Software and Robotics for Kids

Enrol Now for Term 1 2014 primary and high school classes:

- **Software**
- **Hardware**
- **Construction**
- **Robotics**
- **Mechatronics**
- **Electronics**

Inside this issue:

The future is now!

While sorting through papers during our spring clean I came upon a high school essay from 20 years ago. In it I imagined what life would be like in the year 2000...

Two decades later, computers are ubiquitous with astronomically high power-to-weight and power-to-price ratios. We have quad copter drones, credit card sized web servers, and 3D scanners and printers. There isn't a thing in the room that hasn't been made and delivered without the use of computers.

Our unprecedented connection through the Internet has availed us with masses of information and choice. "Big data" experts command high salaries and computer engineers, project managers, database specialists and web developers continue to be sought the world over.

Has our education system caught up with the changes and challenges? Are our schools and teachers equipped to shepherd the necessary skills and herald the relevant technologies?

Introducing Techonauts Pty Ltd, a 100% Australian owned family business *"bringing code to people and people to code"*.

This year we are hosting before, during and after school workshops and presentations at Sydney schools, Teachers, students and parents will enjoy the thrill of making and tinkering as they use MIT Scratch to code animations, games and robots.

Our classes will give students the confidence and skills to dream, create,
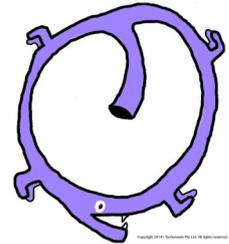
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make, do and learn in this ever-changing and fast-paced IT world.   *The Editor*

Makey Makey and the Raspberry Pi

Just in time for the school year our Makey Makey board arrived and worked straight out of the box. With the amazing ATmega32U4 microcontroller the Makey Makey simulates keyboard action, turning closed loop contact inputs into USB 2.0 key presses. Makey Makey can be used as a game controller for students' MIT Scratch projects to jack-up the learning and the fun.

Our Raspberry Pi Model B also arrived and after formatting the SD Flash memory and installing the NOOBS loader, we installed the Raspbian Linux-based operating system. Now we have a Wi-fi ready TV game controller and web browser. The Raspberry Pi with 700MHz ARM1176JZF-S core is an amazing gadget that gets newbies up close to linux, python, and a variety of fun code and engineering projects.   *The Editor*

Looking for a boost in General Ability?

With our eldest now starting year 7, and our second in year 5, we've been *"through the ringer"* of opportunity class tests, selective school tests and scholarship testing.

These days so many children are coached in a bid to increase their Writing, English, Maths and General Ability scores under examination conditions.

But could all this test preparation be at the expense of fostering true genius and general ability that would stand students long-term in better stead? Would you rather your child went to a school with children who can sit exams; or children who can think big, create, and rise to real world challenges?

There is nothing quite like computer programming to challenge the senses, literally. Much of robotics is about scientifically sensing the world around us, and responding to it in a reasoned and thoughtful way.

Animation covers traditional
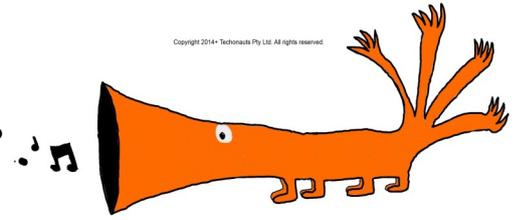
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curriculum areas such as narratives; graphic design draws on the visual arts; GUI rendering via the canvas is highly geometric, as is the creation of digital music. And finally, the logic required in computing involves general ability in pure form.   *The Editor*

# Construction, Mechatronics and Robotics

This year in construction we will be building the 2989 piece Sydney Opera House Lego Technic kit which we aim to animate with robotically controller electric sounds and lighting.

We will also build and control the newest release of Lego Mindstorms (EV3), and construct the remote control Lego power Function 4x4 Off Road truck.

Using these latter two devices we will explore potential interactions between MIT Scratch, the Makey Makey Board, the Raspberry Pi, and Lego sensors, actuators and motors.

If time permits later in the year we could cover web page development with HTML, CSS , PHP and Javascript; Python programming and the UNSW programming competition; and possibly even look into the RoboCup robotics competition.   *The Editor*
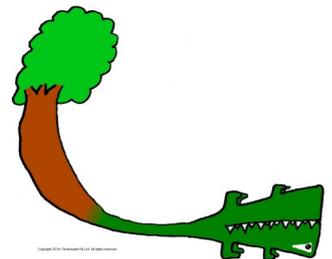
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Schools — Get started

During 2014, teacher and student workshops are available at all Sydney schools.

Post your emails to *info @ techonauts.com.au*.

For more details visit *http://www.techonauts.com.au*.

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