

TEEN#TECH®

AWARDS



MONDAY 20TH JUNE 2022  
IET LONDON

# WHAT THEY SAY...

We have learnt that working collectively - in a team - is a core part of being able to complete a project to the best of your abilities. This allows you to formulate even more suggestions and develop a stronger set of ideas, as you are able to give your opinions on each others' propositions. In turn, you are able to reinforce the quality of each other's input, which results in you creating the best game you possibly could.

**- Students, George Abbot School**

Ever since I was little, I have always wanted to be a programmer and to create my own game. The TeenTech Masterclasses really gave me an opportunity to make a start on my dream and to code my first games. As soon as I created this game I proudly shared it with my family and close friends. They absolutely loved it and I even inspired two of my friends to try coding as well. Having the opportunity to work on this project made me realise how much I love this field of technology. I always dreamt of becoming a great programmer one day and this project confirmed that this is my passion more than anything. I am looking forward to creating more games on a more advanced level in the near future.

**- Student**



When we started on this project we were hesitant that our idea was ever going to come together and that it wasn't as technical as others in our class. However we have learnt to trust our instincts and believe in ourselves and our capabilities.

**- Students**

During this project I have learned valuable and important lessons and rules that could be integrated into later products and projects, such as the organisation needed to compile ideas and sketches as well as how presentations should traditionally be laid out. Also I learned the crucial components that are needed to manufacture cameras and the names of those components. I have now understood what is needed to create a successful product by using large amounts of research and information to formulate a good base to build my product upon. It is important to understand your consumers and how life has changed the way that they act and feel.

**- Student**



While making this project, we have all realised that every single person can make a difference, whatever age. This is really encouraging when we think about the future. We have learnt how determined and passionate we all are to solve global warming and climate change.

**- Students**

## WELCOME FROM MAGGIE PHILBIN

We're delighted to welcome you to the tenth TeenTech Awards ceremony, a celebration of vibrant young talent from across the UK and beyond.

If you are a student, you should feel very proud to be here. Over 18,000 young people have participated in our innovation days, workshops and virtual festivals this year and your project is one of only sixty selected by our industry supporters for this special showcase at the IET.

If you are a teacher, parent or carer, thank you for being a powerful supporter, for providing so much encouragement and the most important thing of all - your time.

Today we're celebrating the ideas of young people to make life better, simpler, safer or more fun at a time when fresh thinking has never been more needed.

As a charity our mission is to be fully inclusive in our programmes, encouraging diversity and demonstrating careers in contemporary industry are for everyone. Students come from across the UK (and Europe). The TeenTech Awards consistently see a high number of entries from girls. This year 78 girls and 42 boys have reached the final.

Our exceptional industry supporters and mentors provide year-round inspiration. We are deeply grateful and we know they are looking forward to meeting and celebrating with you today.

We all know how much time and effort lies behind your work, especially while the pandemic has continued to cause so much anxiety and disruption.

You have demonstrated an ability to think big and bold, to look at the world in a different way and the sheer tenacity to see your project through. These personal qualities will stand you in great stead for the future.

Today is just the beginning.



### The TeenTech Awards Team

#### **Maggie Philbin**

Ali Maggs

Natasha Ramsden

Kathy Dare

Tom Walbrin

Beverley Tew

Nickie Philbin

Andy Wilson

Lauren Shea

#### **Dani Longhurst**

Kate Bevan

Bill Walker

Andy Moore

John Constable

Gia Milinovich

Courtney-Rose Seabrook

Maddie Seabrook

## WHO WE ARE AND WHAT WE DO

TeenTech was set up in 2008 to help young people understand the opportunities in the science, technology, digital and engineering industries, regardless of gender or social background.

We support companies, councils, colleges and universities, providing them with strategies of engagement and ways to develop approaches which work well with young people.

Our programmes are carefully planned to engage teachers and parents as they are the main influencers in career decisions.

We run a variety of sharply focussed initiatives providing students with a coherent, engaging pathway into the industries of the future.

Our Chief Executive, Maggie Philbin, was named Digital Leader of the Year 2016, Most Influential Woman in UKIT 2016 (Computer Weekly) and awarded an OBE in the 2017 New Year's Honours List for her work with TeenTech.

## OUR PROGRAMMES



Are you an innovator? Do you have an idea which could make life easier, simpler, safer or more fun? We want you to use your imagination to think creatively. This is a chance to ask "What if?" or even build a prototype of your idea. The TeenTech Awards are for students aged 11-16 (Years 7 to 11) and 17-19 (Years 12 to 13) working in teams of up to three to look at problems large and small to see if they can find a better way of doing things. This programme is supported by leading global science, technology and engineering companies.



TeenTech Innovation sessions bring the exciting world of science and technology to your school or home. Hosted by well-known science and technology reporters, our interactive sessions are fun, engaging and provide real context to learning, helping young people understand more about careers and the way exciting emerging technology is shaping all aspects of our lives. TeenTech Live meets Gatsby benchmarks and has been highly praised by teachers, parents and students.



This is our national programme for students aged 8 to 13 which surfaces the "invisible" jobs powering the modern digital city. Our planet requires a radical shift in the way we're going to live together. How can we use energy more efficiently? How can we plan infrastructure better? How can we move faster? How can we live healthier and happier lives? These challenges will require solutions from the next generation of scientists, thinkers and leaders. Welcome to the TeenTech City of Tomorrow.



Our new and exciting TeenTech Live Build Your Future programme helps students aged 11-19 understand exciting career opportunities in the connected cities of the future through fun, interactive and engaging live sessions, and challenges set by industry experts to develop your students' skills. The programme provides your students with access to industry experts from Arup and other local and global organisations.



TeenTech Festival days vary in size from innovation and technical workshops to large scale events bringing together students from 30-50 schools across a region with over 140 scientists, technologists and engineers from a wide range of companies for a day of challenges and experiments. We have measured the impact of events since 2008 and know there is a real shift in student perceptions, particularly amongst girls.

# Who we are and what we do

## TEENTECH IN NUMBERS

### Direct Reach

The number of students involved in TeenTech events every year, 50% male/50% female and of mixed ability:

> 18,000

### Indirect Reach

We estimate that through our whole school approach via teaching materials, Young TeenTech Ambassadors, assemblies and webpages this rises to:

> 75,000

### Live Events

Live, interactive, virtual events this academic year:

> 120



## OUR OUTCOMES

- Helps students refocus their thinking about school subject choices and to consider career paths they never knew existed
- Gives students confidence about their abilities they may not have found in the classroom
- Builds new relationships between schools and companies
- Our students are encouraged to become TeenTech ambassadors, sharing their experiences with other students, companies and at global conferences
- Changes student, teacher and parent perceptions about STEM and the people who work in it
- Enhances teachers' knowledge about industry and provides plenty of ideas to enrich lessons
- Makes companies aware of the talent in the classroom-some of our partners engage students in real-life projects
- Data from our initiatives informs and improves all our programmes and is widely shared at conferences, in reports and in the press

## OUR PARTNERS

We are completely funded by sponsorships and donations

We rely on a wide network of partners to deliver our events

We work with over 40 UK Universities and 350 companies – from global to start up.

## JUDGING THE TEENTECH AWARDS

The categories of the TeenTech Awards are designed to encourage students to explore the most important industries of the future, understand key global issues, develop skills and learn more about their own potential to succeed.

Students work on projects from the Autumn, developing ideas and then following a suggested structure to help them progress their thinking. Projects are submitted electronically at the end of the Spring term for judging by our sponsors and industry experts.

We asked the judges to look for original ideas and projects that demonstrated thorough research and presentation with a clear understanding of the potential market. Students are asked to prove that they had sought-out and contacted industry experts and worked with them, in the spirit of global collaboration.

Judges awarded Contender, Bronze, Silver and Gold certificates plus individual feedback to each and every participant in the process. The leading projects in each category have been invited to showcase their work to judges and their videos will be shown today.

### Guest Judges and Presenters

Alongside our sponsor judges we are indebted to the following:

Samuel Ramesh  
Student

Sophie Kelley  
Student

Liz Bonnin  
Science, Wildlife and Natural History Presenter

Professor Jim Al-Khalili  
Theoretical Physicist, Author and Broadcaster

Dr Suzie Imber  
Planetary Scientist and Science Communicator, University of Leicester

LJ Rich  
TV and Radio Presenter

Dallas Campbell  
Broadcaster, Speaker and Author

Rory Cellan-Jones  
Technology Journalist and Health Blogger

Stephen McGann  
Actor, Author and Science Communicator

Spencer Kelly  
BBC Reporter and BBC Click

Kate Russell  
Technology Reporter and Author

Dr Jessica Wade  
Physicist, Author and Campaigner

Kate Bevan  
Infosys

Harry McVeigh  
White Lies

Suze Jundu  
Nanochemist, Science Communicator

Brian Brackenborough  
Channel 4

James Morris  
Pathway Director, MA Interactive Journalism, City University

Miles Berry  
University of Roehampton

Ruth Seabrook  
Principal Lecturer, School of Education, University of Roehampton

Andy Sumpter  
Retail Consultant, ShopperTrak

Claire Charlton  
Head W2, Wincanton

Luke Robinson  
H&S Programme, Strategy and Innovation Manager, Wincanton

Andrew Laughlin  
Principal Researcher, Which?

Jane Frankland  
Entrepreneur, Author, Speaker and Women's Change Agent

Yvette Newbatt  
Higher Scientific Officer, the Institute of Cancer Research

Tom Boggis  
Principal Game Designer, Ubisoft Reflections

Lisa Bingley  
MTI Operations Director

Teresa Hunt

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## **Welcome by Maggie Philbin, CEO TeenTech Charity**

### **Presentation of Awards**

**Compères:** We are delighted to welcome TeenTech Award alumni, Sophie and Samuel, to host the ceremony.

### **SKILLS FOR TOMORROW'S WORLD: TEAMWORK**

Understanding how to build and work well as a team is a crucial skill. This award recognises the students who demonstrated the ability to work well together, especially at a time when this meant working virtually.

### **ENERGY AND ENVIRONMENT - SUPPORTED BY AWS**

#### **CAN WE GENERATE ENERGY USING A BIKE? BY NATALIA AND GEORGINA**

An investigation into renewable sources of energy, and how to use them to generate power using a bike, to fully charge a phone. Looking at how each of these renewable resources work, we have constructed ways to use them so that the spinning wheels of a bike can generate electricity.

#### **THE CRACKS IN OUR ATMOSPHERE BY AJDIN AND OMAR**

This project was made to recirculate and purify the air found in and around homes or larger complexes where pollution is especially prevalent. With the combination of HEPA filters, cyanobacteria (a photosynthetic bacteria) and an ionizer this project was successfully able to decrease quantities of particulate matter and carbon dioxide. The former causes many premature deaths and the latter is a notorious contributor to global warming. Its size is quite large but its practicality and efficiency were properly measured with an added sensor that would display particulate matter traces and an app that would translate that data into readable and understandable measures of air safety.

#### **IMPERISHABLE JIGGLE BY CLAUDIA, ELISA AND SYLVIE**

Imperishable Jiggle – This is a fidget device that uses the energy from the user fidgeting to power a set of LED lights. This means that people can use their own energy to create energy! It is environmentally friendly and raises awareness of energy use.

#### **MICROS KOSMOS BY MAARIYAH, MARYAM AND TRINUHA**

Our sustainable house design gives people disabled people the help they need to be able to live independently without the need for full time carers or helper. All the materials used to build our house are made from recyclable materials and the energy used to power it is renewable. If people started building sustainable homes like ours, we would help solve the London housing crisis and at the same time reduce the impact climate changes has on our environment

**WEARABLE TECHNOLOGY****ARTHRITIS BY ELLA**

A jacket designed to support a wide range of people who suffer with arthritis, utilising wearable heat technology and carbon fibre.

**CAPTIOSUS RING BY ARCHIE, JAMIE AND THOMAS**

A waterproof ring that unlocks doors and performs contactless payments.

**HAT HELMET BY SCARLETT**

I have designed a helmet that is aesthetically pleasing that people will want to wear.

**SMARTGILL BY MICHELLE, SIMAKADA AND TANISHA**

An underwater Oxygen tank that can release O<sub>2</sub> by Electrolyzing water, this would allow for unlimited Oxygen in comparison to the current tank, which is limited to up to 3 hours.

**SMART EYES BY MATTHEW AND KAI**

A lightweight and easy to use pair of smart glasses designed for people with visual impairments, the aim being to give them more independence.

**THE BUG BY JENIFFERR, MEGHNA AND SIYA**

Our project is an easy-to-use, quick solution to the prominent problem of dehydration during exercise. Many people who participate in low intensity workouts or do casual exercise often do not realise their water intake is not high enough. Our project is an innovative and fashionable way to tell you when to drink more water through a sweatband. The sweatband measures your pH and depending on that, the amount of water needed to drink is given.

**FUTURE OF TRANSPORT****AQUARIA BY AYESHA AND SALHA**

A car design that will be powered through two types of renewable energy resources: solar power and rain-water. The aim was to make a more sustainable form of public transport, that would lessen the impact of global warming and climate change.

**BALE AND MANURE FORK BY INIGO**

My product is innovative because it combines two jobs into one. On most farms you have many different attachments for you telehandler, these include bale spikes and muck forks. My product will mean that farmers will not need to change attachment enabling the farmer to be able to pick up and move stacks of up to a stack of 3 big square bales at a time. You would also be able to move manure.

**PORTABLE WHEELCHAIR RAMP BY ALISHA, GURCHARAN AND NIAMH**

We have designed a portable wheelchair ramp to help wheelchair users travel independently using a ramp to go upstairs.

**SIT SNOW BY GEORGE**

My product is aimed at people who no longer have the use of their legs to experience snowboarding. It is an alternative to the current mono ski design that uses a single ski in the centre and 2 rods with skis on each end. I want all disabled skiers to be independent.

**TRAVEL EASY BY ANYA AND ZOE**

A complete travel app that helps you pack appropriately.

**HEALTH - SUPPORTED BY GSK****DOCTRINA LINGUA BY CHLOE, KATHRYN AND BAILEY**

An app to help the visually-impaired and deaf community communicate with others in a friendly and accessible manner. Its aim is to guide others who are attempting to learn how to communicate in Braille, British Sign Language and Morse. Our app will include a translator feature, help with simple nouns/adjectives and grammatical help.

**ESCAPING PANIC BY LISA**

A product to help someone calm down from the worst of a panic attack and to help someone feel more secure when going outside into uncontrolled situations.

**LOCKDOWN HOCKEY BY MIA**

As a hockey player myself, I found that over the COVID lockdowns, being able to practice realistically was an issue that was also found by fellow hockey players. I created this product to allow people to practice either alone, or in training when they don't have a goalkeeper present, meaning that people can carry out realistic practice, if we were to go into lockdown again

**PRECISE CLEAN BY EMILY AND LILY**

A toothbrush designed to reduce damage to teeth. Using too much toothpaste can cause dental fluorosis as it contains fluoride which causes changes in the appearance of teeth before they have developed into adult teeth. Our design tackles this problem.

**SAFETY AND SECURITY****ACCOUNT PROTECTION ID BY SAM**

A new process for ensuring email authenticity via a system to protect any number of accounts that have an email address linked to them. It would work to protect against phishing attempts or just as verification.

**FLYING FIRE FIGHTER BY PARTH AND SRIJIT**

A safety drone designed to locate and distinguish fires in remote areas or high buildings.

**TBUDDY BY ACSA, NOOR AND YUAN**

An app and website designed for pupils travelling by the train for long periods of time that calculates the interchange between two or more people and makes them get off at that stop so they can travel the rest of the journey together.

**UNITE HOMELESS SOLIDARITY BY PARIS**

A coat designed not only to support and protect the homeless but also as coat to be worn in solidarity with the homeless and provide funds for the charity to allow provision of the coats to the homeless.

**SKILLS FOR TOMORROW'S WORLD: THINKING BIG AND BOLD**

Being able to think differently and having the courage to consider new ways of doing things is a highly valuable skill. It often means taking a risk and having the courage to fail and then try again. This award recognises students who have looked at the world and considered fresh solutions.

**DIGITAL SKILLS - SUPPORTED BY BT****MYSNOOKER BY VIDYA**

A p5.js based two person online game. It simulates a pool table in which a cue ball is used to strike coloured balls with the aim of pocketing them. Different colours give different points. Two players alternate and aim to collect maximum points by the end of the game which is marked by pocketing all balls.

**PRISONER OF THE DEAD BY HORATIO**

I wanted to make a short film in the style of Dungeons and Dragons with the undead. I had to learn a lot of new digital skills including digital photography and filming, OBS Studio for screen recording, using Minecraft for pre-visualisation, time-lapse, stop motion, camera movement, adding music, adding voiceover, adding text, 3D printing and lots of footage editing skills in kdenlive - even learning how to use google slides to prepare my videos. I had to learn to deal with issues such as lighting and shadows and make compromises to get my project finished on time. In addition, I had to learn a lot of new real-world skills such as building dioramas, new painting and texturing techniques, planning and storyboarding, adding greenery to make my build feel real, improving my speaking skills and taking on feedback!

**SECURIFY BY WINTA, ISHITA AND NONG**

Our objective was to develop a non-profitable app to aid the prevention of cyber attacks, the app is primarily targeted at senior citizens. Our app gives detailed advice on topics surrounding cyber crime to help elderly people on how to navigate the internet more safely and therefore reduce the chance of cyber criminals targeting them.

**BEST INNOVATION (YEARS 7-11) - SUPPORTED BY NETWORK RAIL****ADHD VEST BY JESSICA, RAMINA AND SOPHIA**

We came up with the ADHD vest to address the struggles of those with ADHD who do not want to use medication for various reasons such as fear of side effects. We designed a vest that uses a wearable system because it is discrete and unique.

**HOW FUNGHI CAN BE USED TO IMPROVE THE TRANSPORT SYSTEM BY MARK**

A look at the many ways that fungi could be used to improve the transport system, including microfiltration, bioluminescence and road maintenance, safety and planning.

**THE SAFETY KEYCHAIN BY SADÉ, SKYE AND ROSIE**

Our product can track your whereabouts and send for help relevant to the degree of danger you are feeling. It can be linked to Parents'/Carers' phones and the police and is ideal for children especially who don't have mobile phones. It has a built in camera to record location and incident and could have a voice response to give immediate advice.

**VIRTUAL HEALTH – MADE IN MIND BY JOSEPH, LAUREN AND STEPHANIE**

Despite two decades of government funding towards ageing research, there are currently no effective interventions to tackle muscle wasting with ageing. Abi has designed an intervention to delay muscle wasting and thereby increase quality of life for all.

**BEST INNOVATION (YEARS 12-13)****AGRIPOD BY ADITYA, ALI AND LUCAS**

Our project, aimed at farmers in India, uses a small coffee-cup-sized sensor to collect information about the soil in their fields. Once the pods are set up, they use solar panels for power and don't need to be touched. We can then send the farmer a text when it's the perfect time to apply fertiliser which saves them money and stops unused fertiliser damaging the environment.

**BURGLAR ALARM BY FINLEY**

A security system that could be adapted for various uses. The system is a form of burglar alarm which can be attached to cars, houses or other gadgets of value. When an intruder is detected the device sends a message to your phone alerting you to the fact.

**BE IN THE DRIVERS SEAT BY MADDIE**

My design is a product which will help people who struggle with limited use of their hands or specifically people who have Dupuytren's contracture. Doing everyday simple tasks can become hard so my product will help people to complete these tasks with ease and confidence without causing further injury and pain to the affected fingers, and to help people become more confident and positive about their condition.

**RECIPROTECT – A SOLUTION TO HAVS BY AKHIL, ANOJ AND KELVIN**

Hand-Arm-Vibration Syndrome (HAVS) is an irreversible condition that affects the hands and arms of sufferers caused by continuous exposure to vibrating surfaces or hand tools. Our project aims to prevent the development of HAVS in the hands and arms of users by reducing the vibrations that are felt, specifically when using a reciprocating saw.

**SKILLS FOR TOMORROW'S WORLD: TENACITY**

Having the inner strength to keep going, even when you hit problems is a real skill for life. Students celebrated in this category have found ways to overcome obstacles, whether caused by practical challenges of building prototypes or the testing circumstances of COVID-19.

**FOOD AND RETAIL****CUSTOM DESIGN BY BETHANY, FILIP AND NIAMH**

A specialised app that focuses on creating a shopping experience that is easy for everyone. The app was designed to allow customers the option to buy what they see on the tv straight off their phones by using QR codes.

**FRUITAGE BY MIRANDA AND KANDARA**

Our project is a small kitchen device that we hope to make widely available to the public in supermarkets across the UK. Fruitage is a small electronic device, which can be placed in your fruit bowl, and its purpose is to detect how ripe your fruit and vegetables are.

**SUPERSCANNER BY JOSHUA AND DEXTER**

A scanner that identifies different ingredients from a label to help people select food who have intolerances due to health or religious reasons.

**CREATIVE AND DIGITAL MEDIA****JUNGLE ESCAPE BY CALLUM, HANA AND OLIVER**

Jungle Escape is an exciting and innovative game that encapsulates elements of collaboration, creativity and exploration while providing an engaging experience for its players. As you complete levels, you are brought upwards through several layers, such as a rainforest would have in the real world. You can play collaboratively or competitively. Your aim as a player is to progress through the different levels and escape the jungle. This project embraces gender inclusivity by having gender-neutral characters, which can be customised to reflect the player. This project is designed to spread awareness of the catastrophic damage sweeping over Earth's landscapes, particularly the destruction in rainforests.

**COSMIC COWBOYS BY HAMZA**

A 2D Platformer game that I have designed about a gang of space cowboys.

**THE WALK BY AVA**

My idea for my animation is a person reliving their key memories. I thought about how I could show this and I decided on them walking down a corridor passing pictures of the memories. I wanted to show how the person was feeling when they saw the memories. The end of the animation is in the present and they are happy. I wanted the animation's message to be that you are never on your own.

**LOOK AT MY DRAWING BY LUISA**

A short and simple animation about a character that sketches on a bench and then shows it to their friend.

**MY BLENDER ANIMATIONS BY ETHAN**

I started with 2D animation and really wanted to develop 3D animation skills and discovered the software Blender. I experimented with different special effects, including moving hair particles and water animation. I had fun learning about reflections, procedural materials and keyframe animation. I had to learn to use a number of different open-source software packages. Each product is represented in my logo, including Blender, Gimp and Kdenlive. The open-source movement enabled me to develop my project by giving me access to high quality software for free.

**GIFT FINDER BY ALEX, ELLEN AND KARYN**

Our project is an app we have designed to make buying gifts easier and more enjoyable!

**BEST RESEARCH****PETER THE DOG POO COLLECTION ROBOT BY ISABELLE, ANTOINE AND INIGO**

Our idea is a robot dedicated to collecting dog waste. There are too many careless dog owners who don't pick up their dog's waste which we have seen in our local park. So, we decided to design a robot to pick it up for them, keeping the park clean and improving the experience for park-goers.

**SAFETY SHELL BY JAIMIE, KIRI AND MARTHA**

A safety jacket designed in response to the current humanitarian crisis in Ukraine. We wanted to design a product to help people evacuate quickly and safely with their essentials.

**STRUDEL BY BESSY, FAITH AND IMOGEN**

An app designed to balance work and wellbeing. The student can input wellbeing activities and balance them with homework/preps and revision. The teacher can only set a limited amount of prep so that the work completed is not too long. Lots of features included to allow conversations between learners and teacher.

**FASHION SAFETY JACKET BY EMMA**

A fashionable way to ensure women feel safe whilst in town centres.

**SELF LACING SHOE BY TED**

My product is a shoe that self ties around the Talus (top of the foot) using a band that gets pulled by a small motor this will help people with prosthetic legs as they must take their whole leg off just to tie an ordinary shoe. The shoe will also have a heel that moves forward and back so the shoe just drops off my product also will have an app that you can tighten and loosen the shoe from, the app will also count all your steps and movement these are unique feature they will make it easier for my client to put the shoe on and eliminates the use of a shoe-horn. All these features will also make it so the whole leg doesn't have to come off when doing such a simple task like putting a shoe on.

**TEACHING AID FOR THE BLIND BY ARJUN**

Blind and visually impaired children struggle from a young age with school work, maths being one of these main subjects. My teaching aid is a game I have designed for children aged 4-6 to help them with basic maths skills in a fun way.

**WORKING HEALTHY BY LUCY**

My project aims to renovate the way people work from home. During lockdown, many people have converted to home working. Employees are spending increased hours inside, unequipped with the necessary resources to do their job comfortably. My design aims to tackle this directly by providing an outdoor workspace, accessible for use all year round.

**DATA SCIENCE - SUPPORTED BY ACCENTURE****DYNAMIC DELIVERIES BY MADDIE AND SOPHIE**

The delivery food industry is exploding worldwide but it has a fundamental flaw - nobody likes cold take-out! We have designed a bicycle dynamo connected to batteries and a heating element in the bottom of the delivery box to keep food warm.

**PUPIL WELL-BEING DATA ANALYSIS BY NATHAN**

I created a python script to analyse data regarding pupil well-being. The data for pupil well-being was collected and put into an excel spreadsheet which was linked to my python script as a csv file. My python script then made sure the data was put into a simple readable format making it easier to establish relationships between different apparatuses. This was done by using the pip extensions "pandas" and "numpy".

**SCHOOL IMPROVEMENT SCHEME BY JAMES, FERGUS AND NIKITA**

Our idea was about using the provided datasets to work out ways to improve the school system. We used graphs made using Data Visualisation techniques in Python that showed relationships in the data.

**SKILLS FOR TOMORROW'S WORLD: COMMUNICATION**

This award celebrates students who have been able to clearly communicate their ideas, whether in written, oral or visual ways. This is such a vital skill – it doesn't matter how strong your idea is, if you can't find a way of letting others know.

**DESIGN AND CONSTRUCTION - SUPPORTED BY ATKINS****TEENSPACE PROJECT BY ISABEL AND MASA**

A space for teenage girls to exercise and relax, hang out with friends safely without having to worry about failing with judgement.

**SELF SPOTTER BY WILL**

A replacement for having somebody assist you while lifting in the gym and as an assistant for recovery from a permanent or healing injury. The self spotter uses a mix of hydraulics and voice activation systems which enable it to support the user when required but to be deactivated when not needed. The product attaches to the body part/s the user is working and supports it reducing the risk of injury.

**BRIGHTER FUTURE BY AUNNA**

A Street lamp that decomposes dog waste or any animal waste and turns it into energy lighting up the streetlight. The dog owner would put the waste into a orange bin that is connect to the lamp, the lamp will decompose the waste and turn it into energy saving both energy and the environment.

## EDUCATION

### LEARNSTYL BY JOSEPH

An educational app that uses the 5 types of learning: Auditory, Oral, Reading, Visual and Writing. Students log in with some details about their year group and subject they want to learn about. This then sends them to five options - the five learning types. This is helpful because people learn in different ways.

### PHOENIX TEACH BY TANVIR

A drone project that will be able to help to bring education to areas and individuals disconnected from the world of learning because of geographical isolation, culture, health or political circumstance

### ALT.RUIST BY NAS AND TOBY

A video game that is also a teaching tool designed to educate young people about a variety of mental health issues while remaining stimulating, engaging, and enjoyable.

### CURIOUS CREST COLLECTOR BY IAN

A modern device to sort out, categorize, and count crests (awards) given out to primary school children. The machine motivates the students to work harder to get more crests (awards) as they can see how many their class has earned at any time during the year. Promotes teamwork to earn more and study harder.

## SKILLS FOR TOMORROW'S WORLD: WORKING WELL WITH INDUSTRY

TeenTech actively encourages and supports students to seek feedback and advice from industry experts. Looking beyond your own experience will always make a project stronger and is also a way to build a very useful network for the future. All the teams celebrated in this category have made a serious effort to do this and embrace suggestions and ideas.

## TEACHER OF THE YEAR

TeenTech appreciate that behind every student project entered for the TeenTech Awards lies the dedication, time and organisational skills of a teacher, technician, librarian or assistant who has taken on the considerable extra work and planning that participation involves. There will be an individual award for a teacher who we believe has shown exceptional imagination and dedication to help their students.

Carol Ezis – Derby Moor Academy

Julie Simmons – George Abbot School

Amica Crnkć – Richmond Park International Secondary School, Sarajevo

Ikran Muhamed – The BRIT School

Rose Russell – The Ursuline Academy

Simon Rossiter – Warminster School

## PEOPLE'S CHOICE

Every school has been asked to vote for a team other than their own.

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## OUR PARTNERS

### ACCENTURE

Serina Allen, Data Science Specialist at Accenture AI

"The data science team at Accenture embeds AI-powered data, analytics and automation capabilities, together with modern cloud and computing technologies, to help companies improve their performance, ensuring that we design for the responsible use of data and AI. There is a clear role for businesses to work with schools and higher education institutions to raise awareness of exciting data science career opportunities and help ensure the skills taught during education are relevant for the workplace. This is a role that Accenture takes seriously, and we have worked on several initiatives aimed at students of all ages to demonstrate the value of data analytics skills and data science careers. TeenTech is the perfect platform to help further these goals and support our passion to help the next generation through inspiring, educating, and equipping them with the needed skills to succeed in the future."

### ATKINS, MEMBER OF THE SNC LAVALIN GROUP

Beth Fitzpatrick, Systems Engineer, ADS&T

"As an industry, it's our responsibility to inspire young people to think about the role they can play in shaping the world's greener, better tomorrow – in the dramatically changing environment that we have experienced over the past few years. We must tell an exciting story about doing great things and making a difference; we must share knowledge, experience, and passion; bringing Science, Technology, Engineering and Maths to life."

Working with Teentech, and sponsoring the Design and Construction award especially, has given us an incredible platform to reach out across the UK and inspire the next generation of engineers, designers and project managers. The Teentech awards fosters the imagination of young people to start their own journeys in this exciting field; bringing people and vital new ideas into the industry. A sustainable, greener future is only achievable with incredible work like this to inspire the next generation."

## AMAZON WEB SERVICES

Anson Lai, Senior Campaigns Manager

"We are committed to inspiring the future generations of technologists, and encouraging equitable access to careers in technology. Working with TeenTech we hope to dispel some of the misconceptions young people have and ignite their interest in STEM subjects. We are very excited to help the next generation of creative thinkers and future builders find their path by participating in the TeenTech Awards."

## BT

Professor Kerensa Jennings, Senior Adviser, Digital Impact

"There has never been a more important time to spark the imaginations of young people with the possibilities and opportunities of the digital world. The disruption of the global pandemic has caused untold suffering and pain for so many. But through it all, TeenTech has been nurturing and inspiring young minds to invent the cities of tomorrow, and to design tech solutions for the good of people and the planet. BT Skills for Tomorrow is helping millions and millions of children make the most of life in the digital world. Collaborating with TeenTech, our own colleagues get the chance to share their talent and excitement about the world of tech, while also learning from the young people we are helping."

BT is proud to support the TeenTech Awards and through BT Skills for Tomorrow sponsors the TeenTech Digital Skills Award. All of this year's BT graduates are involved, as well as a wide range of BT experts in IoT, AI, cyber and engineering. We've loved helped with events, mentoring and judging, and have seen first hand how much the students have grown in confidence through the experience. We've also seen how thoughtful the TeenTech team have been in the way they support teachers and parents, particularly in the most disadvantaged areas of the UK and among underrepresented groups. BT is immensely proud to be partnering with an organisation that is doing so much to help empower the engineers, tech stars, digital champions and STEM leaders of tomorrow."

## GSK

Dr Kate Stockman, Pain Category Lead, Senior Director Global Regulatory Affairs

"What an honour it has been to judge the Teentech awards this year. All of the innovation ideas showed great creativity and scientific curiosity. It was so rewarding to see how engaged the students were with their projects and I hope this inspires many to consider a career in life sciences/healthcare in the future!"

## NETWORK RAIL

"We are encouraging more people into STEM and that's why we're getting involved in initiatives that bring the sector to life and help stimulate young people's creativity and inquisitiveness. We are delighted to support TeenTech, and to be part of the growing number of key industry partners. The programme enables young people to meet our role models to find out more about career opportunities, learn about our exciting and innovative projects making it an industry and career choice they aspire to work in, giving Network Rail the opportunity to engage with the next generation of inventors and engineers."

## THANK YOU

Along with our sponsors we would like to thank the following, who have given their time and talent to make the TeenTech Awards a very special day:

Ali Maggs, Tom Walbrin and Harry Ortman for their design work across our Awards materials.

PA Consulting for 3D printing our Awards.

Over 300 companies and 40 Universities are now working with TeenTech but we would like to especially thank the following who have provided exceptional support for students projects.

### Companies

Accenture  
ARUP  
BT  
Broadcom  
Atkins Global  
Chaos Created  
Dropbox  
GSK  
Institute of Cancer Research  
Macquarie  
Royal National Orthopaedic Hospital  
Science & Technology Facilities Council  
Sprinkl  
Thatcham Research  
The Worshipful Company of Fuellers

### Schools

St. Stephen's High School and George Abbot School for providing student volunteers on the day.

### Universities

Advanced Manufacturing & Engineering,  
University of Coventry  
Birmingham City University  
Bristol Robotics Lab, University of Bristol  
The University of Bath  
The University of Cardiff  
The University of Central Lancashire  
The University of Exeter  
The University of Manchester  
The University of Nottingham – Faculty of Engineering  
The University of Oxford  
The University of Leicester  
The University of London, Queen Mary's College  
The University of Portsmouth  
The University of York St John  
The University of Roehampton  
The University of Teeside  
The University of Wales  
The University of Warwick  
York St John University  
Stanford University

**And of course, thank you, for making the TeenTech Awards so very memorable. We look forward to seeing you again in 2023.**

# WHAT THEY SAY...

It was lovely to work in a team because it allowed us to learn from each other and develop our communication and teamwork skills. We were able to elaborate on each other's ideas and really ensure our project was the best it could be. We all had different perspectives on the project and this was amazingly helpful because we were able to tackle the problem from different angles allowing us to ensure we had covered everything possible.

**- Student**



Teen Tech has really given me motivation and inspiration. For every opportunity I see, I've learnt to take it and experience it because at the end of the day I have nothing to lose and everything to gain from it. This project has motivated me to be the best version of myself while working or doing anything really, and I am very grateful for that.

**- Student**

We focussed on this idea because we are the only group of girls in an entire class of boys. We wanted to break the stereotype of only boys coding as people assume only boys do ICT and gaming.

**- Student**

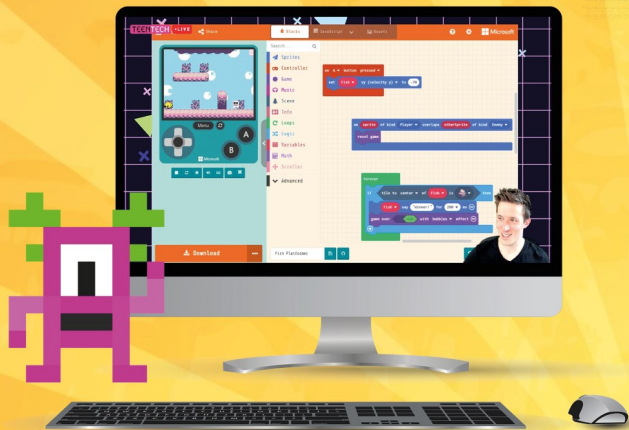


TeenTech has truly opened our eyes to see that if we think it, we can make it. We have been able to demonstrate our commitment and passion through the duration of this project. Although we have faced many obstacles along the way we are very grateful for each other's reliability and trust. It has been a very challenging process but was exciting and helped each of us learn something, nevertheless. We have taken much from the whole project, from independence, collaboration, and strong teamwork. TeenTech has completely changed our outlook on STEM. It has challenged our curious minds. It has taught us about responsibility through carrying out the project independently and taught us how to manage our time. It has made one of us look deeper into a career choice in STEM- engineering.

**- Student**

# SUMMER MASTERCLASSES

SUPPORTED BY



## LEARN HOW TO CODE! AUGUST 8TH - 11TH

Join us each morning for a different coding activity led by an app and game developer. This free course is suitable for absolute beginners who have never coded before who want to understand the concepts behind programming and creating apps and games. We'll be doing some fun block coding projects, creating some fun games and learning the fundamentals of programming!

## MAKE AN ANIMATION AUGUST 15TH - 18TH

Have you ever wanted to create an animation? Join us for a special week of free animation activities during the Summer holidays. We'll help you create your own stop-frame animation with help from industry experts from film, television and gaming. The course is suitable for absolute beginners who want to understand the concepts behind planning and creating animations.



- Engaging, highly interactive. Students can safely ask questions live and even receive support from our course leaders.
- Our TeenTech Live Innovation sessions feature experts that work in the industries we cover.
- All our coding tutorials will use free, browser-based software and our animation tutorials will use free apps and software.
- Ongoing industry support from mentors for projects schools wish to enter for the TeenTech Awards 2023, including the Creative Media category.

"I had a passion to be a game designer but I didn't think I could do it. TeenTech has helped me develop my skills and helped me create a game that I enjoy.  
Thank You."  
- Student

"This has been an amazing experience and I have definitely had a deeper dive into the world of tech."  
- Student

Teachers: You can register for these sessions as a teacher and share the joining link directly with your students (via your internal school platforms), so they can watch and code along from home. Our joining links are open links, and students do not need to have a TeenTech account to take part - they can simply click the joining link.

Parents/Carers/Students: Parents (and students aged 16+) can register for these sessions to access these sessions from home.



# TEENTECH.COM/SUMMER