

Python on Aakash

Srikant & Sachin

Indian Institute of Technology, Bombay

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NME-ICT (MHRD), AAKASH PROJECT, IIT BOMBAY



Outline



Introduction

- Aakash - a low cost access device
- Available for student at less than \$22

Aakash-2 specs

- 1 Ghz Processor
- 512 MB RAM
- 4 GB ROM
- 3000 mAh battery
- Multi-touch, Capacitive
- Android ICS (4.0.4)
- Wifi connectivity
- Front camera
- Accelerometer



IPython notebook

- IPython notebook with Matplotlib works on android with firefox or chrome web-browser



Aakash Programming Lab

- Full fledged programming environment for Python-2.7.2 and other languages
- Scilab-5.4, an Open source software for numerical computation
- Was extended to C and C++ with GCC-4.6.3
- Offline docs and reference manual



Accounting on Aakash

- Derived from GNUkhata
- Portable accounting platform on Android intended for Accountants and Students.
- Easy to use UI
 - Android-xmlrpc client side (java))library
 - pysqlite2 binding



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How it works

Booting \rightarrow *preinstall.sh* \rightarrow *aakash.sh* $\xrightarrow[\text{gkstart.py, ipython.py}]{\text{sb_manage.py}}$



Challenges in Android

Aakash Programming lab

- CPU and memory optimization
- Unable to compile scilab using Android NDK
- Plots in Scilab
- Integrating shellinabox server



Challenges in Android

IPython

- Unavailability of web-sockets in default Android webkit browser
- IPython-kernel random shutdown

Accounting software on Aakash

- `sqlite` - as a database
- `client(java)`-`server(xmlrpc)` interaction



- linux and alternate OS for students and teachers on Aakash
- runs entirely from SDcard



Arduino on Aakash

Arduino

An open-source electronics prototyping platform



expEyes on Aakash

expEyes

A tool for learning science by exploring and experimenting



Challenges in linux

- touch screen drivers
- USB-to-serial, cdc drivers
- Desktop environment
- GPU drivers
- kernel level hacks, module loading, wifi etc.
- file-system



Android apps on Aakash

<https://github.com/androportal>

- | | |
|--------------------------|--------------|
| • IPython notebook | /apk-ipython |
| • Aakash Programming Lab | /APL-apk |
| • docs | /docs |
| • Accounting on Aakash | /gkAakash |



linux on Aakash

- <http://androportal.github.com/linux-on-aakash>
- <http://www.youtube.com/user/TheAakashTablet>



Questions?

