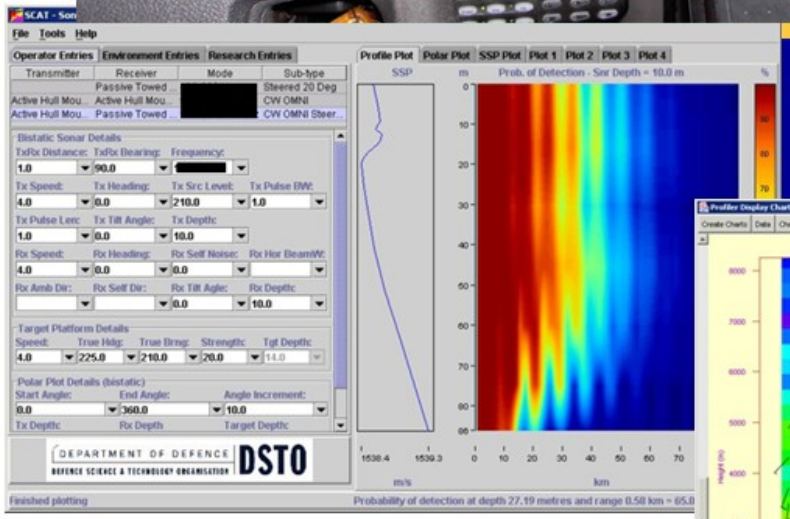
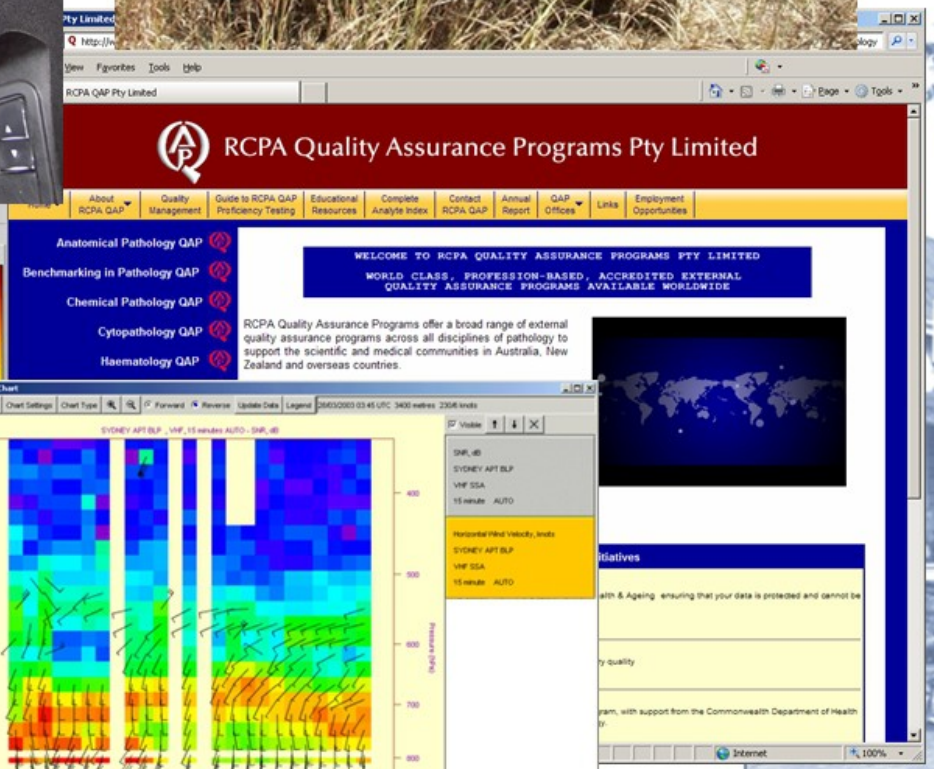
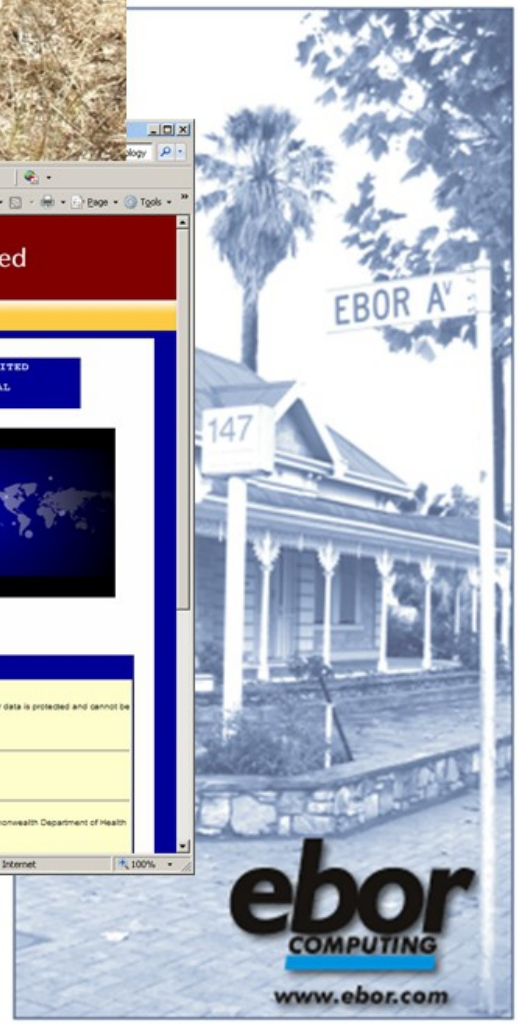
How to train your Minions

Because the only thing necessary for Marketing to triumph is that good Geeks do nothing


Start of Shift Record
Odometer:
Set
Continue Previous Shift
Accept
WAVEON


File Tools Help
Operator Entries
Environment Entries
Research Entries
Profile Plot
Polar Plot
SSP Plot
Plot 1
Plot 2
Plot 3
Plot 4
DEPARTMENT OF DEFENCE
DSTO
Finished plotting


RCPA Quality Assurance Programs Pty Limited
Anatomical Pathology QAP
Benchmarking in Pathology QAP
Chemical Pathology QAP
Cytopathology QAP
Haematology QAP
WELCOME TO RCPA QUALITY ASSURANCE PROGRAMS PTY LIMITED
WORLD CLASS, PROFESSION-BASED, ACCREDITED EXTERNAL QUALITY ASSURANCE PROGRAMS AVAILABLE WORLDWIDE
RCPA Quality Assurance Programs offer a broad range of external quality assurance programs across all disciplines of pathology to support the scientific and medical communities in Australia, New Zealand and overseas countries.


EBOR AV
147
ebor
COMPUTING
www.ebor.com

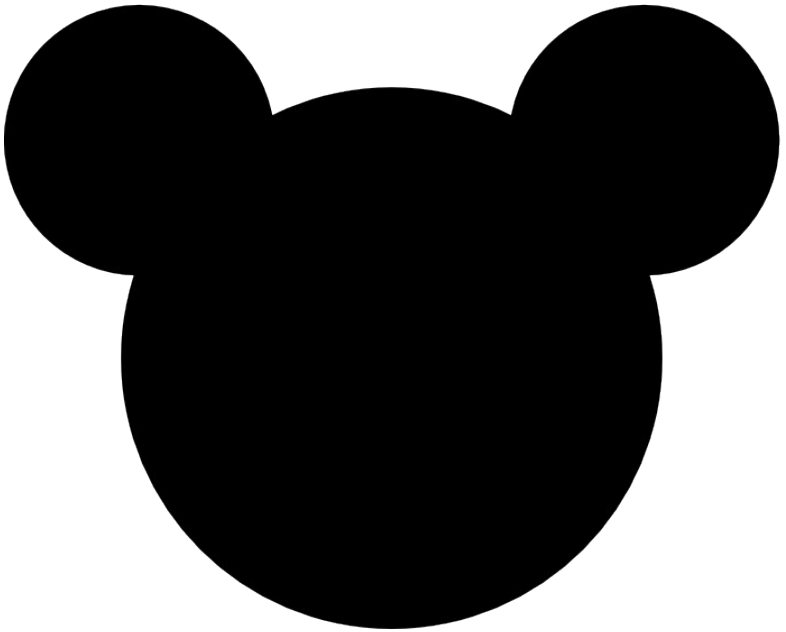
$whoami

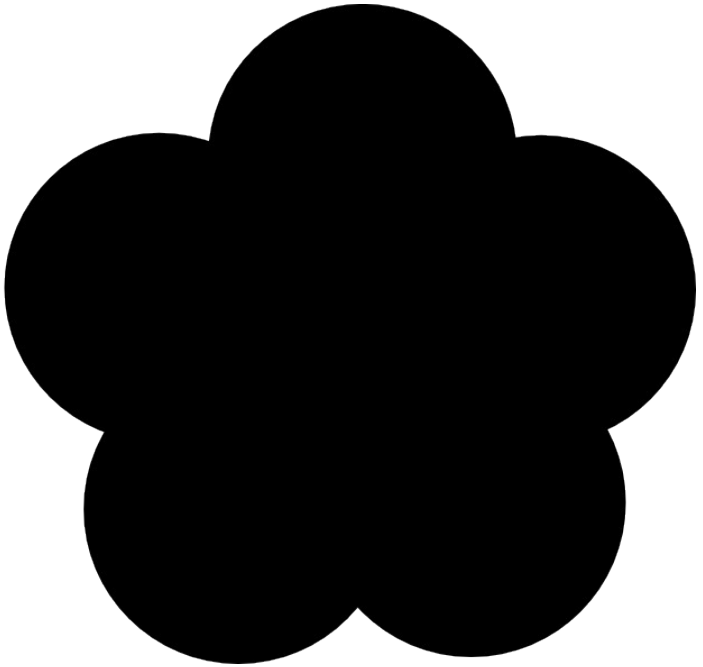
- Father
- Geek
- Open Source/Hardware advocate
- ~~Akela~~
- Canteen/Fete/Reading Volunteer
- One Geek per Classroom

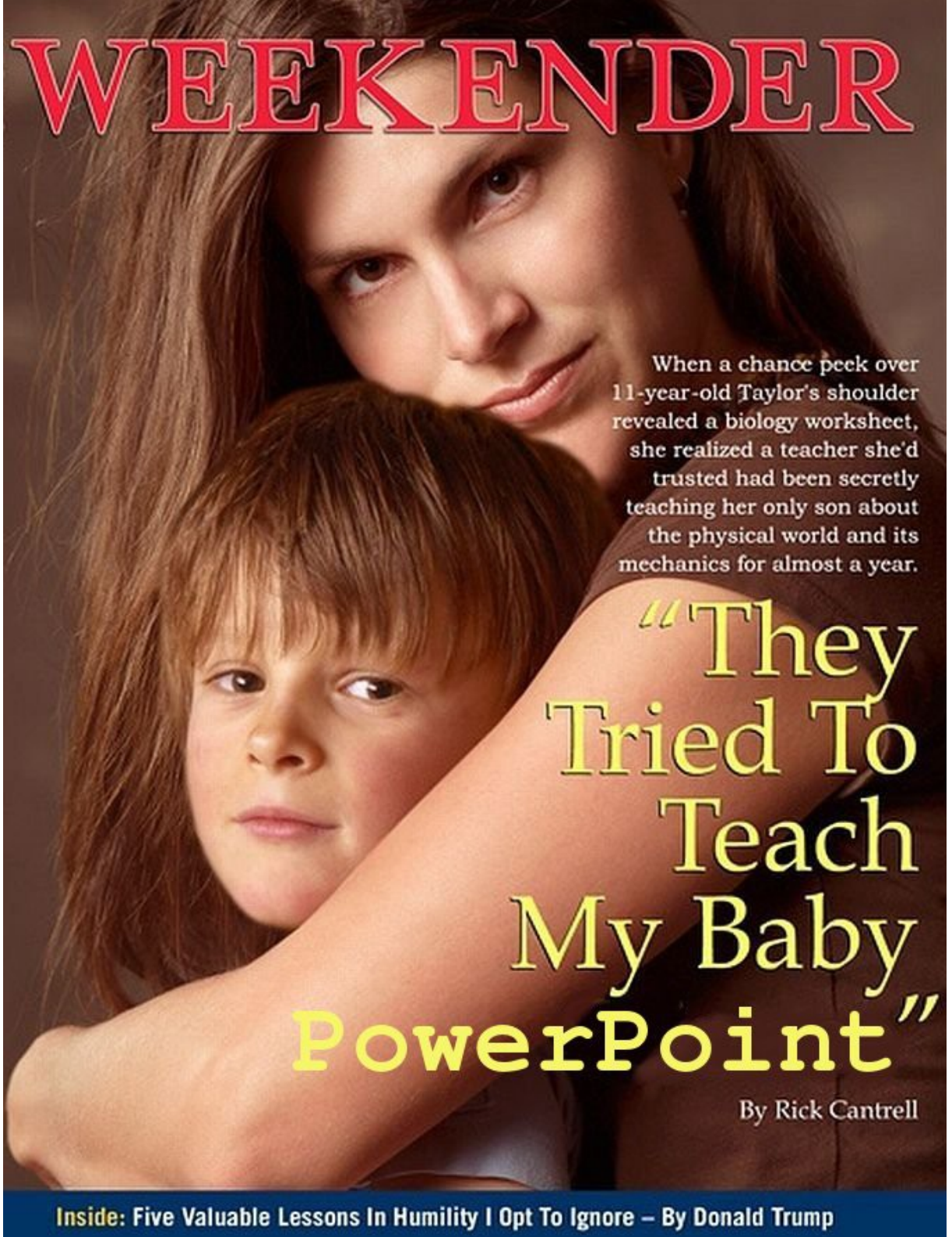
... ?

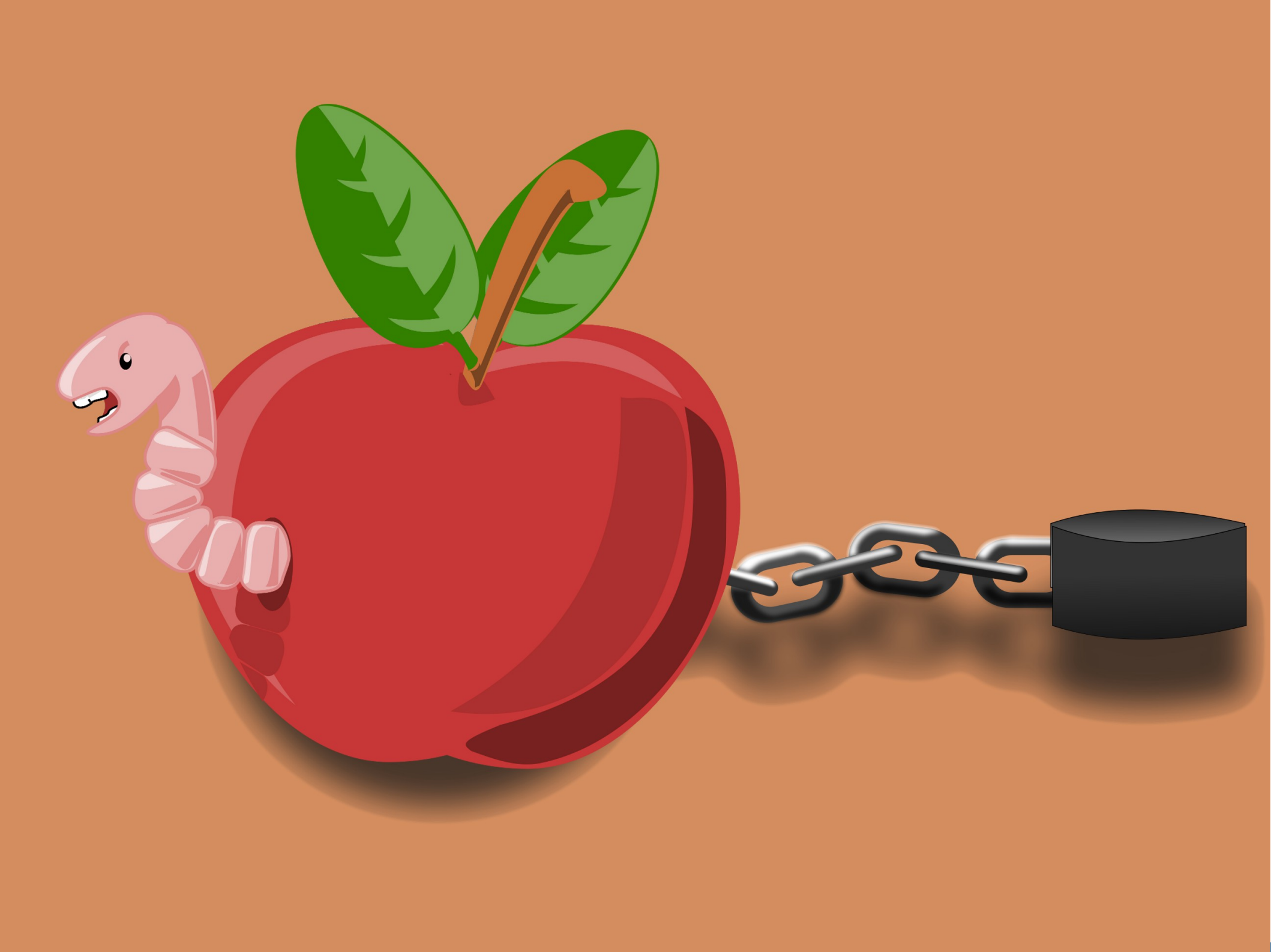
why?

- Widening understanding gap
- Technology == Magic
- Computers with custom IO
  - Enabled *and limited* by software
- Education
  - HOW rather than WHAT/WHY
  - Outcomes vs Exploring






WEEKENDER
When a chance peek over 11-year-old Taylor's shoulder revealed a biology worksheet, she realized a teacher she'd trusted had been secretly teaching her only son about the physical world and its mechanics for almost a year.
"They Tried To Teach My Baby PowerPoint"
By Rick Cantrell
Inside: Five Valuable Lessons In Humility I Opt To Ignore – By Donald Trump



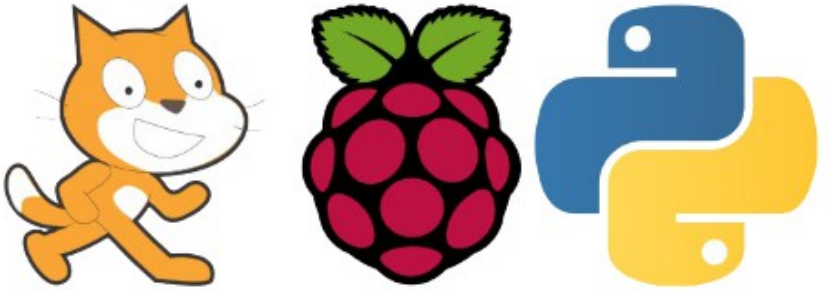
HowTo = Luck

- Geeklings
- Venue
- Henchpersons
- Funding
- Content

HowTo = Luck = Preparation + Opportunity

- Geeklings
- Venue
- Henchpersons
- Funding
- Content

Geeklings



- BYO
- Friends with kids
- Poaching
- Bring a friend
- Word of mouth

Learn to program.
Scratch, Python, Blinkenlights!
Ages 11 to 15
Next session Saturday 22th June10 am to 4 pm, Mile End
check http://ogpc.com.au/wiki/Geekology/Schedule

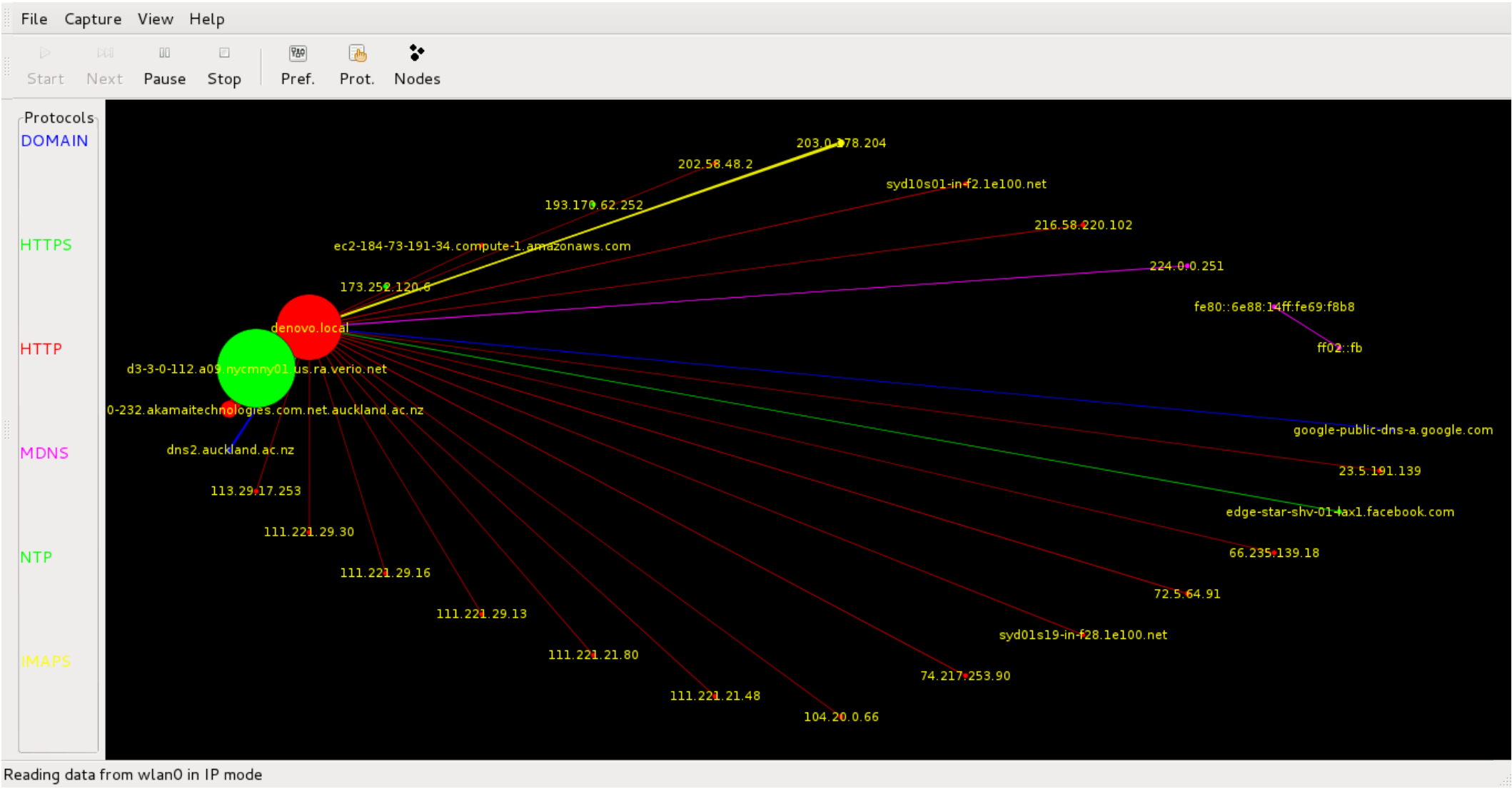
http://ogpc.com.au thomas.sprinkmeier@gmail.com
http://ogpc.com.au thomas.sprinkmeier@gmail.com
http://ogpc.com.au thomas.sprinkmeier@gmail.com
http://ogpc.com.au thomas.sprinkmeier@gmail.com
http://ogpc.com.au thomas.sprinkmeier@gmail.com
http://ogpc.com.au thomas.sprinkmeier@gmail.com
http://ogpc.com.au thomas.sprinkmeier@gmail.com
http://ogpc.com.au thomas.sprinkmeier@gmail.com
http://ogpc.com.au thomas.sprinkmeier@gmail.com
http://ogpc.com.au thomas.sprinkmeier@gmail.com
http://ogpc.com.au thomas.sprinkmeier@gmail.com
http://ogpc.com.au thomas.sprinkmeier@gmail.com
http://ogpc.com.au thomas.sprinkmeier@gmail.com
http://ogpc.com.au thomas.sprinkmeier@gmail.com
http://ogpc.com.au thomas.sprinkmeier@gmail.com
http://ogpc.com.au thomas.sprinkmeier@gmail.com
http://ogpc.com.au thomas.sprinkmeier@gmail.com
http://ogpc.com.au thomas.sprinkmeier@gmail.com
http://ogpc.com.au thomas.sprinkmeier@gmail.com

Geeklings

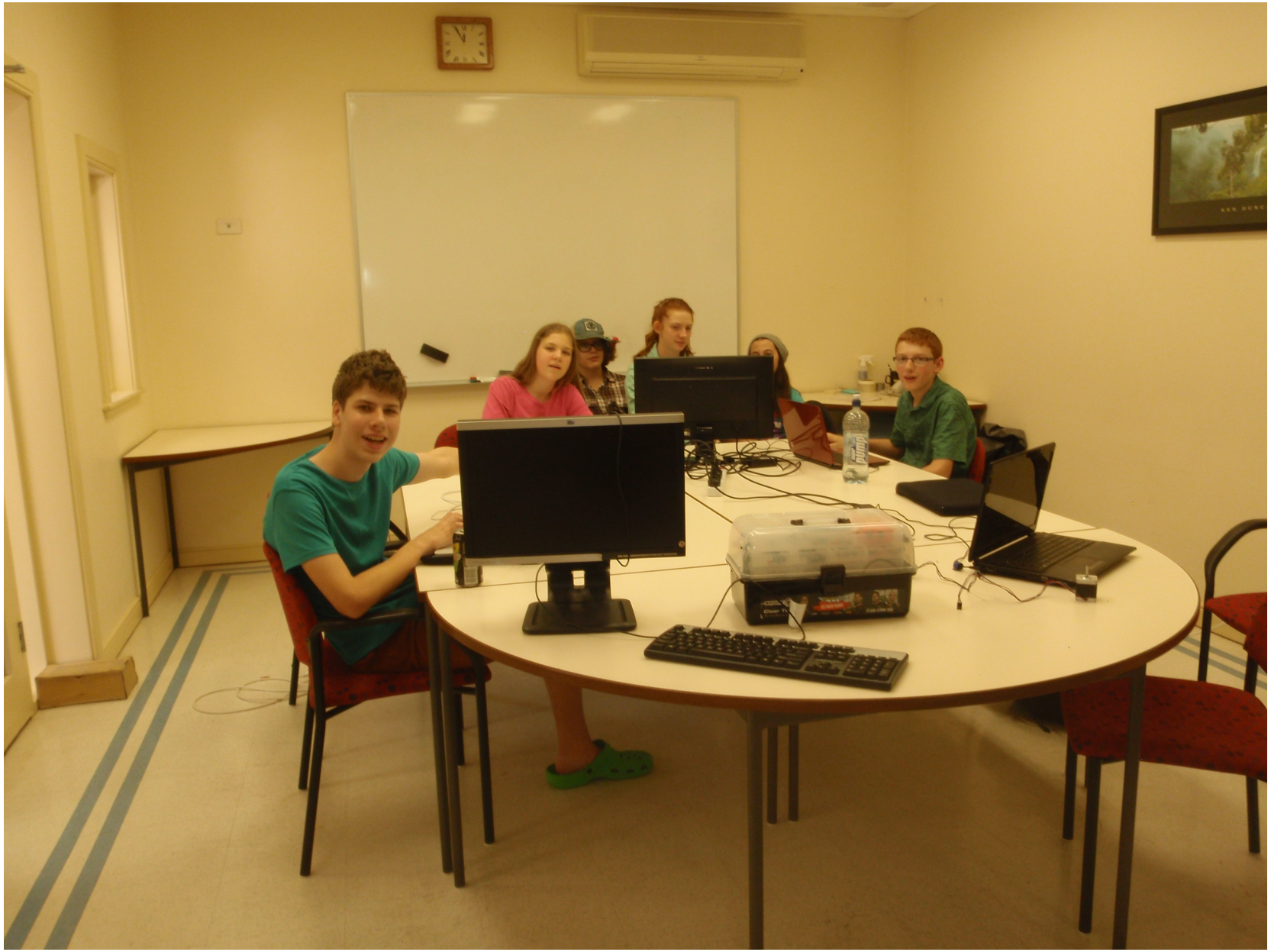
Venue

- Space to work
- Power
- Facilities
- Internet
- Food

Internet...


File
Capture
View
Help
Start
Next
Pause
Stop
Pref.
Prot.
Nodes
Protocols
DOMAIN
HTTPS
HTTP
MDNS
NTP
IMAPS
203.0.178.204
202.58.48.2
syd10s01-in-f2.1e100.net
193.170.62.252
216.58.220.102
ec2-184-73-191-34.compute-1.amazonaws.com
224.0.0.251
173.252.120.6
fe80::6e88:14ff:fe69:f8b8
denovo.local
ff02::fb
d3-3-0-112.a09.nycmny01.us.ra.verio.net
0-232.akamaitechnologies.com.net.auckland.ac.nz
google-public-dns-a.google.com
dns2.auckland.ac.nz
23.5.191.139
113.29.17.253
edge-star-shv-01-lax1.facebook.com
111.221.29.30
66.235.139.18
111.221.29.16
72.5.64.91
111.221.29.13
syd01s19-in-f28.1e100.net
111.221.21.80
74.217.253.90
111.221.21.48
104.20.0.66
Reading data from wlan0 in IP mode

Venue



Venue

Henchpersons

- 13 to 1: not betting odds!
- Bring-a-grown-up
  - bribe them with coffee!
- Geekling Helpers

Funding

- Free Venue
- 

- IEEE
- Contributions

Free as in Ginger-beer!

What to do with all the Loot...

- Education Pi
  - http://www.educationpi.com/
- Cambodian Orphanage
- LCA 2015
- Next?
  - http://www.raspberrypi.org/penguin-lifelines/

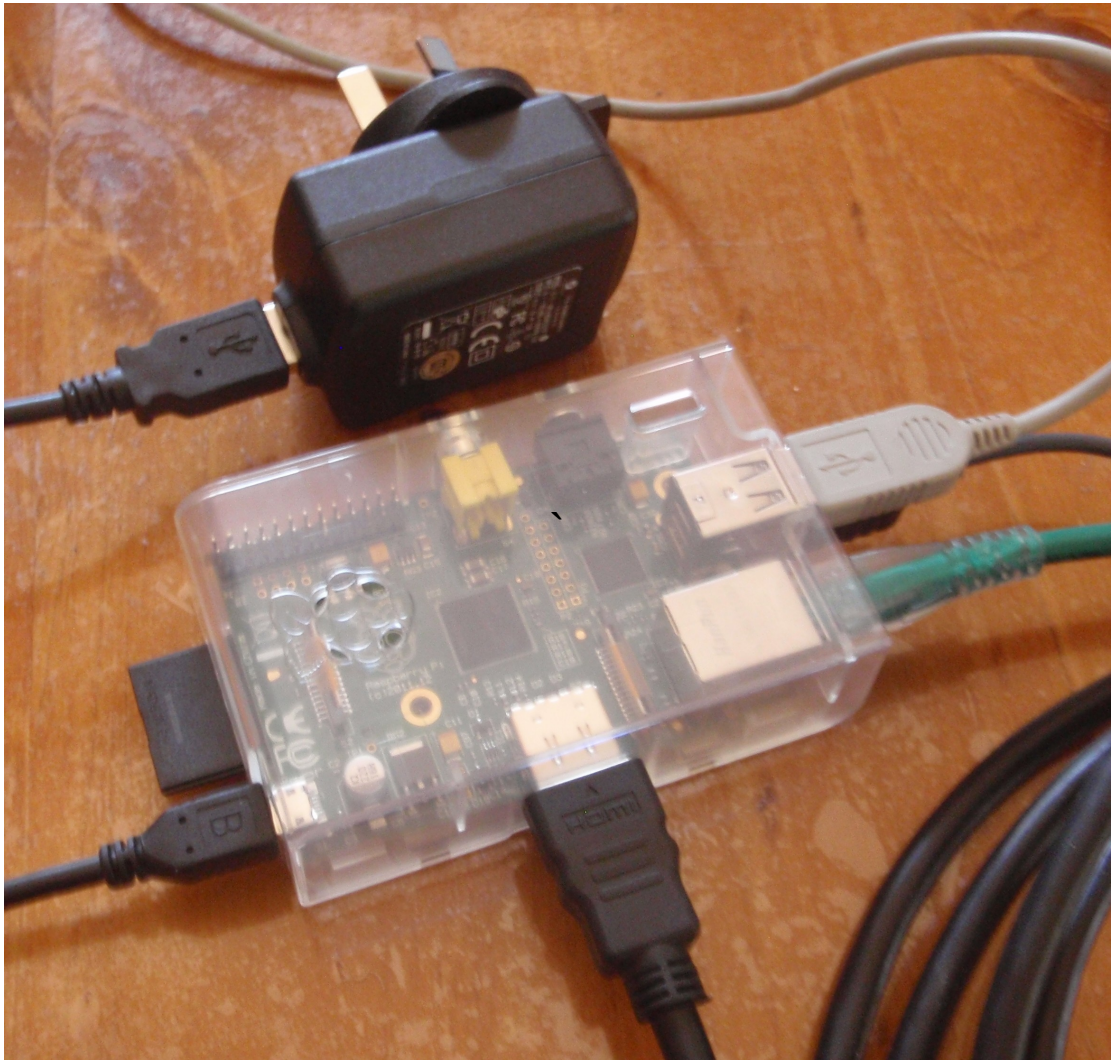
Content

- Raspberry Pi
- Arduino
- 3D printer
- Projects/Kits
  - PiBell, Alarm, Solar Car, Robot(s), Ninja Timer, Wireless Keypad, RaspBMC, Arduino Kit, Camera/GPS/Accelerometer, ...
- Sometimes less is more

Raspberry Pi

- `[AB]\+?`
- SD or uSD card, 4G or larger
- Power
- Keyboard/Mouse/Monitor
- Case
- NOOBS
  - http://www.raspberrypi.org/tag/noobs/

Raspberry Pi



Raspberry Pi - SW

- NOOBS
  - Raspian
  - RaspBMC
  - ...
- Scratch
- Python
- GCompris
- Minecraft (incl. Python API)
- gcc, git, emacs, vi, ssh -X, cron, wget, sharutils, ...

Raspberry Pi - HW

- GPIO low-power 3.3V
  - Keep the Magic Blue Smoke contained!
- Prototyping board
- PiBell
- “Hats”
  - http://www.piface.org.uk/products/piface_digital/
  - http://www.microstack.org.uk/
- Camera

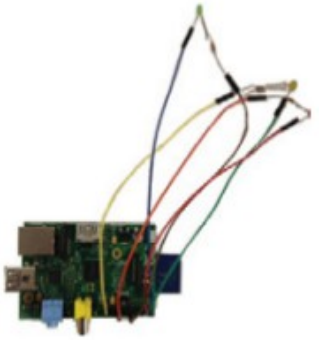
Raspberry Pi

TRAFFIC LIGHTS LED RECIPE

A PHYSICAL COMPUTING PROJECT FOR THE RASPBERRY PI – NO SOLDERING, TOOLS OR INTERNET ACCESS REQUIRED!

Difficulty: Basic

This recipe will allow you to create a set of traffic lights by turning LEDs into output devices for your Raspberry Pi – we will guide you through writing a program to get them to light in the correct sequence.



Ingredients needed in addition to your Raspberry Pi:

3 x LEDs (red, yellow, green)

3 x 220Ω Resistors

6 x Jumper Wires (female to female)

A small rectangular piece of black card – with three holes for the LEDs

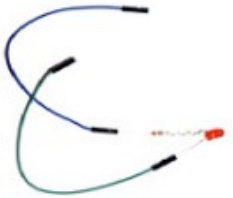
Method:

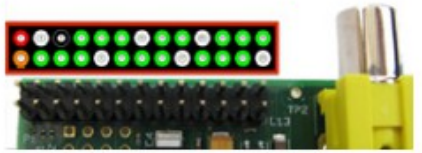
Turn the 3 x LEDs into outputs for your program

1. Take one end of the resistor and twist it around the cathode of the LED (nearest flat edge and the shorter lead) so that it forms a strong connection.

2. Push both the anode (longer lead) of the LED and the other end of the resistor into each of the jumper wires. Repeat this for all 3 LEDs.

3. For each LED take the end of the jumper lead connected to the cathode of the LED (flat edge, shorter wire) and push onto pins 17, 20 and 25 of the GPIO headers which are connected to ground.





Raspberry Pi GPIO header pins. The diagram above the pins shows the pin numbers. You will be using pins 3, 5, 7, 17, 20 and 25. ***Warning! You can damage your Raspberry Pi if you do not use the GPIO pins correctly!***

4. Then take the end of the other jumper lead and push onto pin 3 for the red LED, pin 5 for the yellow LED and pin 7 for the green LED of the General Purpose Input-Output (GPIO) header which is connected to the GPIO channels.

5. Push the LEDs through your black card in the correct order for traffic lights.

Congratulations! You have now attached the LEDs to your Raspberry Pi which can be used as an output in your programs.

... continued

Scratch

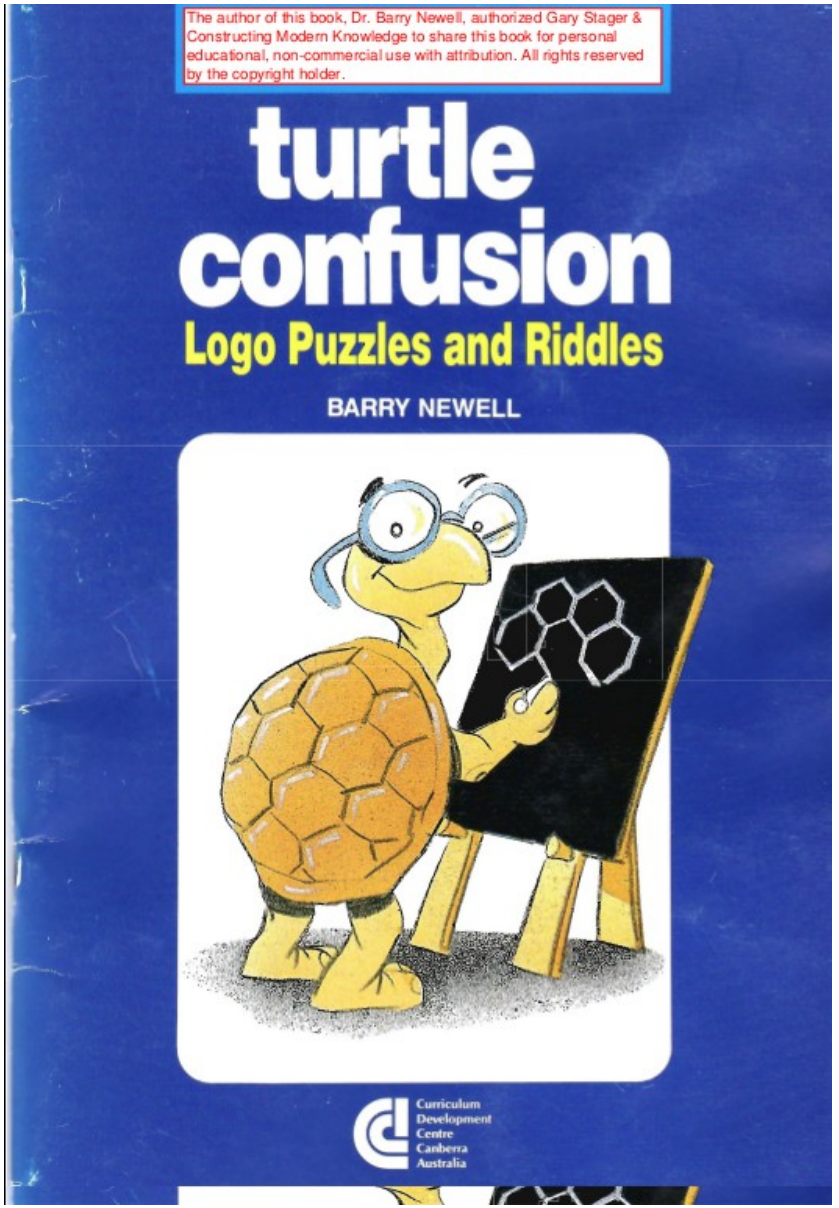
- Graphical programming
- Digital Lego
  - http://scratch.mit.edu/
  - `$ sudo apt-get install scratch`
- GPIO enabled
- Unspeakably Wonderful!!!

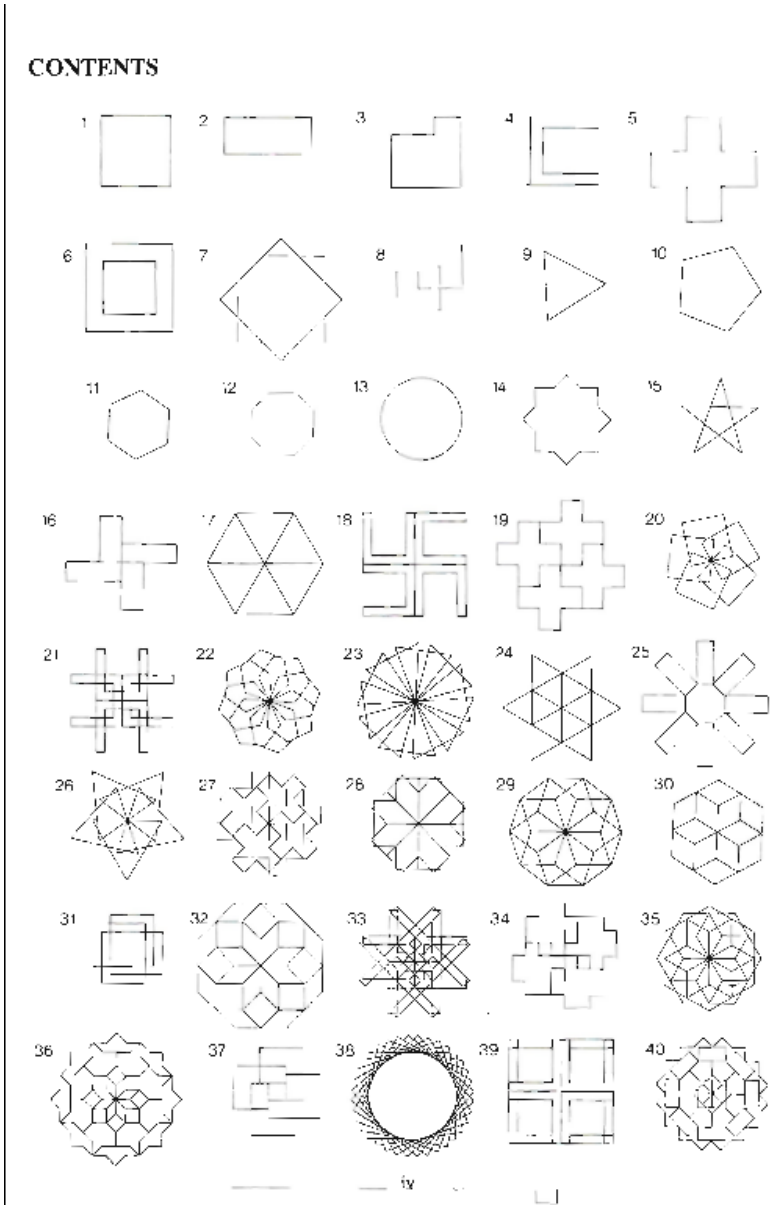
Scratch

- Graphical programming
- Digital Lego
  - http://scratch.mit.edu/
  - `$ sudo apt-get install scratch`
- GPIO enabled
- Unspeakably Wonderful!!!

  except for Adobe Air...

Turtle Confusion



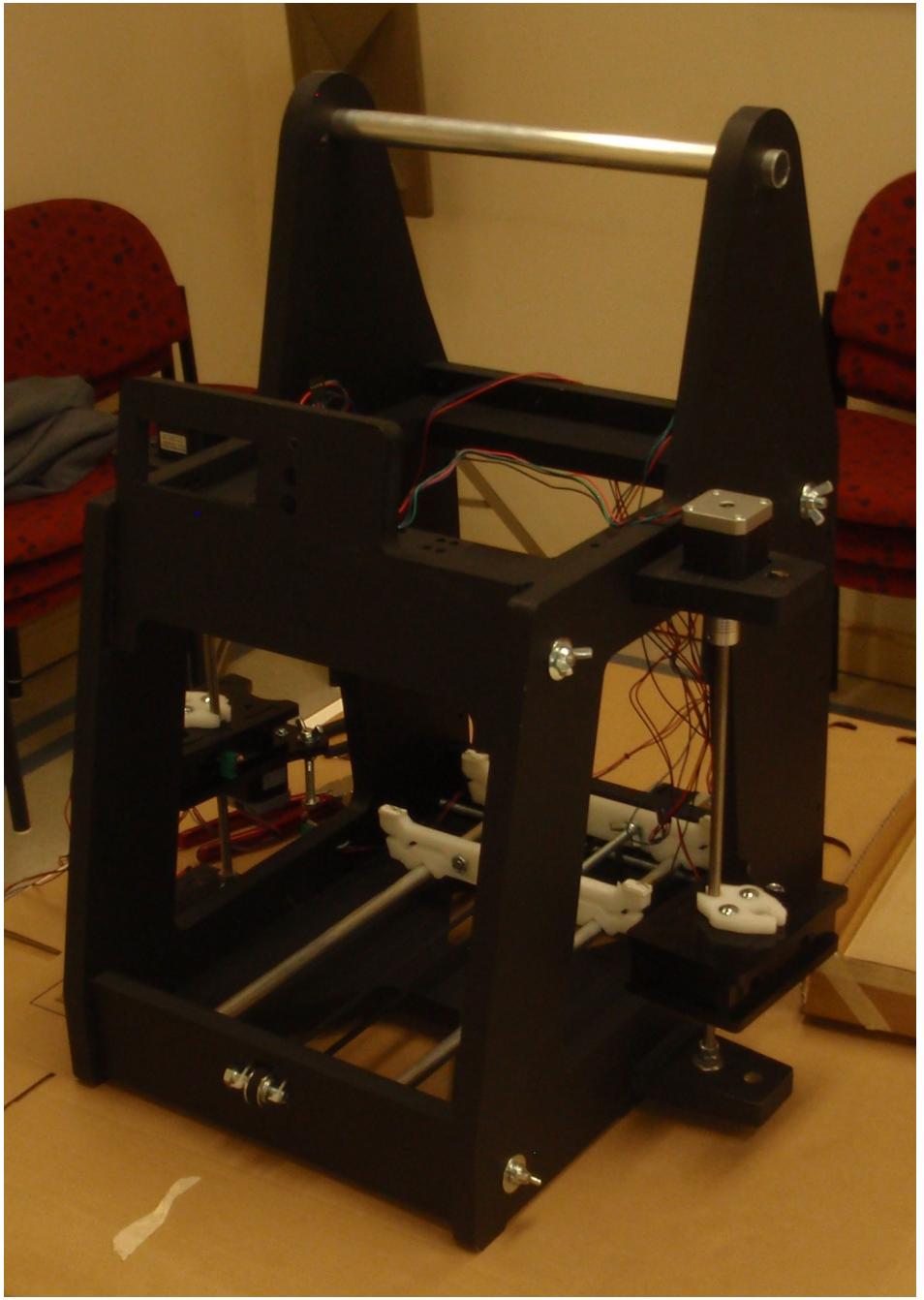


Arduino

- http://arduino.cc/
- http://freetronics.com.au/
- USB
- 5V GPIO, I^2C
- ADC/PWM
- Shields
- Java IDE

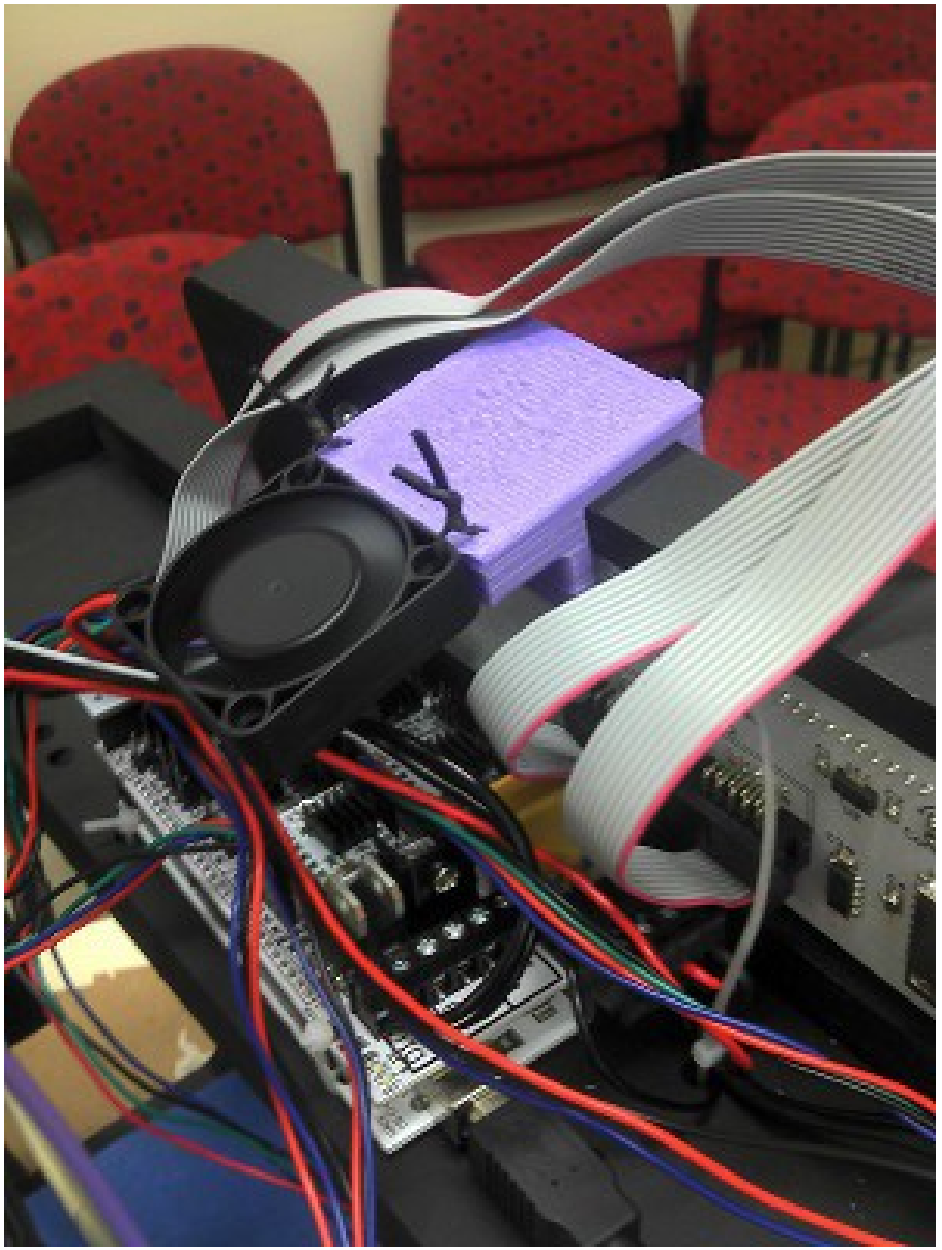
3D printer

- http://mindkits.co.nz/
- (mostly) Assembled by the Geeklings!
- * → .STL → stuff
- http://openscad.org/

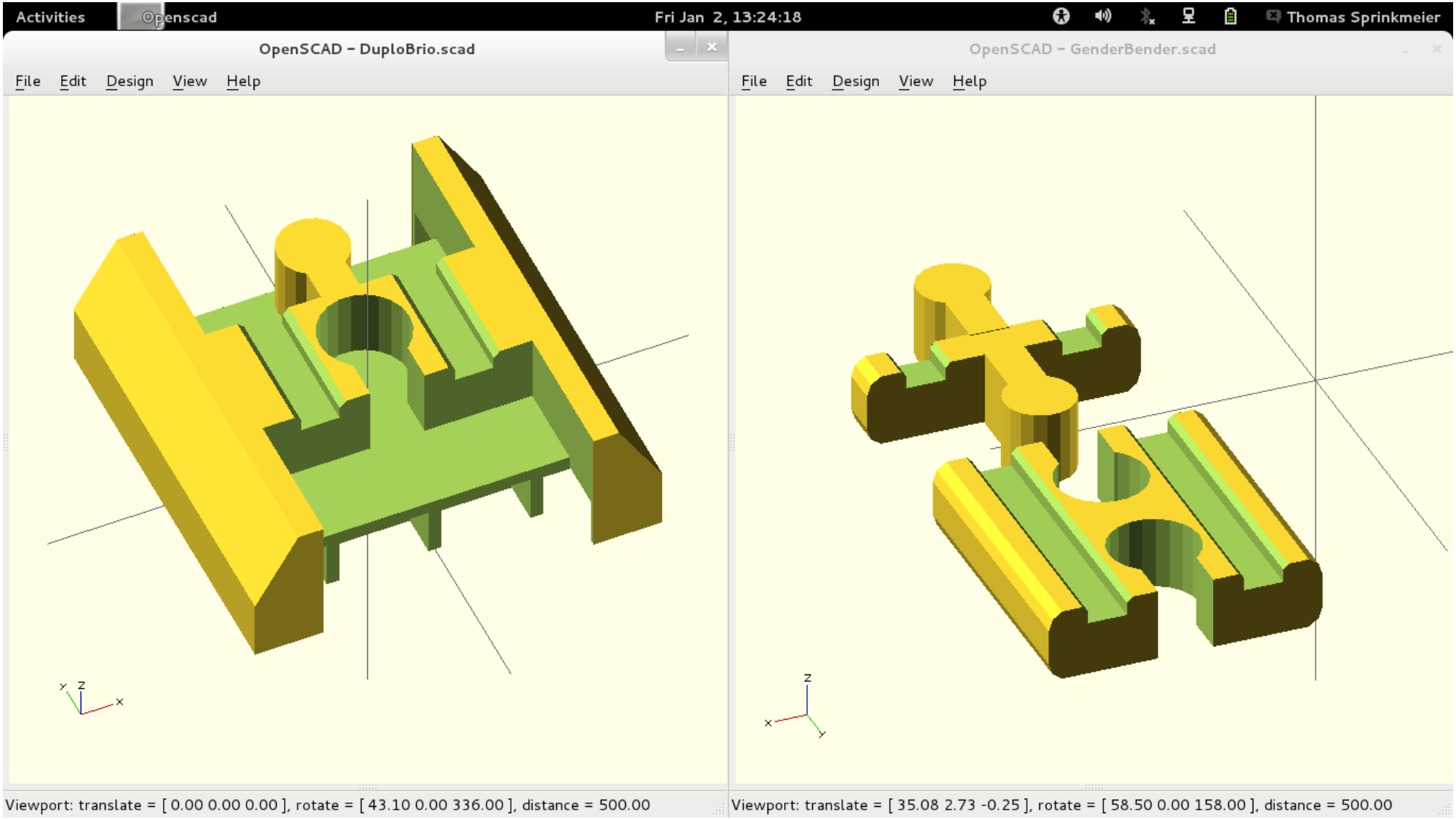


3D printer

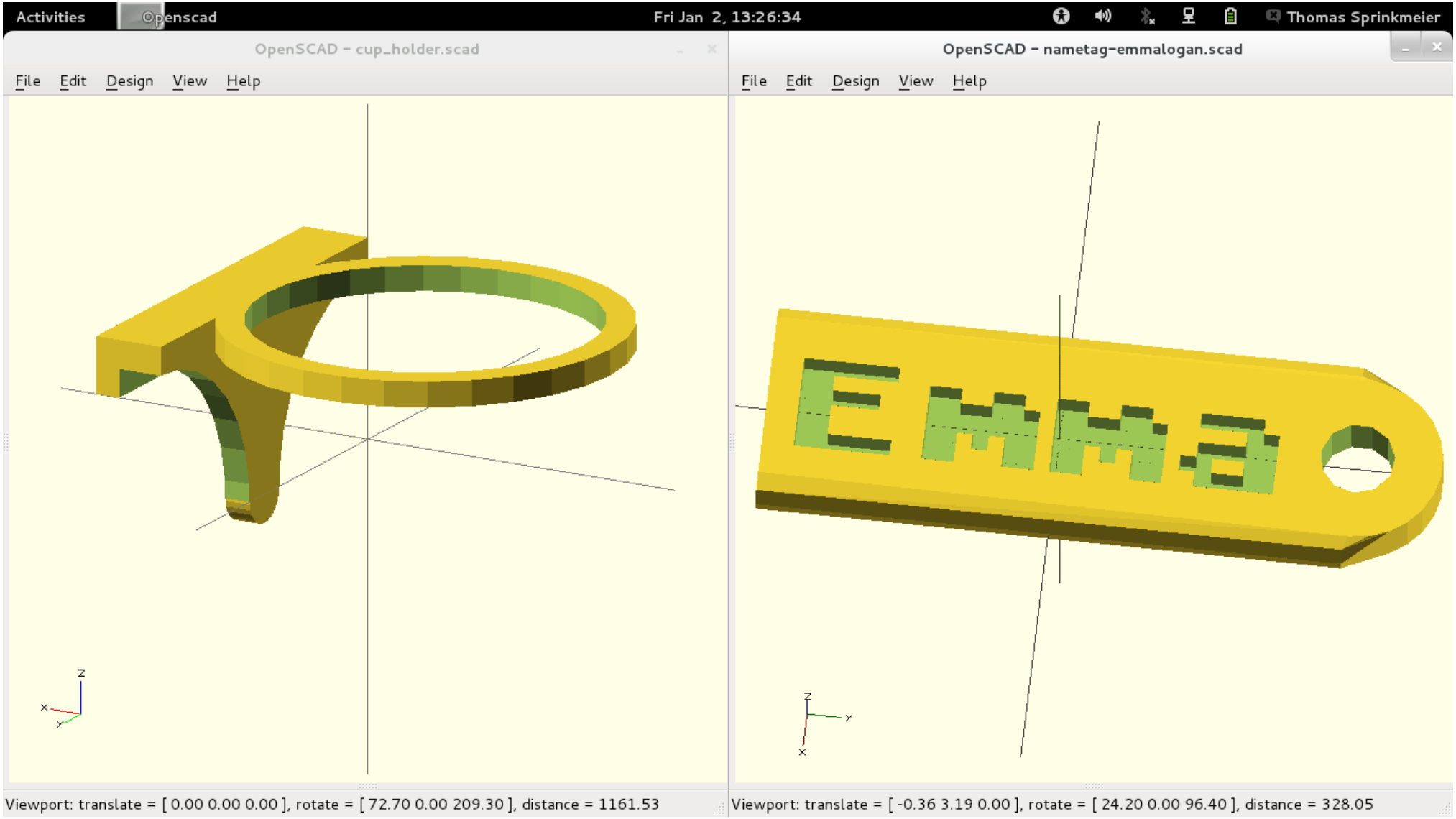
- http://mindkits.co.nz/
- (mostly) Assembled by the Geeklings!
- * → .STL → stuff
- http://openscad.org/



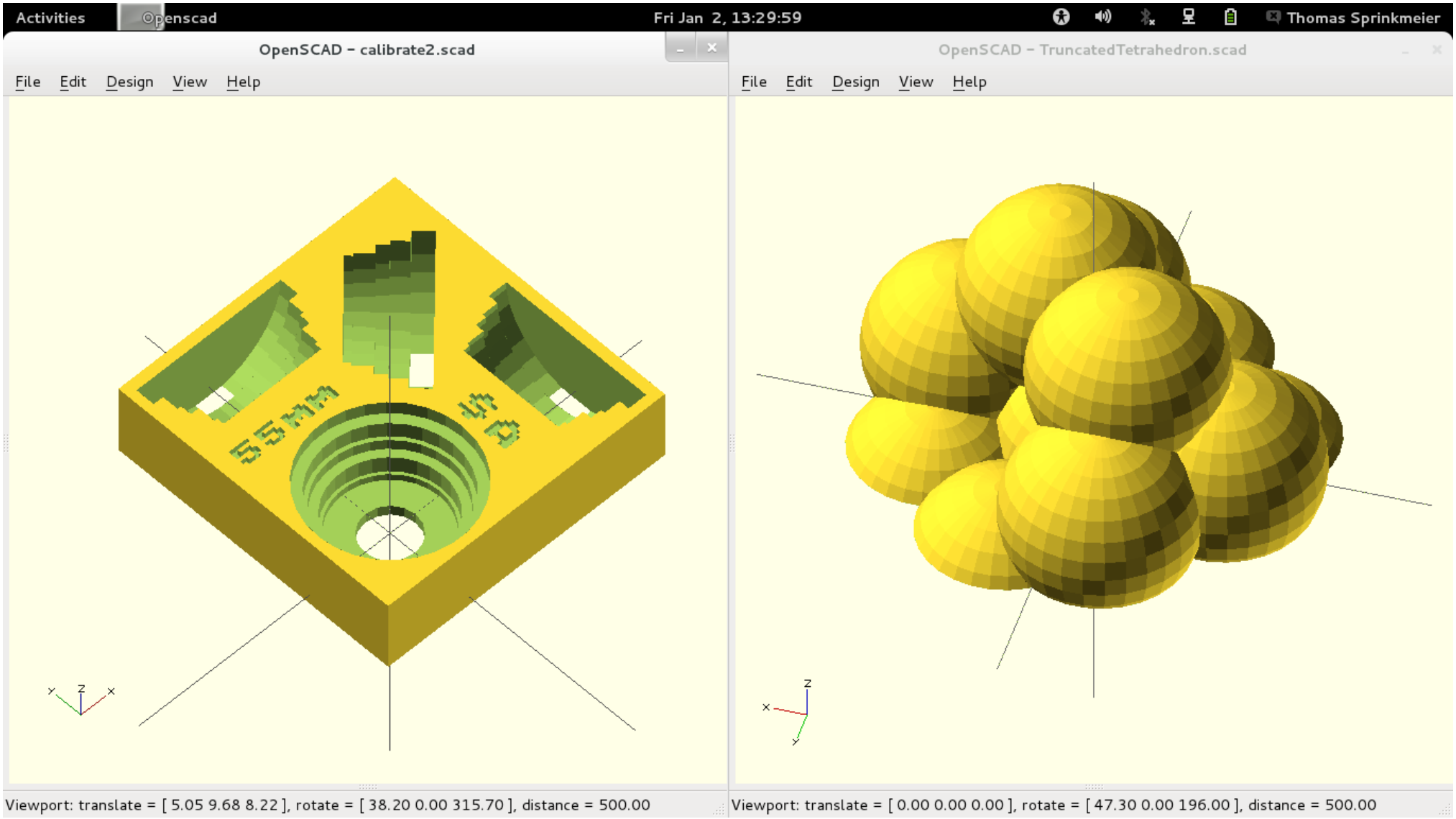
3D Printer


Activities
Openscad
Fri Jan 2, 13:24:18
Thomas Sprinkmeier
OpenSCAD – DuploBrio.scad
File Edit Design View Help
OpenSCAD – GenderBender.scad
File Edit Design View Help
Viewport: translate = [0.00 0.00 0.00], rotate = [43.10 0.00 336.00], distance = 500.00
Viewport: translate = [35.08 2.73 -0.25], rotate = [58.50 0.00 158.00], distance = 500.00

3D Printer


Activities
Openscad
Fri Jan 2, 13:26:34
Thomas Sprinkmeier
OpenSCAD – cup_holder.scad
File Edit Design View Help
OpenSCAD – nametag-emmalogan.scad
File Edit Design View Help
Viewport: translate = [0.00 0.00 0.00], rotate = [72.70 0.00 209.30], distance = 1161.53
Viewport: translate = [-0.36 3.19 0.00], rotate = [24.20 0.00 96.40], distance = 328.05

3D Printer


Activities
Openscad
Fri Jan 2, 13:29:59
Thomas Sprinkmeier
OpenSCAD – calibrate2.scad
File Edit Design View Help
OpenSCAD – TruncatedTetrahedron.scad
File Edit Design View Help
Viewport: translate = [5.05 9.68 8.22], rotate = [38.20 0.00 315.70], distance = 500.00
Viewport: translate = [0.00 0.00 0.00], rotate = [47.30 0.00 196.00], distance = 500.00

progress

- 30 sessions
- Core group of Geeklings
- Hand-full of projects
- Charity

What I need

- More ~~Lunatic Geekling Herders~~
  ~~Benevolent Evil Overlords~~
  Volunteers
- More Ideas
- More Projects
- More Girls!!

Thanks!

- Ebor Computing
- Shuttleworth Foundation
- MindKits
- Open Software/Hardware
- Henchpersons
- Geeklings!

Contact

http://ogpc.com.au

thomas.sprinkmeier@gmail.com