

EDUCATION



LITTLEBITS EDUCATION COMMUNITY CASE STUDY

## PRE-SERVICE PROGRAMS AND OUTREACH WITH LITTLEBITS

BY

Jacina Leong

TITLE

Public Programs Curator

ORGANIZATION

The Cube, Queensland University of Technology  
Brisbane, Australia

AGE LEVELS

8 +

LITTLEBITS PRODUCTS USED

Student Sets

DATE

July 2014

## BIO: THE CUBE

With the rise of the STEM to STEAM agenda a new space of creative opportunity has appeared. This is a space for the intrepid creative adventurer to explore and offer up ideas and resolutions into this yet undefined area of educational experience. Motivated by the mission to expand the demographic of people engaging in STEM, The Cube is the inspiration point for an evolving hub of STEAM at Queensland University of Technology (Brisbane, Australia). The Cube's central focus is in integrating creative thinking and learning modalities into the STEM landscape.

More information is available online: [www.thecube.qut.edu.au](http://www.thecube.qut.edu.au)



## EXPLAIN HOW YOU INCORPORATED LITTLEBITS INTO YOUR PROGRAM?

littleBits has been incorporated by The Cube into the following programs:

### 1. **Outreach programs across Brisbane libraries:**

Since January 2014, the Cube has partnered with Brisbane City Council (BCC) Library Services to deliver workshops across the library system. To date, ten littleBits workshops have been conducted engaging 240 kids (ages 8 – 12).

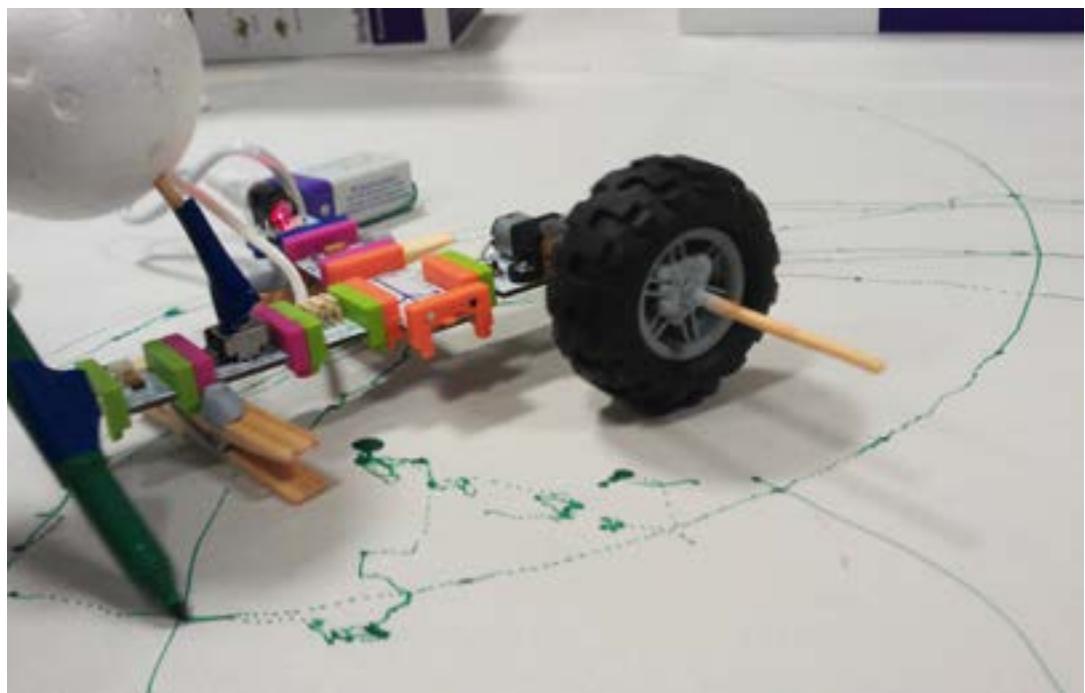
### 2. **Educator professional development:**

The workshop, 'Creative Tools for the 21st Century', introduced educators (teachers from primary and secondary schools) to simple-smart toolsets such as, littleBits and MaKey MaKey. Educators worked towards the development of an automated drawing machine (based on the littleBits lesson plan: <http://littlebits.cc/browse-lessosns/drawing-bots-generative-art-machines>) and along the way, learned about the function of each bit through test-and-play.

### 3. **Holiday programs:**

Based on the outreach programs delivered across BCC libraries, The Cube also delivered littleBits workshops on site for ages 8 – 12 in the holiday program "A robot by any other name."

"Educators worked towards developing automated drawing machines."



# WHO WERE THE KEY PEOPLE IN YOUR ORGANIZATION THAT MADE THIS PROJECT POSSIBLE?

Lubi Thomas (Senior Digital Curator) and Jacina Leong (Public Programs Curator).

## WHAT WORKED WELL?

The workshops were collaborative and encouraged participants to work in small teams to ideate and implement prototypes using littleBits. Participants were making connections with others in the community, which otherwise may not have been made.

- A** Teams work together to prototype an invention.



- B** A team uses binder clips to secure their creation.



- C** Circuit building with littleBits.



## WHAT HAS BEEN THE RESPONSE OF YOUR STUDENTS/COMMUNITY?

Here is some feedback we received from the community:

" ... The Cube workshops for children and families provide a unique opportunity for individuals to discover the creative potential and application of new technologies. These unique workshops can challenge an individual's perception of their own capabilities in creative endeavours, educational options, careers, entrepreneurship and business ventures."

- Brisbane City Council Library Services

"Great PD that allowed opportunities to interact with multiple technologies, great modeling of processes and good variety of opportunities."

- Educator, attendee of 'Creative Tools' Professional Development workshop

**A** Hands-on learning and making with littleBits fosters creativity in young people at the Cube.



**B** Art bot prototype developed in the PD workshop.



## WHAT ARE YOUR FUTURE PLANS FOR LITTLEBITS USE?

We are developing a STEAM think-tank for pre-service teachers (students from QUT Faculty of Education) with an interest in simple-smart technologies (like littleBits) as tools for learning. The think-tank will support at a pre-service teacher level the further development of their knowledge, skills and understanding of computational thinking; a key element of the Australian Curriculum: Technologies. Although yet to be endorsed, the increased emphasis upon the fundamentals of computer science across disciplines is generating interest and apprehension amongst educators, who in some instances are uncertain how to prepare or deliver into this curriculum.

The program will guide pre-service teachers in exploring these technologies and their potential uses in learning, enabling them to generate ideas and the production of learning resources that could be used in education programs, at The Cube or beyond.

As the STEAM think-tank program evolves we hope that it may suggest a model that could be used to develop similar extra-curricula communities of practices to connect pre-service teachers.

