

If not Now, When? If not You, Who?

Julian Harty
Agile Pune Conference 2014



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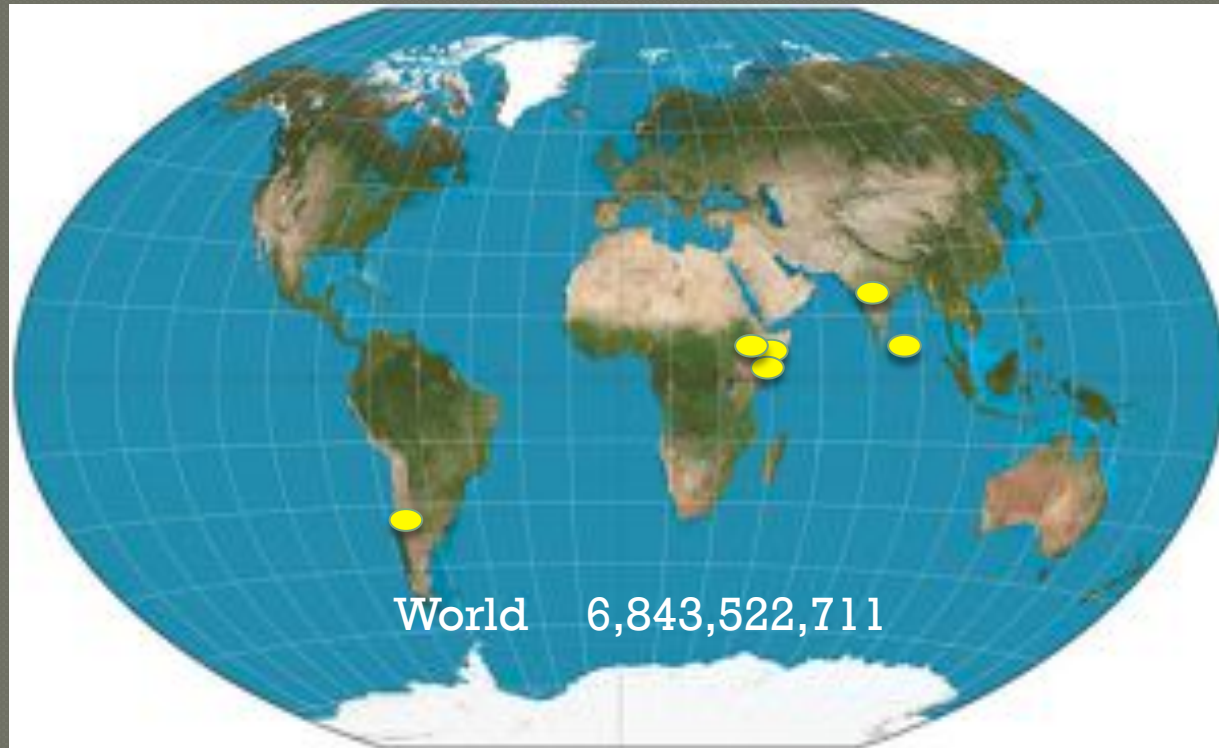
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Keynote edition.

Global Context



| | | | | | |
|----|-----------|------------------------------|----|----------|------------|
| 2 | India | 1,182,105,000 ^[1] | 30 | Tanzania | 43,187,823 |
| 32 | Kenya | 40,862,900 | 39 | Uganda | 31,784,600 |
| 55 | Sri Lanka | 20,653,000 | 61 | Chile | 17,094,270 |

[1] Includes data from Jammu and Kashmir (India-administered), Azad Kashmir (Pakistan-administered), and Aksai Chin (PRC-administered).

https://en.wikipedia.org/wiki/List_of_countries_by_population_in_2010

https://upload.wikimedia.org/wikipedia/commons/thumb/9/91/Winkel_triple_projection_SW.jpg/600px-Winkel_triple_projection_SW.jpg

An accidental project

- ◉ During a visit to Western Kenya Oct 2012
- ◉ Schools without classrooms, books, paper or electricity
- ◉ Many orphans (estimated 1/3)
- ◉ Many un(der) qualified teachers

- ◉ Excellent 3G coverage
- ◉ My Amazon Kindle

Necessary but not sufficient^[1]

- ◉ Food
- ◉ School buildings
- ◉ Writing materials

My burning question:

“What happens after they leave school?”

[1] Also an Eli Goldratt book title

Overcoming inertia

“There are more important problems, and it won't work...”

Practitioners (teachers)

If an experienced expert tells you it can't be done, it probably can. If they tell you it can be done, it probably can.

Action precedes clarity

Known unknowns (One Order of Ignorance):

- Can we create accounts without credit cards?
- Would Amazon block the accounts?
- Could we obtain the curriculum contents?
- Could we power the devices?
- Would they be broken, stolen, or even used?
- What about reliability, desirability, etc? etc?

Five Orders of Ignorance – Philip Amour

<http://www.corvusintl.com/CACM002-5OI.htm>

Using existing foundations

Building on what I know

- ◉ 34 years working as an engineer with technology
- ◉ 24*7 Operations
- ◉ Global users
- ◉ Engineering systems that continue functioning, reliably even when the pieces aren't

A story on TCP/IP

One person, amongst many

Combining [with] the good work of others

Kiwix

KA-Lite

Apache/nginx

code

Wikipedia
for Schools

Khan Academy

Wikipedia

Hesperian

MedLine+

CK-12

Practical
Answers

Great Books
of the world

...

content

RACHEL

open-source

open-content

loose-collaborations

Learning and evolving

- ◉ Agile concepts:
 - Monthly iterations
 - Retrospectives
- ◉ Start small & inexpensively
- ◉ Maximise learning through diversity (anti-fragile)

Start small, learn quickly, adapt & evolve

| Kindle project | |
|---------------------------------------|-------------|
| 6 schools each with a Kindle | Feb 2013 |
| 7 th school & more devices | Summer 2013 |
| Zoombinis in Indian schools | July 2013 |
| 6 schools, pupils teach peers | Jan 2014 |
| WorldReader contents | Feb 2014 |
| 11 schools with Kindles | July 2014 |

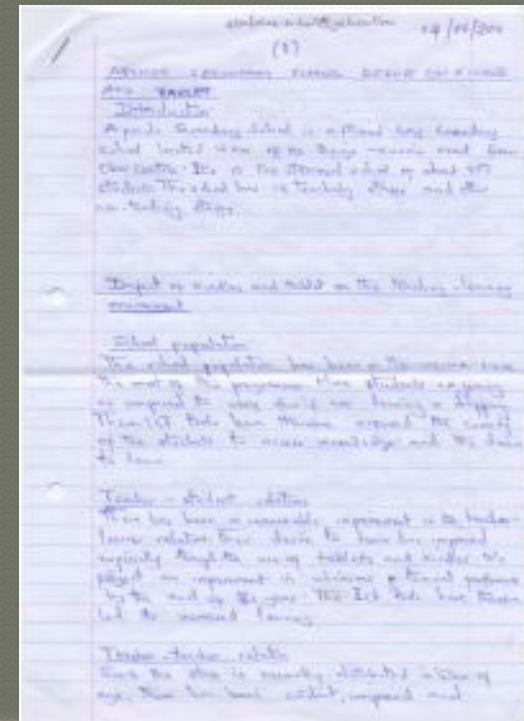


- 3G WiFi
- 'UPS' power for Raspberry Pi's
- Solar, Solar, Solar power
- Tablets + Raspberry Pi's

Active engagement

- I need their commitment & feedback
- Help them learn competencies
- Contributions in growth stage

Example Monthly Report
from School in Oyugis



Snapshots of progress



Dadaab refugee camp

- Kenya
- 11 schools with Kindles
- 3 with Android Tablets + Raspberry Pi
- Dadaab has a Solar powered Pi

Snapshots of progress: Chile



Santiago

- Launched 9 tablets + Pi in OPTE School
- Worked with EnseñaChile (teach first)
- Met Ministry of Education

Punta Arenas

- 3 schools
- Met Regional Government

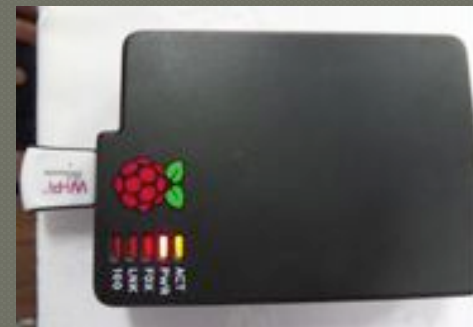
Computers

And other equipment

2014



150 Nexus 7's donated by Google
60 Kenya
15 Chile
75 India



Android Tablets

&

Raspberry Pi's

Power

- ◉ Mobile Phone 'power packs'
- ◉ Solar Panels (3w to 7 w)
- ◉ 4-port USB chargers
- ◉ ...?

Practical, scalable solutions

- ◉ Inexpensive off-the-shelf parts
- ◉ Open content & open source
- ◉ Test diverse alternatives
- ◉ Seek simplicity
- ◉ Measure, test, gather data & evidence...
- ◉ Collaborate & share

Cross-referencing (Sanity Checks)

- ◉ Ask professional teachers
- ◉ Discuss and publish
- ◉ Read extensively

A group of people are seated at tables in a room with a high, vaulted ceiling and a large chalkboard in the background. The chalkboard contains diagrams and text, including a central box labeled 'BANK' and a diagram of a ship. The people are seated at tables covered with white and purple cloths. There are water bottles on the tables. The room has yellow walls and a corrugated metal roof structure.



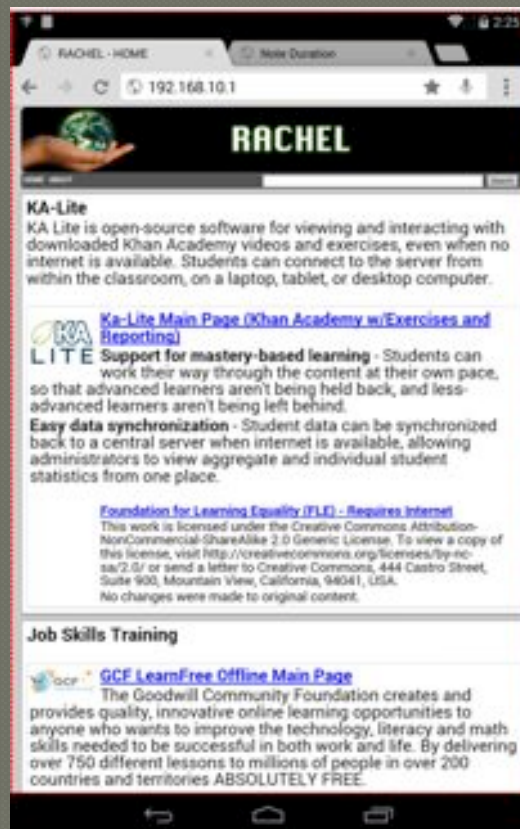
The software

And other stuff

There are code, text, & contents

- ◉ Code does stuff
- ◉ Text & other resources communicate
- ◉ Contents are the essence of what users need
 - Wikipedia
 - Videos
 - Exercises
 - eBooks
 - ...
- ◉ All need to be of sufficient quality, relevant and understood

Screenshots



RACHEL homepage
viewed in Android
web browser



Application Home on Android tablets in Chile

Case-studies

- ◉ Google Volunteer Days
 - KA-Lite automated tests for synchronisation
- ◉ Wikimedia Hackathon Zurich
 - Kiwix Android build fixes & much more
- ◉ Selenium Conference Bangalore
 - Finding bugs
 - Automated tests

SeleniumConf 2014++

Kiwix Bug-Fest @ Selenium Conference

- 118 bugs filed (60 already closed)
- Automation test suite

<https://github.com/Bug-Bash/selenium-kiwix>

KA-Lite Translations fostered in 10 weeks

| # Translations | Language |
|----------------|----------|
| 41 | French |
| 30 | Hindi |
| 359 | Kannada |
| 54 | Polish |
| 110 | Swahili |

522

+55

577

Examples

- Cigniti: 415 Telegu videos

- Translated: 250
- Created: 165

- Dharmavahini Foundation 6,000 videos

<http://www.cigniti.com/blog/project-cignificance/>

<http://learntv.lk/>

The Future

From several perspectives

Reaching the next billion

Commercial

- Facebook **Zero** & Internet.org
- Google Loon project

Not-For-profit

- Wikipedia **Zero**



<http://www.wired.com/2014/06/google-balloons-year-later>

Image from: <http://www.google.com/loon/>

Another View

THE WORLD'S MOST POPULOUS COUNTRIES



<http://www.odt.org/Pictures/poplcart.jpg>

You *can* help!

- Translations for the apps
 - Khan Academy Lite (ka-lite)
 - Kiwix
- Translate, localize & create materials
- Suggest apps, contents, etc.
- Productionize equipment, configurations & code
- Develop mobile apps
- Replicating [and improving] the work

KA-Lite Translations

KA Lite

Ask Translations

Activity

Discussions

Filter languages

Needs Translation:



Afrikaans
translated: 0%



Arabic
translated: 4%



Bengali
translated: 0%



Bulgarian
translated: 4%



Burmese
translated: 16%



Catalan
translated: 0%



Chinese Simplified
translated: 5%



Chinese Traditional
translated: 4%



Czech
translated: 4%



Danish
translated: 17%



Dutch
translated: 0%



English
translated: 1%



Filipino
translated: 0%



Finnish
translated: 0%



French
translated: 25%



German
translated: 8%



Greek
translated: 4%



Hebrew
translated: 0%



Hindi
translated: 14%



Hungarian
translated: 0%



Italian
translated: 4%



Japanese
translated: 1%



Kannada
translated: 14%



Khmer
translated: 0%



Korean
translated: 0%



Lao
translated: 34%



Lithuanian
translated: 0%



Nepali
translated: 0%



Norwegian
translated: 0%



Persian
translated: 0%



Pirate English
translated: 1%



Polish
translated: 25%



Portuguese
translated: 0%



Portuguese, Brazilian
translated: 7%



Quechua
translated: 0%



Romanian
translated: 4%



Russian
translated: 0%



Serbian (Cyrillic)
translated: 4%



Serbian (Latin)
translated: 0%



Sindhi
translated: 0%



Slovak
translated: 4%



Spanish
translated: 16%



Spanish, Mexico
translated: 1%



Swahili
translated: 8%



Swedish
translated: 1%



Tamil
translated: 13%



Telugu
translated: 0%



Thai
translated: 0%



Turkish
translated: 0%



Ukrainian
translated: 0%



Urdu (Pakistan)
translated: 9%



Vietnamese
translated: 0%



Xhosa
translated: 0%

[illegible]

Improve fitness-for-purpose

- Increase reliability
 - 1/3rd of SD-Cards catastrophically fail
- Reduce effects of failure
 - RACHEL on Android
 - Evaluate alternatives to Raspberry Pi's
- Scaling-up and Scaling-out
 - Pi's in parallel
 - Integrating into LAN's
 - Alternatives to Pi's
- Packaging & deployment of code & content

Fork, Branch & send 'pull requests'

- ◉ Of ideas, practices code & materials
- ◉ Deploy similar nodes @ schools
- ◉ Provide feedback & evidence

Help move the bias from consumption to learning

- ◉ Lectures
- ◉ Videos
- ◉ Exercises
- ◉ Experimenting
- ◉ Creating
- ◉ Innovating & leading

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If not you? Who?

@ Agile Pune Conference

Q&A

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Helping to enable people to live better lives through
appropriate use of [mobile] technologies

<http://kusaaidiamwalimu.org>

<https://github.com/julianharty/hfc-rachel/wiki>

References & further reading

- The Rachel Project
 - <http://rachel.worldpossible.org/>
- Khan Academy Lite
 - <https://learningequality.org/ka-lite/>
- Khan Academy
 - <https://www.khanacademy.org>
- Kiwix
 - <http://kiwix.org>
- Raspberry Pi computer
 - <http://www.raspberrypi.org>
- Salman Khan's book:
 - The One World School House – education reimagined
- The Chennai Education Centre
 - <http://www.tcec-kfi.org>