Wales
- 54 Schools
- 5 Universities
- 1 Company

Our Sponsors

Our University Partners

We have enabled the development of future Electronics Engineers

UKESF Scholarships

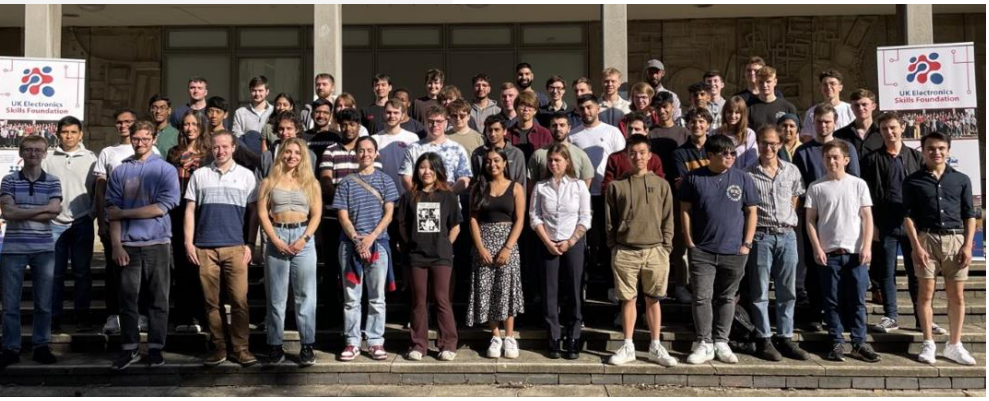
79 bright and capable undergraduates have received UKESF Scholarships

Our industry-focused, award-winning UKESF Scholarship Scheme works collaboratively with employers and universities to tackle the skills shortage in Electronics.

Scholars are supported through their undergraduate degree by an employer, and benefit from relevant work experience and 'wrap around' support from the UKESF.

This year, we received a record number of applications from over 650 undergraduates, and opportunities were offered by 40 Engineering and Technology employers. 25% of new Scholarship awards were made to female students.

The Scheme helps to address the skills shortage in Electronics by providing an effective pipeline for graduate recruitment and improving retention in the industry - 91% of those who have completed their studies go on to work in the Electronics and Technology industry.



UKESF Scholarships

56 Scholars attended our Workshop to develop their non-technical skills, as well as tools for their career

The 4-day residential workshop is an opportunity for our Scholars to build their professional network and explore practical topics such as ethics, communication skills, negotiation, sustainability, entrepreneurship, leadership and professional registration.

In 2023, 96% of participants rated it good or excellent.

"It was a great experience and invaluable to our careers"

"I went in with very high hopes for the workshop, yet my expectations were easily exceeded."

We have inspired the next generation of female engineers

Girls into Electronics

374 girls participated in interactive events, hosted by 12 of our partner universities across the UK

Sponsored by Apple

The series of one day events gives female secondary school students the chance to hear from women who have gone on to study Electronics and work in the sector. The pupils are given a tour of an Engineering department, participate in interactive Electronics activities, and attend an Electronics lecture. They are also given a microcontroller kit and a guide of follow-on activities to take home, so that they can further develop their interest. This year:

- 96% of participants rated the events good or excellent
- 83% of participants reported that they felt more enthused by Electronics after attending
- 54% of those who weren't considering a career in Electronics, now are
- 42% of participants were from an ethnic minority, and 23% will be first in family to study at University

Renesas Award for Female Students

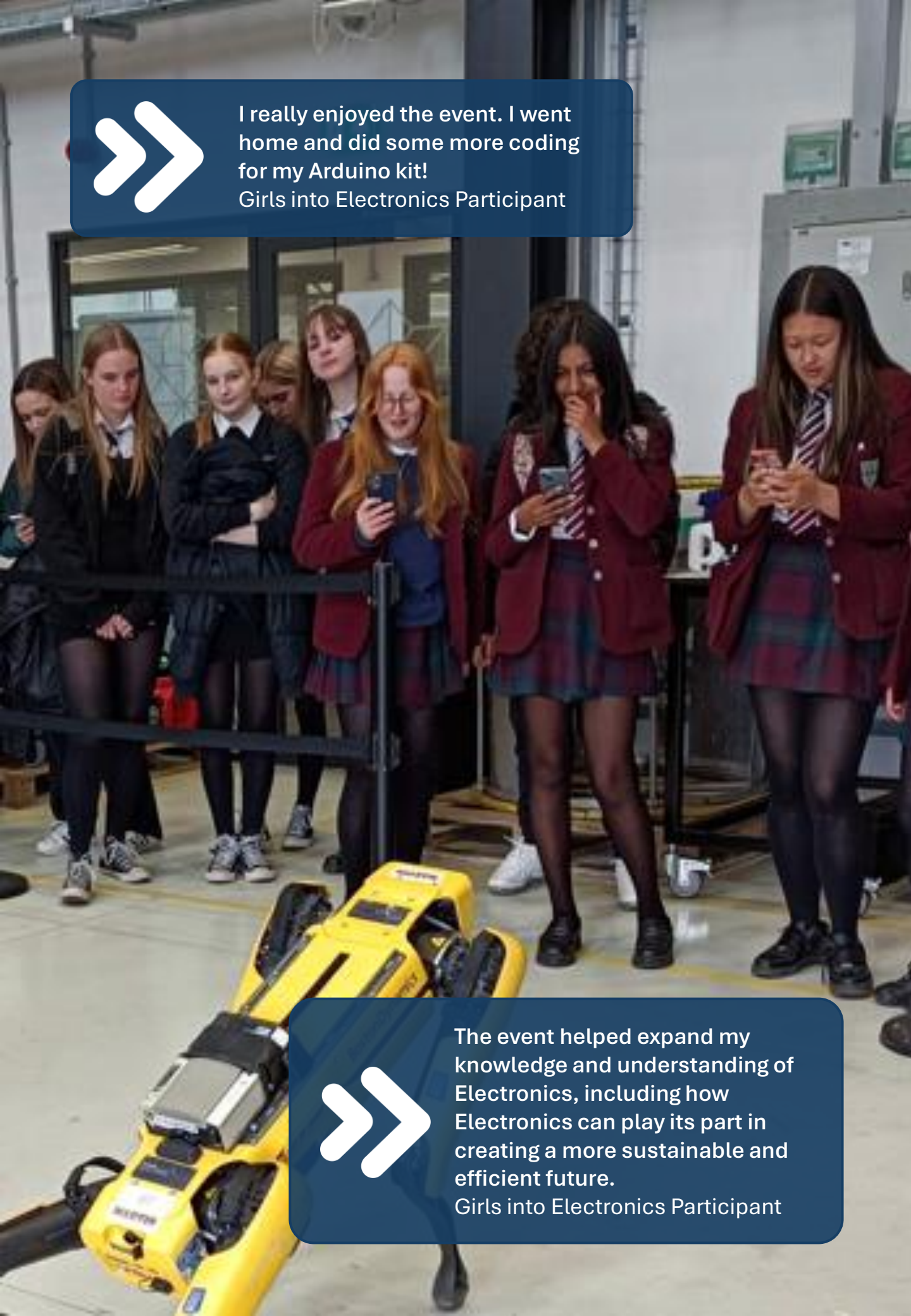
12 outstanding students recognised by Award

Sponsored by Renesas

This Award supports young women into their first year of university with a valuable summer placement at Renesas, and a bursary to support their studies.

"The UKESF Renesas Award has served me in many ways, bolstering my academic, professional and personal growth"
Arkapriya
University of Cambridge

"The UKESF Renesas Award has opened a multitude of doors for me to delve deeper into the fascinating realm of semiconductors"
Tianya
University of Cambridge



I really enjoyed the event. I went home and did some more coding for my Arduino kit!
Girls into Electronics Participant

The event helped expand my knowledge and understanding of Electronics, including how Electronics can play its part in creating a more sustainable and efficient future.
Girls into Electronics Participant

We have delivered an innovative, integrated programme for young people in Wales

Spark their Imagination Power their Future

Case study

- More than **200** pupils have attended ‘Demystifying Semiconductors’ events at Cardiff University, University of South Wales, Bangor University, University of Wales Trinity St David and Swansea University
- **24** pupils have been awarded the Welsh Sparc Award and will receive a £2,500 bursary and mentoring. 25% of recipients are female.
- **50** Welsh schools have received free resources

Delivering real impact in Wales in partnership with CSA Catapult and Innovate UK

“The purpose of this programme is to inspire the next generation of engineers and raise the profile of our industry. We are facing a workforce shortage, so we need to have interventions in place which will educate and inform young people about the opportunities that are available to them.

This project addresses that, but also offers information and resources to teachers and schools, careers information and opportunities to hear from industry as well as education, and crucially, it offers financial support to learners who want to go on to further study.

This multi-faceted approach will hopefully be a strong foundation for Wales to build upon and be an excellent case study for what could be implemented across the UK.”
Alex Leadley, CSA Catapult

“I really enjoyed this, it was very interesting and eye opening.”
Student participant

“It was a great day. There were a lot of presentations but hearing about the different education possibilities and careers in South Wales was important. The pupils really enjoyed the hands-on workshops”
Rhun Llwyd, Ysgol Bro Teifi

“We have received your kits and we are thrilled with them. Thank you ever so much for the opportunity to use such technology with our pupils - we really appreciate them.”
Jenna Williams, Radyr Comprehensive School

We have engaged school children with interactive resources to develop their interest in Electronics

Electronics Everywhere

Classroom resources sent to **111** Schools

We provide specially designed circuit boards to teach core Electronics concepts to A-level students in Physics (the Music Mixer) and Computer Science (the Logic & Arithmetic Kit), along with CPD for teachers, free to state schools. This year, these resources have been sent to 28 schools in areas of low progression to university. Since the launch of Electronics Everywhere in 2018, 860 schools have received our resources.

> **These are an absolutely fantastic resource that make teaching computation and logic so much fun.**
> Teacher

Insight into Electronics

276 Microcontrollers sent out to individuals and Schools

An opportunity to participate in self-paced, interactive Electronics and programming activities using a microcontroller. This resource is available to individuals to use at home, and teachers to use with their KS4/S4 pupils. To date, 2,134 Microcontroller kits have been given to schools and individuals.

> **I think it's an amazing tool, and a great beginners look at Arduino**
> Teacher

An Introduction to Electronics

450 people across the UK have signed up to our online course

This course is freely available on FutureLearn, and is an opportunity to prepare for further study and a career in the Electronics sector by exploring electronic technology in context.

- 97% of participants reported the course met, or exceeded their expectations
- 97% of participants reported that they learned new knowledge and skills

We are collaborating to provide opportunities for young people to enrich their studies

New opportunities for secondary students to achieve Electronics Awards

Silver Crest Awards in Electronics

We've developed two Silver Crest Awards for 14-18 year olds. Managed by the British Science Association, these awards are designed to stretch and enrich students' STEM studies. The Electronics Awards cover:

- Microcontrollers and sensors for innovation
- AI with Ethics

Extended Project Qualification in Electronics

We've also developed an EPQ to give students the opportunity to learn more about Electronics. It is an A level stand-alone qualification designed to extend students abilities beyond the A level syllabus.

Students will be able to participate in these Awards in the 2024/25 academic year.

Royal Institution STEM Masterclasses

We partnered with the Royal Institution to deliver two interactive and engaging Computer Science masterclasses, which were attended by 30 pupils. With the support of UKESF Scholars, the pupils participated in a microcontroller session and a drone competition.

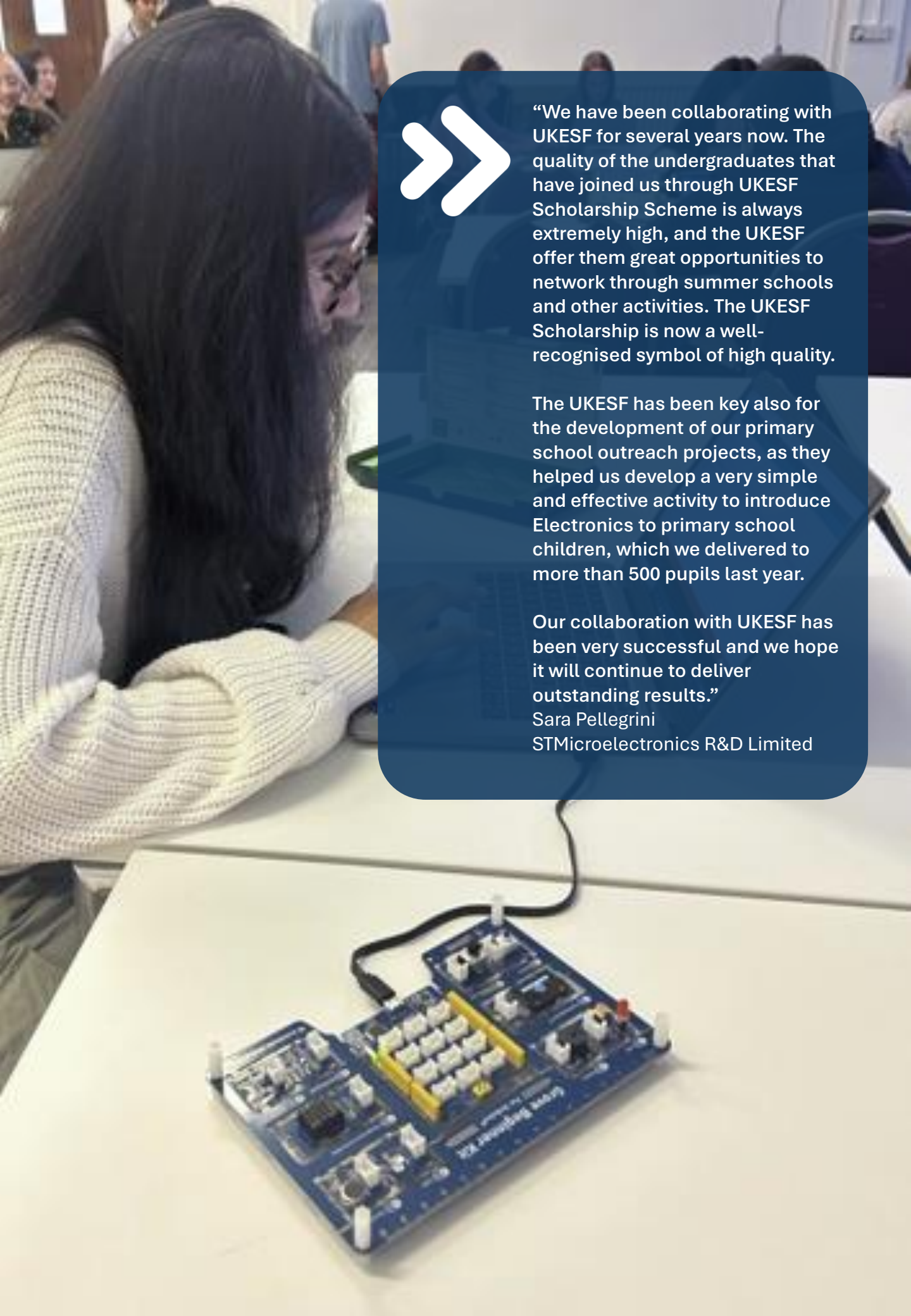
"It was VERY good"
Student participant

WES Student Conference

Sponsored by STMicroelectronics

For the 7th consecutive year, the UKESF arranged for final year female Scholars to attend the Women's Engineering Society (WES) Student Conference.

"Events like the WES conference help women feel part of a wider community. They show us that we are not alone in our experiences and are a really good opportunity to learn how we can better navigate our professional lives. These sorts of events are crucial in retaining female talent in the industry."
Qali Mahamoud
Aston University/CSA Catapult



“We have been collaborating with UKESF for several years now. The quality of the undergraduates that have joined us through UKESF Scholarship Scheme is always extremely high, and the UKESF offer them great opportunities to network through summer schools and other activities. The UKESF Scholarship is now a well-recognised symbol of high quality.

The UKESF has been key also for the development of our primary school outreach projects, as they helped us develop a very simple and effective activity to introduce Electronics to primary school children, which we delivered to more than 500 pupils last year.

Our collaboration with UKESF has been very successful and we hope it will continue to deliver outstanding results.”
Sara Pellegrini
STMicroelectronics R&D Limited

We are championing skills in Electronics

Raising awareness of the skills challenge, and championing solutions

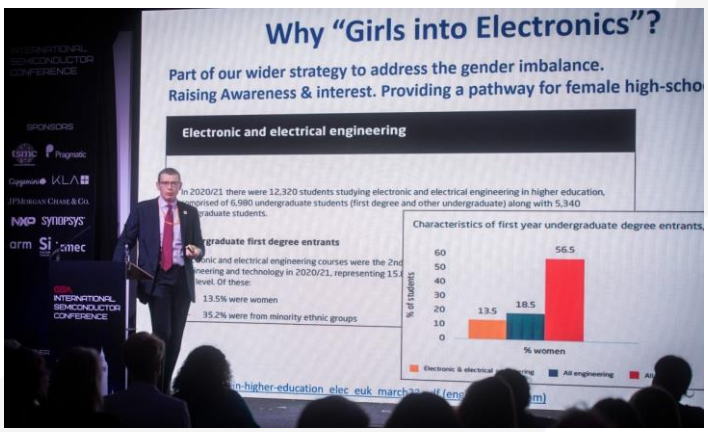
Stewart Edmondson is a member of the Department of Science, Innovation and Technology Semiconductor Skills Group.

In May, he was invited to join a roundtable discussion for the one-year anniversary of the Semiconductor Strategy, where he had the opportunity to highlight the importance of enthusing young people.

> **"For our semiconductor industry to thrive in the long term, we need a pipeline of UK talent and to increase the number of students studying Electronics at degree level."**
> Stewart Edmondson
> UK Electronics Skills Foundation

GSA International Semiconductor Conference

Nishika Chettry, Firmware/Middleware Engineer at Renesas and graduated UKESF Scholar, joined Stew Edmondson on stage at the Conference to talk about her journey from an undergraduate student to launching a career at Renesas, with the support of UKESF programmes.



We are championing skills in Electronics

UKESF Report

Are Electronics graduates meeting the needs of employers?

The report concludes that Electronics graduates are entering the workforce with technical skills that meet or exceed the expectations of employers, and that although graduates' non-technical skills vary, overall it is a positive picture.

- 82% of employers reported that technical knowledge met, or exceeded, expectations.
- 43% of employers felt that graduates had a good or reasonable knowledge of the business world.
- 65% of employers felt that graduates were very curious

External Reports

The Supply of Semiconductor Chips

We contributed to the POSTnote, Supply of Semiconductor Chips, by Debbie Woods and Devyani Gajjar. The document has been produced by Parliament, for Parliament, to provide a reliable and impartial overview of the industry. Our contribution has highlighted that:

- 80% of UK companies involved with chip design have unfilled vacancies
- Shortages in students studying relevant degrees, such as Electrical Engineering could hamper UK skills for chip design innovations
- The skills shortage can be addressed by raising awareness of the industry, increasing the number of people studying relevant degrees, and reducing immigration barriers for skilled STEM workers.

Future Capability Paper: Semiconductors for Telecoms

Under the leadership of our Trustee, Rupert Baines, we contributed to the chapter on Skills and Research. We support the report findings, which recommend:

- Set up a long-term, strategic, funded programme to address the skills shortage in Electronic Engineering
- Target funding for universities to deliver courses in strategically important degrees
- Encourage and support diversity in Electronic engineering
- Set up a ten-year national-level programme that builds the skills, talent and leadership in the UK for 21st-century engineering education and expertise.

We have won awards and gained industry recognition for our work

Women Leaders in Electronics Awards

The UKESF Scholarship Scheme wins the 2024 Diversity, Equity and Inclusion Programme of the Year Award.

UKESF Scholars and graduated Scholars were also finalists at the Awards, including Oana Lazar, Jasmine Brittan and Nishika Chettry. Vasiliki Georgia Xiradaki won the STEM Pioneer Rising Star Award.

Electronics Weekly Elektra Awards 2024

UKESF wins Educational Support Award for Girls into Electronics

We have celebrated our Scholars' successes

Scholar of the Year

The UKESF Scholar of the Year Award recognises:

- Exceptional academic performance
- Outstanding contribution to their sponsor company
- Participation in outreach and raising awareness of Electronics with young people.

2023 Winner

Matt Cossins
University of Nottingham
Capgemini Engineering

2023 Runners up

Calum Thow
Heriot-Watt University
Allegro MicroSystems

Vasiliki Xiradaki
University of Birmingham
EnSilica

UKESF Scholars win BrightSparks Awards

Jasmine Brittan, James Arnold, Richard Newman, Nyal Patel, Vasiliki Xiradaki , Matthew Cossins, Raymond Liu and Mary Kong received BrightSparks Awards in 2023.

To date 24 of our UKESF Scholars have been awarded BrightSparks.

We are engaging, inspiring and supporting future Electronics Engineers

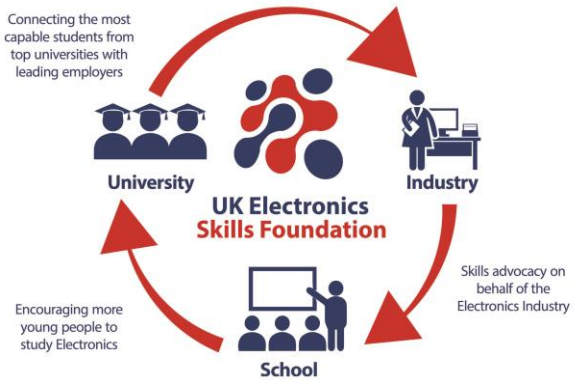
About Us

We are the voice for skills in the Electronics Industry.

Through engagement with Schools, Universities and Industry, it is our mission to encourage more young people to study Electronics and to pursue careers in the sector.

We are an independent charity working to address the skills gap in the UK Electronics sector through raising awareness, promoting interest in young people, supporting the development of those who choose electronics, and building relationships to ensure a thriving sector.

This can only be achieved by working collaboratively, and to date, we have worked with more than 90 employers from across the industry, 29 of the UK's leading universities, and over 800 schools.



Why What We Do is Important

The UK has a long heritage of technological innovation and has a world-class Electronics sector. It has the potential to grow and innovate to provide solutions to some of the biggest challenges facing society today. However, the demand for capable, employable Electronics Engineers and designers is currently outstripping supply.

Together we can tackle the skills shortage in Electronics

There are many ways you can help us to deliver greater impact, including:

- **Getting involved in our activities.** Explore **'What we do'** to find out more about our work and ways you can get involved through outreach, funding and volunteering.
- **Donating.** As a registered education charity, we are eligible to receive donations. Our work aims to provide practical, direct and engaging support to young people to help improve their awareness of Electronics and provide opportunities for skills development.
- **Supporting us as your Charity of the Year.** If your organisation appoints a Charity of the Year, consider choosing the UKESF and we will work with you to identify how we can use the funds you raise, or the time you can give, to support the next generation of Electronics engineers.

If you are able to help us to invest in the future of Electronics, get in touch at info@ukesf.org.

UK Electronics Skills Foundation

UK Electronics Skills Foundation

Find out how you can get involved in our work:

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