YOUNG ICT Explorers

2024 Year 3 – 4

Toni Reid

Senior Product Marketing Specialist, ISBN – APAC

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Third Place

3 – 4

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Kilkenny Primary School

South Australia

Noise Detector

Team Members

Ruairidh Fraser, Olive Partridge, Finn Grondsma, Jess Rohde

Project Summary

We are working on a device that detects the sound of what part of assembly has the most noise. In are assembly we have noticed that the noise level gets so high that people block there ear's, our solution could help kids who have sensitive ears.We are using a microbit to code it and make a special case around it so it can be moved safely into assembly. The Noise Detector is portable and will set off a light alert if the noise level gets too high.

Year 3 - 4

Age Division

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Second Place

3 – 4

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Gaayip-Yagila Primary School

Victoria

Smart Farma

Team Members

Aradhya Devgan, Cleo Dafopoulos, Rehatnoor Kaur Ghuman

Project Summary

Today's climate change is influenced by many factors, but our food and agricultural practices are often overlooked. Food waste, livestock manure and nitrogen-based fertilizers emit greenhouse gases, specifically nitrous oxide which contributes to 17% of Australia's Greenhouse gas emissions Over-watering due to irrigation in rainy and wet conditions is a major source for N2O due to more fertilizer being moved under the roots and leading to root rotting. To address this problem, we have developed a 'Smart Farma' robot that will help the farmers make decisions based on current weather conditions in their suburbs. Smart Farma reads real-time weather data from cloud and displays whether it is Sunny or Rainy with visual indicators on the LED matrix.

GAAYIP-YAGILA PRIMARY SCHOOL

Year 3 - 4

Age Division

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First Place

3 – 4

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Good News Lutheran School

South East Queensland

Backpack Scanner

Team Members

Harry Hoyes, Arthur Thompson

Project Summary

A lot of students come to school disorganised, and they can't do their daily activities and/or learning. Kids forget to pack their bags properly and so they don't bring to school all the materials and equipment that they need. Our idea is a packed bag checker. This device will have your daily school schedule programmed in it. As you scan your bag, it will check all the items in your bag against your schedule to see if you have forgotten anything. We coded a device that makes an alarm sound when you don't have all of the things you need to have to be prepared for school. We connected RFID tags to different items so that when they are missing, the alarm will sound.

Year 3 - 4

Age Division

YOUNG ICT Explorers

2024 Year 5 – 6

Iyari Cevallos

Program Manager

Australian Retirement Trust

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Third Place

5 - 6

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Craigslea State School

South East Queensland

Weed Whackers: Green Invasion

Team Members

Sigrid Adams, Sharon Biju, Nerissa Prasad, Eleni Van Zwieten

Project Summary

The problem is that here in Australia there are several different invasive species of plants which are a major interference of taking over people's backyards and community gardens. Our mission is to educate our generation about different intruding plant species that could be in their backyards and how to deal with them and stop the spread. We're going to target both children between the ages of about 10 – 12-year-olds, and also adults that care about gardening. This topic also covers interfering species of animals which are common in Australia.

Year 5 - 6

Age Division

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Second Place

5 - 6

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St Thomas Catholic School, Goodwood

South Australia

Automatic Mixing Bin

Team Members

Chelsea Tran

Project Summary

My idea came from watching Gardening Australia. When they made the compost, they did it manually, and that gave me the idea to make an automatic mixing bin. And they used massive containers in the backyard, so I thought of a smaller version for indoors. My objective is that my bin can mix the compost automatically and it can open the lid, so your hands remain clean. This project is to solve the problems when making compost can easily dry up and lack oxygen. It saves room and it repels pests instead of attracting them.

Year 5 - 6

Age Division

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First Place

5 - 6

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Lalor North Primary School

Victoria

Eve

Team Members

Amen Mahajan

Project Summary

My project is a voice command robot (similar to Alexa) that can play music, play games, can tell you the weather and it can also tell the time. It can also identify you from your voice. The best part is it is not wired and you can take it wherever you are. You just say the name Eve and it will respond to whatever you say. It can also help with your homework or if you're alone you can have a fun time with her. You can ask commands like Eve, what is the weather in Melbourne, Eve, let's play a fun game or Eve, what is 269 thousand divided by 7. The games you can play are amazing like trivia, would you rather and many more exciting games to play. You can also play some nice music by just saying Eve, play some music. She can also tell you hilarious jokes and trust me they are funny. Simply just say Eve, tell me a joke. you can change her language by saying Eve, change language to Hindi or Portuguese and many more. There are many more things to discover about Eve in my project. Thank you for reading. 😀

Lalor North Primary School

Year 5 - 6

Age Division

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2024 Year 7 – 8

Mandy Turner

Adjunct Lecturer School of Social Science (Cyber-Criminology)

The University of Queensland

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7 - 8

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Independent Entry

South Australia

SmartFoods - An app to stop food waste

Team Members

Hayden Kong

Project Summary

SmartFoods 2 is an innovative app designed to combat food waste through intelligent reminders and AI-driven features. This year with the leverage of AI, SmartFoods is now better and offers unparalleled user experience.
Functions of the app:
- Home (Dashboard of your foods, stats and recommendations)
- MyFood (Log your food items, quantities, and expiration dates, receive timely reminders for soon-to-expire items and automatic expiry date suggestions for fresh produce.)
- MyLocal: Connect with neighbours and local food banks to share surplus edible food.
- Cookbook: Discover recipes tailored to your available ingredients, powered by advanced AI web search.
Each year, we discard an alarming 7.6 million tonnes of food, with 70% being perfectly edible. This waste has serious consequences: it harms the environment, wastes valuable resources, leads to economic losses, and worsens global hunger. SmartFoods 2 addresses this issue directly by encouraging mindful food consumption and making it easier to share surplus food with others.

Year 7 - 8

Age Division

YOUNG ICT Explorers

Third Place

7 - 8

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Corrimal High School

New South Wales

Pure pulse

Team Members

Brya Thackray, Sidney Smith

Project Summary

Our idea came from the inspiration of glucose monitors for diabetes. We grew on that idea and came up with the Pure pulse. The Pure Pulse Is a blood chemistry monitor for recovering drug addicts and alcoholics. It contacts emergency services when a substance is taken. A small needle pierces the skin on the arm and collects the data of blood chemistry so when drugs are taken it sets off and starts a tracker in case the person runs away. As soon as the substances are detected the device sends a signal to the rehabilitation center,doctor or emergency contacts so they can find the individual and bring them to rehabilitation.

Year
7 - 8

Age Division

YOUNG ICT Explorers

Second Place

7 - 8

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Brisbane South State Secondary College

South East Queensland

The Tree Team

Team Members

Eleanor Angus, Norah Hughes, Kengo Tojo, William Smyth

Project Summary

We are the Tree Team, a team of students from BSSSC. We are concerned about environmental impacts on population health. The problem that we encountered is that Queensland has very high UV index levels resulting in Queensland having the highest amounts of skin cancer/melanomas in Australia. We believe that the health of our school community, along with other communities across Brisbane could be threatened by high UV levels. Additionally, whilst air pollution levels have improved substantially over the past decade, this doesn't mean air pollution doesn't negatively contribute to population health in our community. We believe that there is a need to be highly aware of the combined dangers in UV, heat, humidity, and air pollution which individually, and combined could cause severe and compounding health issues now and later in life.This project attempts to address these issues through a data lens, raising awareness of these various environmental health issues by providing accurate data on the local environment and the conditions under which risks are increased or decreased. By doing this, we believe we can prompt solutions that minimize the risk of people in our school community and all-around Brisbane from sun exposure and exposure to dangerous pollutants.

Year 7 - 8

Age Division

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First Place

7 - 8

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Haileybury

Victoria

The Underwater Seaweed Drone Inspection Investigation

HAILEYBURY

Team Members

Nathaniel Song, Cooper Dunn, Taj Hasnat, Dilvin Lokuge

Project Summary

As we have researched, seaweed absorb CO2 (Carbon Dioxide), then any other plant in the world. Seaweed can be the crucial factor to help save the world from the extreme levels of Carbon Dioxide that is in our airs. But there is a predator to this, the sea urchin. We are designing an underwater drone which can identify sea urchins on seaweed. At the same time, we are placing a pump that can take water from the lake for testing, if it is suitable for seaweed to live in. Seaweed is extremely beneficial to the environment. It can take in carbon dioxide quicker than most trees and it can also be used as a healthy type of food. Therefore, we are designing an underwater drone to detect the main predator of seaweed, the sea urchin.The data will be picked up using Teachable Machine and transferred to a Raspberry Pi and demonstrate on a screen.

Year 7 - 8

Age Division

YOUNG ICT Explorers

2024 Year 9 – 10

Fiona Connery

A/NZ Head of Marketing - SMB

SAP Concur

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9 – 10

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Perth College

Western Australia

Hydro Recycle Cooling Data Centre

Team Members

JingJing Huynh

Project Summary

Hydro Recycle Cooling is a new, improved cooling system which will allow data centres to become more sustainable by being able to reduce their water use through recycling water from their cooling system while generating hydroelectric power to offset the data centre's impact on the electrical grid.

Perth College
ANGLICAN SCHOOL FOR GIRLS

Year 9 - 10

Age Division

YOUNG ICT Explorers

Third Place

9 – 10

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St Mary MacKillop College, Australia

Australian Capital Territory

SCT Stopwatch

Team Members

Joshua Prstec

Project Summary

The SCT Stopwatch app is a stopwatch that records the times people race at the South Canberra Tuggeranong (SCT) cross-country runs on Sundays. Recently, their current hand timer started malfunctioning - resetting the results before they were saved to the computer. The SCT Stopwatch app allows users to save and upload the lap results as a .xlsx Excel file via Bluetooth to a nearby Windows or Mac computer, where the times can be copied into the master times file. An advantage of using Bluetooth is that it does not require internet, mobile data or cable, enabling it to be used in any environment with minimal technical requirements.

Year 9 - 10

Age Division

YOUNG ICT Explorers

Second Place

9 – 10

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Marist Catholic College, Penshurst

New South Wales

Blackwater Creek

Team Members

Oliver Grubisa

Project Summary

Blackwater Creek is a VHS-styled horror game where you, the player, a police officer, is exploring a crime scene searching for clues. In your search through a haunted asylum, you are seeking the body of a missing person. The player can take photos of clues in their search and use stealth to their advantage to avoid any abnormal activity. Game objects and the 3D world was created in Unity and Blender. Visual Studio was used to code the C# scripts for each scene. Unity Advanced Navmesh was used for advanced navigation through the game world. A preview of the student working in the development environment is shown on this link (https://youtu.be/L7CUY8NIF0A).

Year 9 - 10

Age Division

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First Place

9 – 10

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Marymount College

South East Queensland

Sunflower Solar

Marymount College
Burleigh Waters

Team Members

Elise Nguyen

Project Summary

This project is a model displaying my design of optimised awnings for windows. The awnings — featuring solar panels — can sense and turn to face the sun as it moves across the sky; therefore, the awnings block more direct sunlight from windows while simultaneously harnessing the sun's energy. I chose this project after I noticed fixed awnings outside a building at my school and wondered whether they could be improved to turn to face the sun instead, much like a sunflower. Various problems that I encountered while developing my design included connecting photoresistors to the "Analogue In" pin of the Arduino correctly, modifying the code to work under low light intensities, and adapting the sun sensor because the 3D printing filament was translucent.

Year 9 - 10

Age Division

YOUNG ICT Explorers

2024 Year 11 – 12

Selvam MK Venugopal

Senior Customer Success Partner

SAP Australia & New Zealand

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Highly Commended

11 – 12

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Burgmann Anglican School

Australian Capital Territory

BURGMANN ANGLICAN SCHOOL
GRACE COMMITMENT WISDOM

Project Sigmund

Team Members

Alex Larkings, Hailey Bartlett, Lani Otesile, Rylan Fleischer

Project Summary

According to the SANE Bridging the Gaps Survey, 11% of respondents are unable to access psychological care due to the high cost of therapy, which can exceed $100 per hour. Additionally, 34% of those with more than two diagnosed conditions require multiple professionals but only have access to one, and 23% have been turned away because of the complexity of their needs. Our humanoid robotic therapist has a human-like appearance to inspire trust and positivity in users while not going too far to avoid the uncanny valley effect. Which states that as a robot's appearance becomes more human-like, the emotional response of users becomes increasingly positive and empathetic, up until a point where it looks almost human, potentially causing discomfort. Our design will strike a balance to maximize positive user experiences while avoiding the uncanny valley.

Year 11 - 12

Age Division

YOUNG ICT Explorers

Third Place

11 – 12

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Kepnock State High School

South East Queensland

E-Plates

Team Members

Natalie Ephraims, Micah Ephraims

Project Summary

This project addresses the frequent loss and environmental impact of traditional driving plates, which often fall off vehicles and degrade into microplastics. Driving plates are essential for beginner drivers in Queensland, who must use L plates for learners, Red P plates for the first year of provisional driving, and Green P plates for the following two years. Each driver must buy at least three sets of plates, often keeping them in the glovebox and swapping them between vehicles. We developed E Plates, an innovative solution leveraging digital signage technology to create durable, reusable driving plates. This solution aims to reduce environmental waste and financial costs associated with conventional driving plates.

Year 11 - 12

Age Division

YOUNG ICT Explorers

= First Place

11 – 12

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North Sydney Boys High School

New South Wales

AutoFlow — Minimizing Traffic Congestion & Emissions with Prioritized Path Planning and Simulation of Futures

Team Members

Naman Doshi

Project Summary

Time-efficient and optimized traffic navigation algorithms are instrumental for reducing congestion, minimizing greenhouse gas emissions, and increasing productivity in the modern world. Current mainstream applications such as Google Maps utilize “selfish” algorithms, which aggressively optimize the shortest time for each individual vehicle, inevitably causing bottlenecks as multiple vehicles simultaneously take the same path.

Year 11 - 12

Age Division

YOUNG ICT Explorers

New South Wales = First Place

11 - 12

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Lauriston Girls' School

Victoria

Machine Learning in Early-stage Melanoma Detection: Broadening Accessibility

Team Members

Lucy Ma, May You

Project Summary

To help mitigate the risks of delayed diagnosis, a machine learning program was created to differentiate melanoma-malignant skin lesions from benign skin lesions. A database of around 500 images of high-resolution dermoscopic images was derived from the International Skin Imaging Collaboration (ISIC), an open-source archive of skin images for research purposes. This project leverages deep learning approaches including convolutional neural networks to capture patterns and features inherent within malignant skin lesions. These features were used to train a deep learning model, which was fine-tuned to improve accuracy, and we hope to integrate it into a camera sensor to detect skin lesions in real time.

Year 11 - 12

Age Division

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Congratulations
Recipients and Runners-up

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