Odroids – A Level 2 Experiment

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ABSTRACT
Whitireia New Zealand was one of the few polytechnics too retain Level two uncontestable funding, as there was still some money available we were tasked to develop a Level two course which we could access this funding. This poster looks at the creation, the structure, first iteration of the course challenges and successes.

Categories and Subject Descriptors
K.3.1 [**Computers and Education]**: Computer Uses in Education – *collaborative learning, computer-assisted instruction (CAI), computer-managed instruction (CMI),*

Keywords
Level 2 NCC, Programming, Hardware, Applications, Internet, Android, Odroid,

1. INTRODUCTION
Whitireia New Zealand was one of the few polytechnics to retain TEC Level two uncontestable funding, as there was still some money available we were tasked to come up with a Level two course which we could access this funding. The idea was to run a Level two National Certificate in Computing [1] but not the standard NCC which is more geared towards end user products and office systems based. With the uncontestable funding this is a free course for those who do not have any qualification at level two.

2. THE EXPERIMENT BEGINS
One of the academic staff, Sue Chard, had an Odroid device [3] at home as a media centre and liked the idea of students using this as a learning tool due to the higher use of android devices currently on the market. Geoff was tasked at finding a suitable device to fulfil the needs required to meet the criteria. So the ODroidU2 device was the preferred device the specifications of these devices were

- ULTRA COMPACT 1.7GHz QUAD-CORE BOARD
- 2GByte Memory
- Full metal enclosure
- 10/100Mbps Ethernet with RJ-45 LAN Jack
- Android and Ubuntu
- PCB Size : 48 x 52 mm
- Other accessories consisted of a WIFI module, HDMI cable, keyboard and mouse

3. COURSE STRUCTURE
We looked at Level two certificate requirements and then broke down the appropriate units to fit with the development of the new certificate. The standards were matched with the idea of going through a development process style course. The length of the course was twelve weeks and was broken into four blocks

- Hardware/Operating Systems
- Applications
- Internet
- Programming

The students must do literacy and numeracy (LLN) at the start and finish as per all NZQA unit standard requirements certificates Level one – three, followed by introduction to the devices setting up and basic use of the devices loading operating systems making the Odroid operational. The next stage was to load and use applications followed by Internet applications creation and searching and using the sound and visual capabilities. Lastly they had to create android programs using APPInventor [2] a block building program created by Massachusetts Institute of Technology (MIT) used to create .apk programs. MIT also had a series of resources geared towards development.

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4. CHALLENGES

There were several challenges that we had for the first iteration of the course:

First the majority of courses we run are above level five, so it was getting our heads around unit standards again as some staff had some knowledge this was used.

Second the time limit to get this course up and running within a short timeframe which included the various Boards of Study and Academic Board approval.

Third getting enough students to make it viable.

Fourth finding staff to run course.

Fifth without advertising we started with nine students.

5. SUCCESSES

Four of the five students who completed the course have enrolled in the Certificate of Information Technology. One of the other bonuses was the successful students could buy the devices they had built, three student took this opportunity. The other success was that existing students wanted to do the course

6. CONCLUSION

Overall this is a successful experiment at creating a course with modern technology which also has a pathway for students into higher level courses. The students built a device from scratch into a working android device with a working knowledge of different applications and also building applications from scratch to be used on any android device. So this experiment in the view of the author was a success and the second iteration has started with 12 students.

7. REFERENCES

1 National Certificate of Computing Level 2 website retrieved from 15 Sep 2013 from nzqa.ac.nz/qualifications

2 MIT APPInventor, Android Block Retreived on 15 Sep 2013 from http://appinventor.mit.edu/

3 Odroid Devices and specifications retrieved on 15 Sep 2013 from http://www.hardkernel.com