

Openmoko

Free Your Phone

This talk will not be possible without

- **FIC, Taiwan**
- **Openmoko Inc**
- **Free Software community**
- **Ole Tange (Openmoko presentation)**
- **Mukt.in**
- **Qvantel**
- **Myself**

Chocolate and Pistachio Cake



chocolate
sugar
pistachios
butter
eggs
salt
water

Chocolate Chip Cupcakes

**butter
sugar
flour
eggs
vanilla extract
chocolate chips
baking powder
cocoa powder
evaporated milk**



double nutella cupcakes



**whole wheat flour
cocoa powder
baking soda
salt
butter
sugar
eggs
buttermilk
milk
vinegar
coffee
vanilla extract**

beatty's chocolate cake

**butter
flour
sugar
cocoa powder
baking soda
baking
powder
salt
buttermilk
vegetable oil
eggs
vanilla extract
brewed hot
coffee
chocolate
egg yolk**





chocolate mocha trifle

brownies
whipped cream
sugar
chocolate pudding
coffee granules
almonds

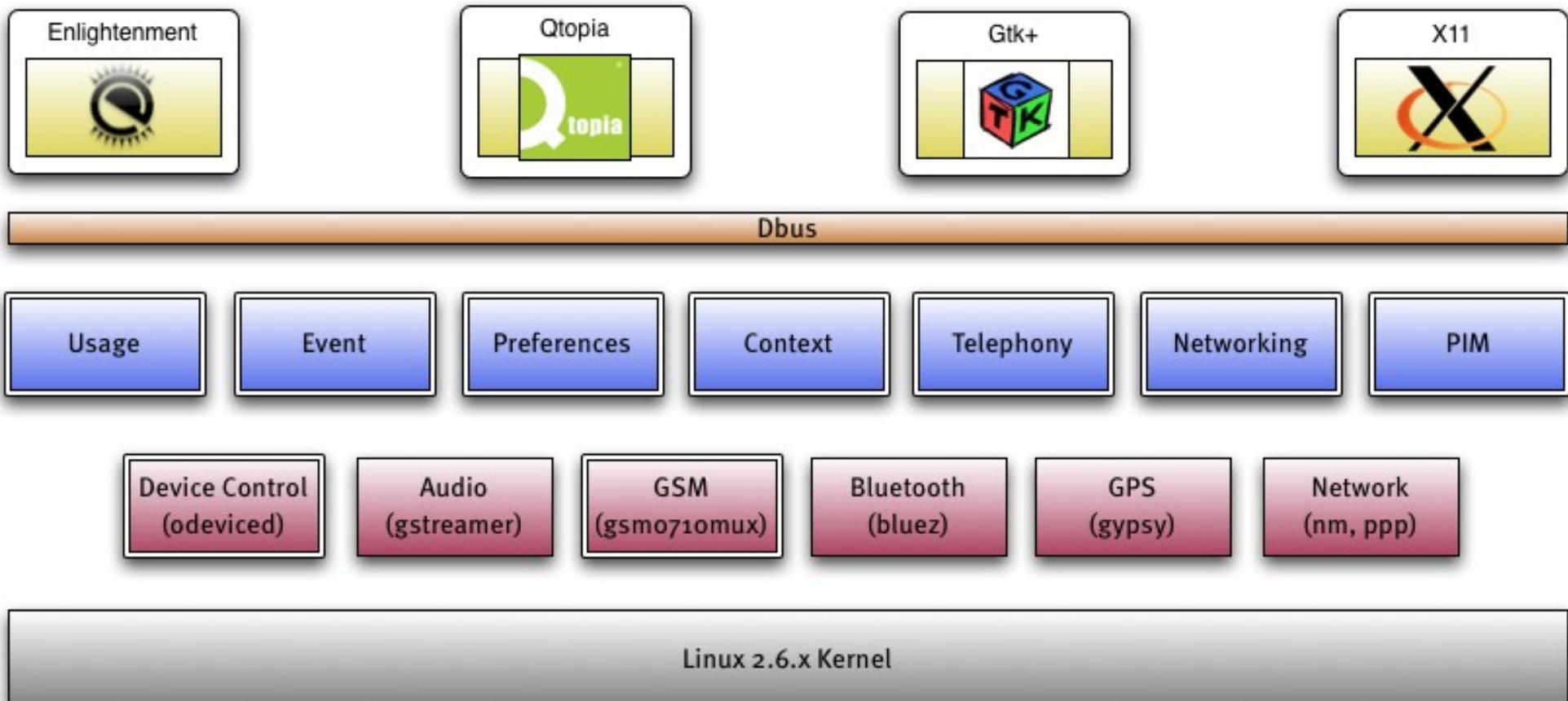
chocolate cake with hot chocolate fudge

sugar
flour
hershey's coca
baking soda
eggs
milk
butter
vanilla extract
water



Ingredients

Openmoko 2008 Software Architecture



High-level framework service



Newly created or modified component



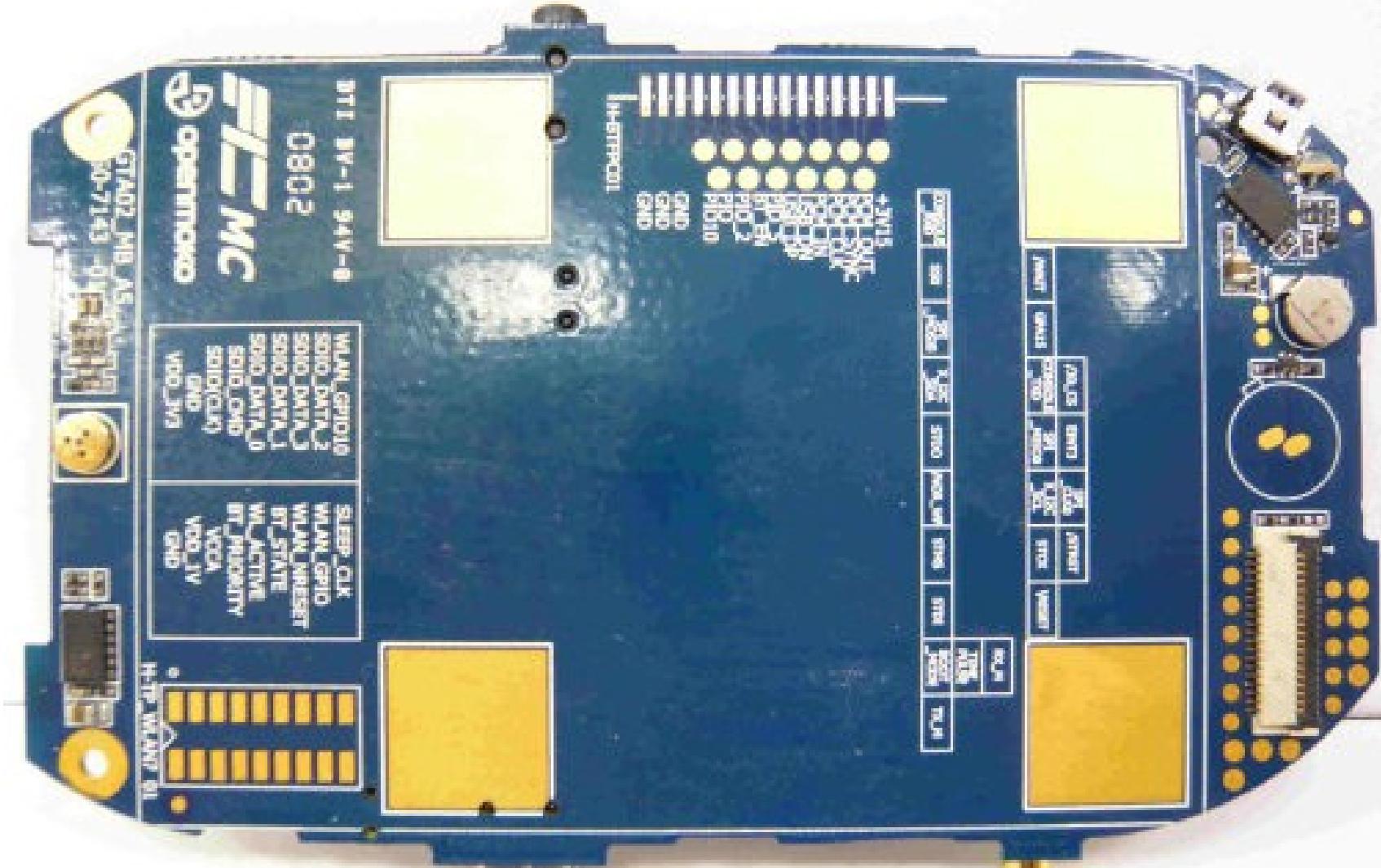
Low-level framework service



Existing component

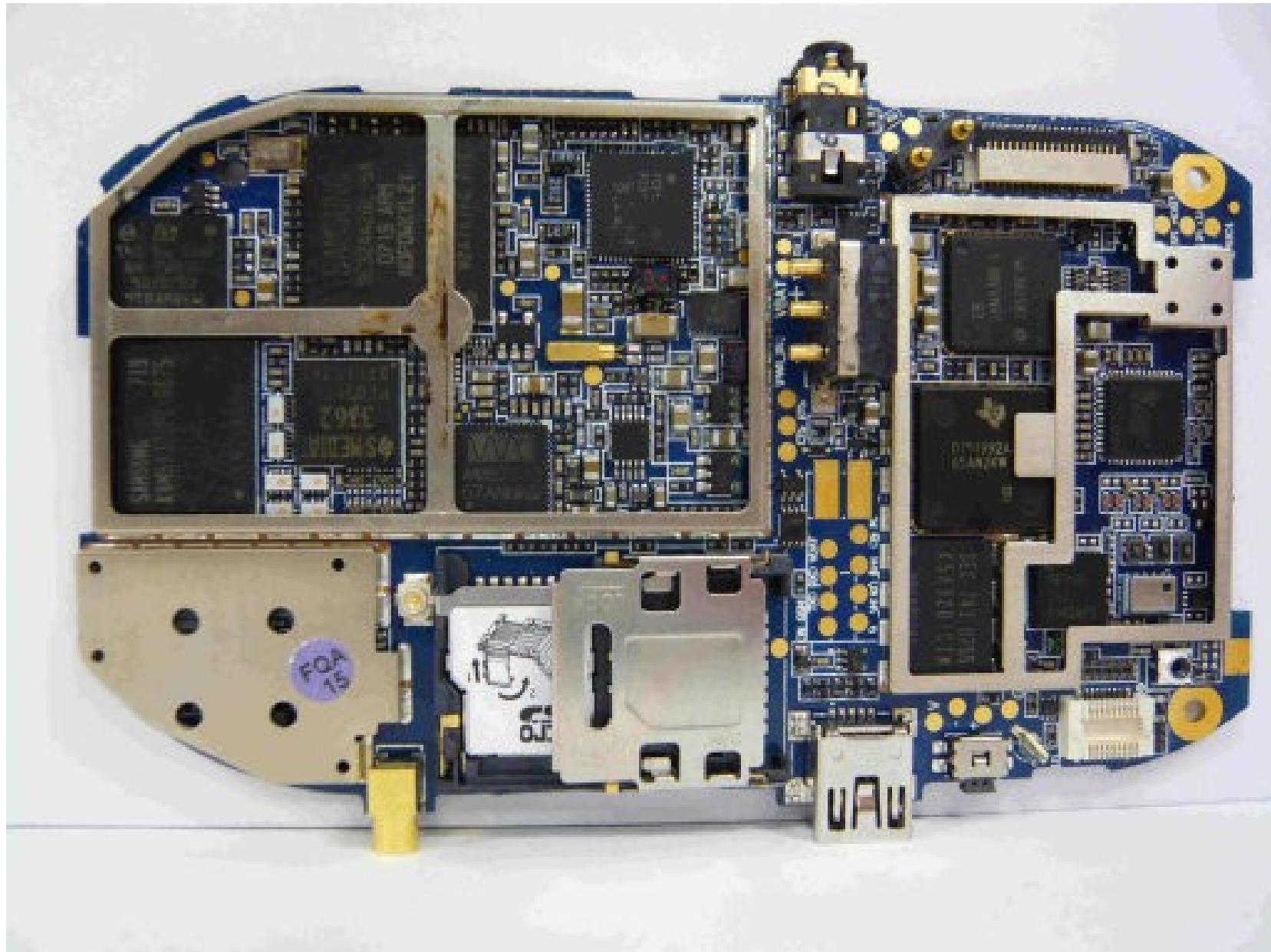
:M:

Crispy Layer (top)



http://wiki.openmoko.org/wiki/Neo_FreeRunner_GTA02_Hardware

Crispy Layer (back)



http://wiki.openmoko.org/wiki/Neo_FreeRunner_GTA02_Hardware

Black Current



http://wiki.openmoko.org/wiki/Neo1973_as_radio_replacement

Toppings



Many people share the idea's that
it is the antenna hole that makes it useful
People may take a view
it is the open source that makes it useful
but others and who are for a reason
it is the holes which makes it useful
Therefore people consider those when it comes
availability from what is available there

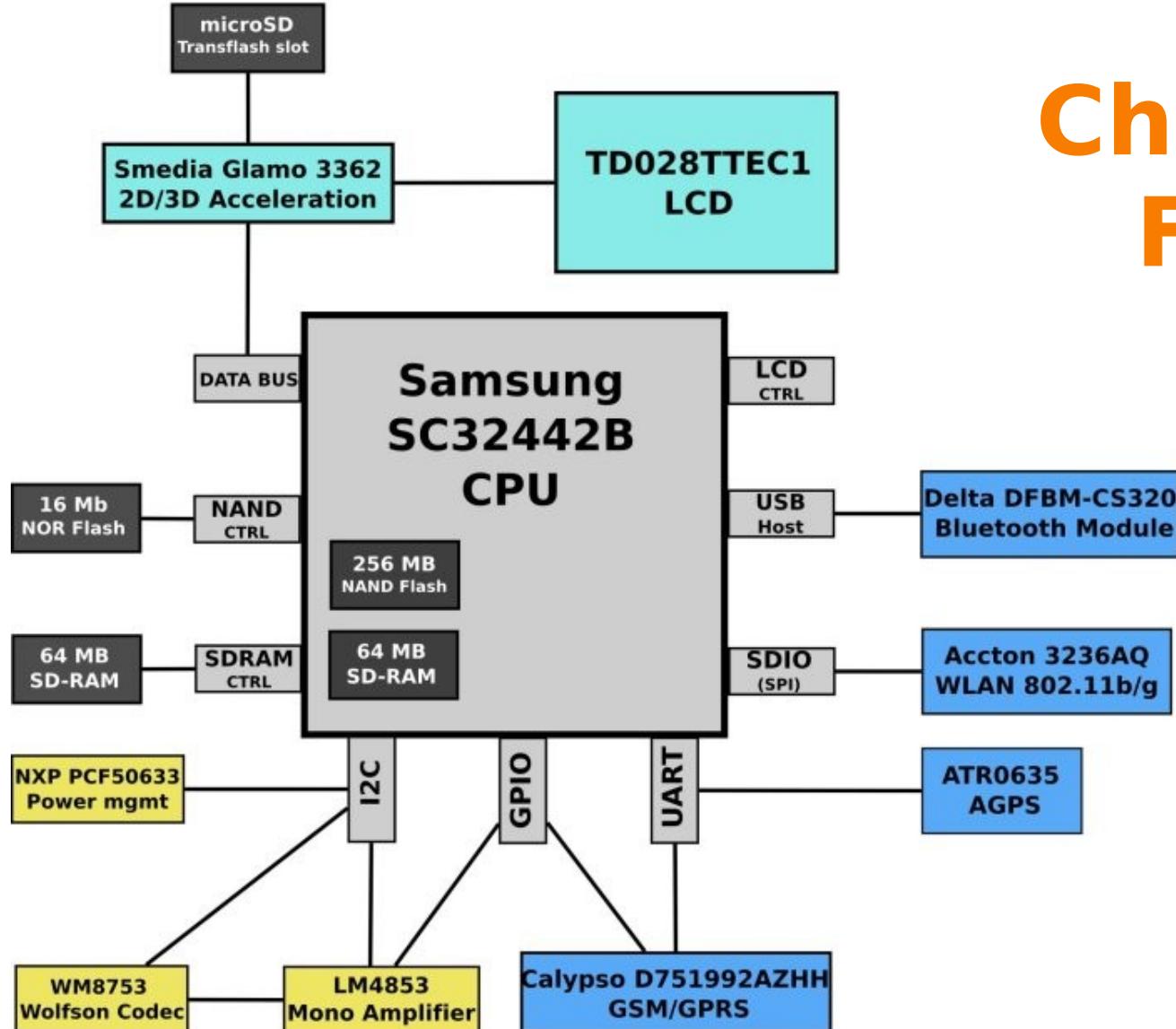
Layton

http://openmoko.org/wiki/Getting_Started

Neo FreeRunner (GTA02)

Simplified hardware component diagram

2008 Kim Hauritz, some rights reserved - CC: A-NC-SA



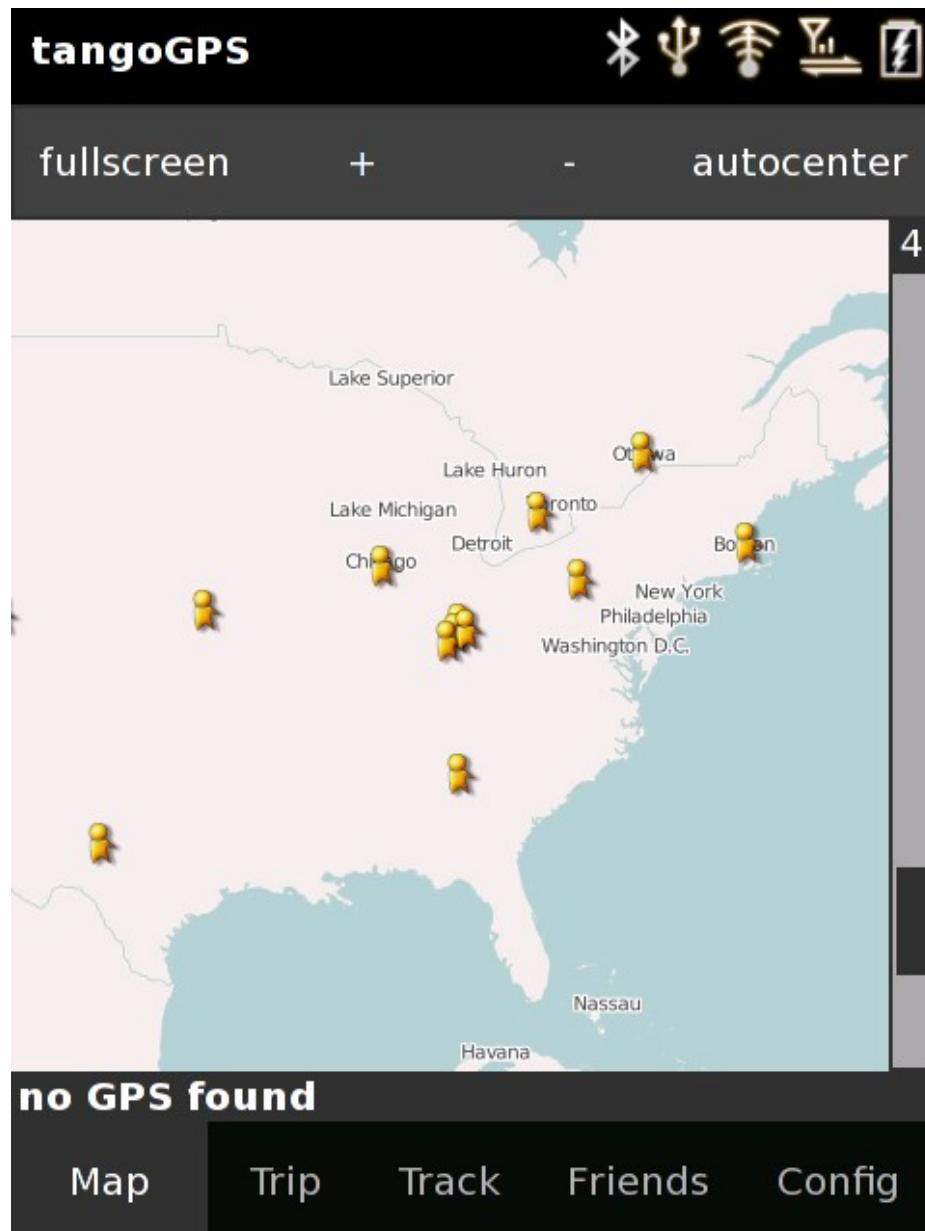
Chocolate
Fudge

Choco Chips

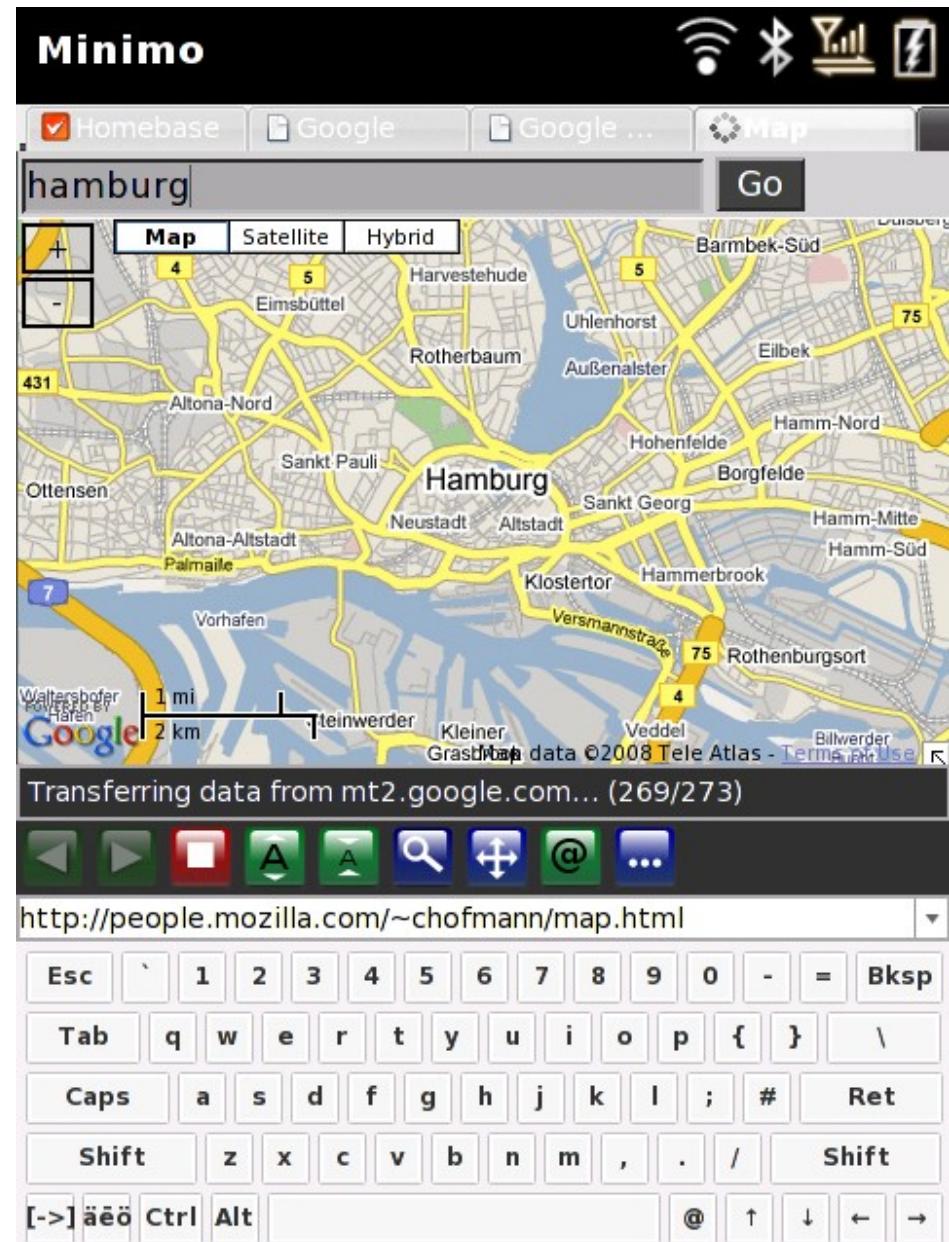
Component	Name	Openness
CPU	Samsung S3C2442	Docs available after free registration
NAND	Samsung	Standard NAND command-set
GSM modem	TI Calypso	Speaks standard protocols
Wifi	Atheros AR6k	GPL drivers available
Bluetooth	Delta DFBM-CS320 Class2	Documentation available
GPS	U-blox ANTARIS 4 ATR0635	Serial protocol documentation available
Graphic accelerator	Smedia 3362	Documentation available under NDA, unlike previously announced
LCD	Toshiba TFT LCD chipset	GPL driver available
Sound codec	Wolfson Codec	Datasheet available
Sound amplifier	National Semiconductor LM4857	Datasheet available
Power management	Philips PCF50606	Documentation available
Battery	Proprietary	Schematic available

http://wiki.openmoko.org/wiki/GTA02_Openness

“American Beauty”



“High on Ham”



Ingredients

Size and weight

- **4.75 x 2.44 x 0.73 inches**
- **6.5 ounces (185 grams)**

Display

- **Touch Screen**
- **2.8" VGA (480x640) Screen**

Speed

- **ARM9 @ 400 MHz**
- **2D/3D Graphics Acceleration**

GSM

- **Tri band 850/1800/1900 MHz**
- **Tri band 900/1800/1900 MHz**

Software highlights

- **Openmoko GNU/Linux-based**
- **100% FOSS on CPU**
- **GNU/Linux development tools**

<http://openmoko.com/product.html>

http://wiki.openmoko.org/wiki/Neo_FreeRunner_GTA02_Hardware

Power

- **Removable 1200 mAh battery**

Memory

- **128MB SDRAM**
- **256MB NAND Flash**
- **microSD Slot**

Input and Output

- **2.5 mm audio jack**
- **GPS external connector**

Hardware highlights

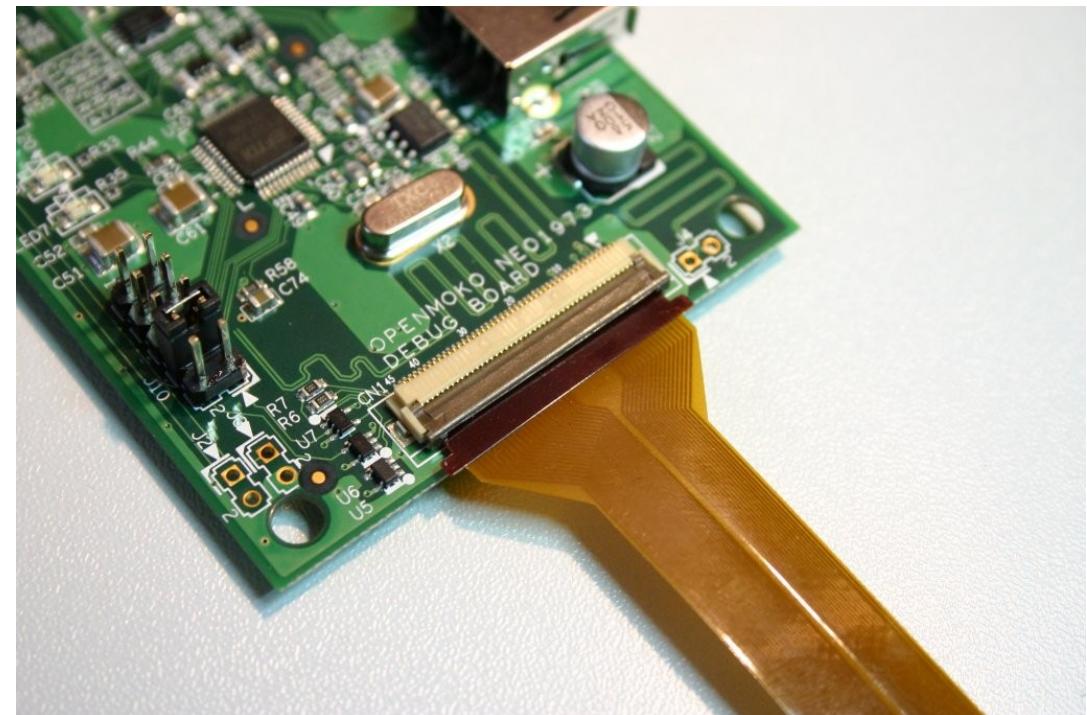
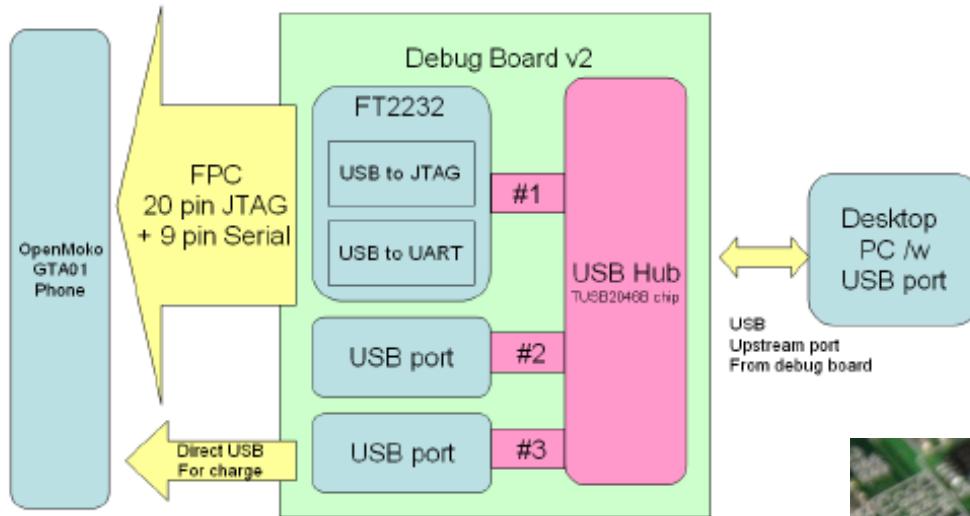
- **Wi-Fi (802.1 1b/g)**
- **AGPS**
- **GPRS (2.5G not EDGE)**
- **Bluetooth 2.0**
- **3axis Motion Sensors (2)**

“Anti-Gravity Chocolate”



http://wiki.openmoko.org/wiki/Hardware:Neo1973:Alternate_Cases:Digital_gaming

Scoop



http://wiki.openmoko.org/wiki/Debug_Board_v2

Setup

Install dependency packages

**sudo apt-get install subversion build-essential help2man diffstat
texi2html texinfo cvs gawk zip unzip cogito**

**sudo apt-get install libncurses5-dev zlib1g-dev libssl-dev
libgtk2.0-dev**

To prevent errors in host validation

sudo apt-get install ca-certificates

For Openmoko 2007.2 using BitBake-1.8.8

sudo apt-get install python-pysqlite2 sqlite3 sqlite3-doc

<http://wiki.openmoko.org/wiki/MokoMakefile>

<http://wiki.openmoko.org/wiki/Toolchain>

Setup

For faster builds

sudo apt-get install quilt python-psycodccache

For qemu, install a second compiler for bug avoidance; MokoMakefile knows to look for it

sudo apt-get install gcc-3.4 g++-3.4 libsdl1.2-dev lynx netpbm dosfstools

This may be needed only for ASU

sudo apt-get install libxtst-dev

<http://wiki.openmoko.org/wiki/MokoMakefile>

<http://wiki.openmoko.org/wiki/Toolchain>

Make

Install openmoko

```
mkdir ~/moko; cd ~/moko
```

```
wget http://www.rwhitby.net/files/openmoko/Makefile
make setup
```

FreeRunner

```
make setup-machine-freerunner
```

Select branch

```
OM_GIT_BRANCH := org.openmoko.dev          /* OM2007.2 */
OM_GIT_BRANCH := org.openmoko.asu.dev        /* ASU */
OM_GIT_BRANCH := org.openmoko.asu.stable      /* ASU stable */
OM_GIT_BRANCH := org.openembedded.dev         /* FSO */
```

Select target

```
make openmoko-devel-image                  /* OM2007.2 */
make openmoko-qtopia-x11-image            /* ASU */
make fso-image                            /* FSO */
```

“Jalapeño Fireball”



“Flip Out”



Toolchain Recipe

Install dependencies

```
sudo apt-get install gcc g++ autoconf automake binutils libtool  
libglib2.0-dev ccache libxrender-dev intltool libmokoui2-dev  
libgconf2-dev mtools
```

Get toolchain

```
wget http://downloads.openmoko.org/toolchains/openmoko-  
x86_64-arm-linux-gnueabi-toolchain.tar.bz2
```

or

```
wget http://downloads.openmoko.org/toolchains/openmoko-  
i686-arm-linux-gnueabi-toolchain.tar.bz2
```

Source environment variables

```
. /usr/local/openmoko/arm/setup-env
```

<http://wiki.openmoko.org/wiki/Toolchain>

Toolchain Recipe

Configure

om-conf openmoko-sample2

Make

cd openmoko-sample2
make

Package

om-make-ipkg openmoko-sample2

<http://wiki.openmoko.org/wiki/Toolchain>

BitBake Recipe

DESCRIPTION = "A killer hello world application"

AUTHOR = "Katie Holmes"

HOMEPAGE = "http://www.tomkat.hehe"

SECTION = "console/application"

PRIORITY = "optional"

LICENSE = "GPL"

SRC_URI = "file://myhelloworld.c \
 file://README"

S = "\${WORKDIR}/myhelloworld/"

do_compile() {

 \${CC} \${CFLAGS} \${LDFLAGS} \${WORKDIR}/myhelloworld.c -o
myhelloworld

}

do_install() {

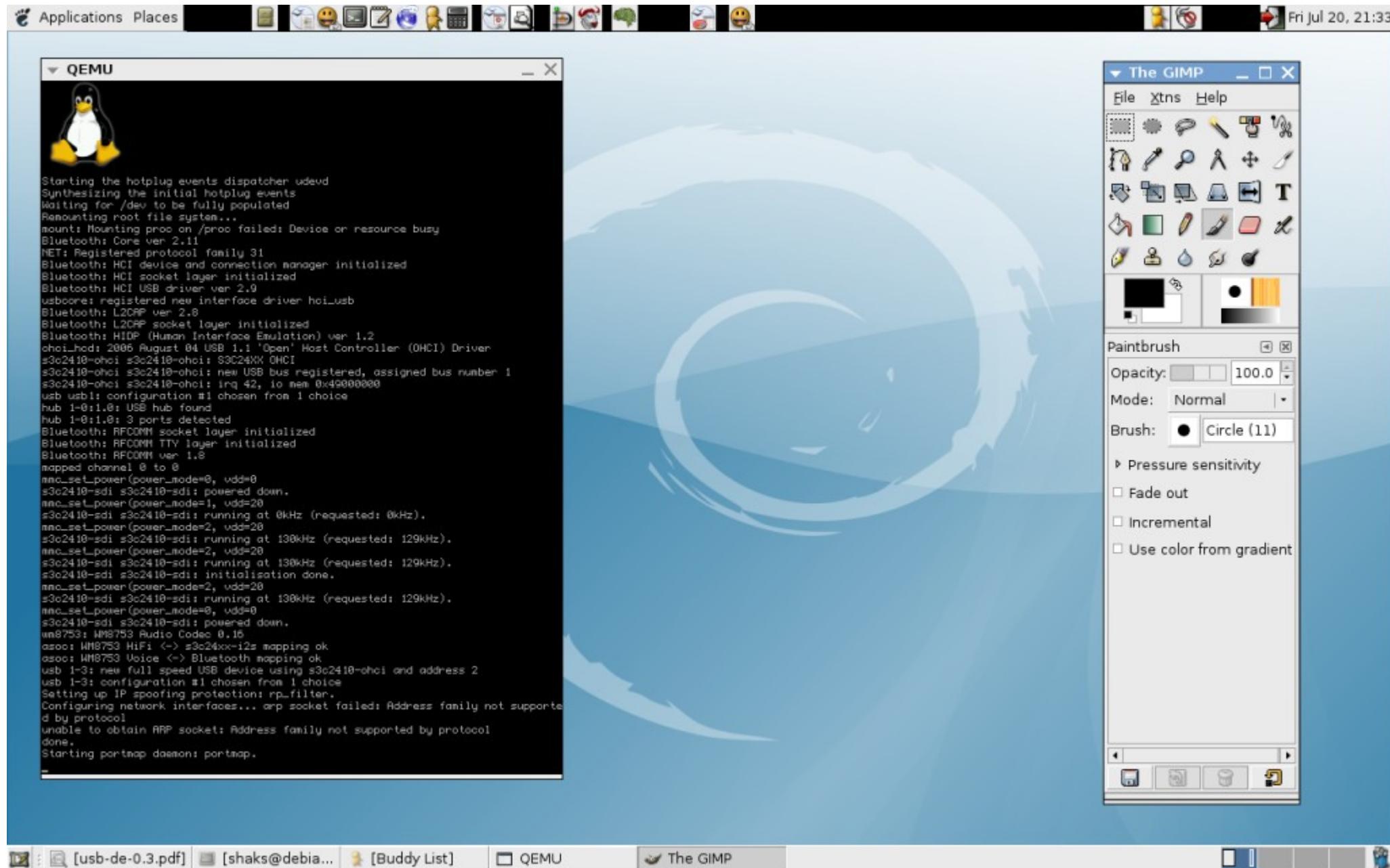
 install -m 0755 -d \${D}\${bindir} \${D}\${docdir}/myhelloworld

 install -m 0755 \${S}/myhelloworld \${D}\${bindir}

 install -m 0644 \${WORKDIR}/README \${D}\${docdir}/myhelloworld

}

Tastes



Tastes



Supplier

- **FIC Taiwan**
- **Honest**
 - **Delays with explanations**
 - **Rather delays than flaky hardware**
- **Works with the community**
- **Profit**
 - **Larger margin by selling direct to consumer**

<http://www.openmoko.dk>

In stock

In India:

FreeRunner == INR 22000

sales@idasystems.net

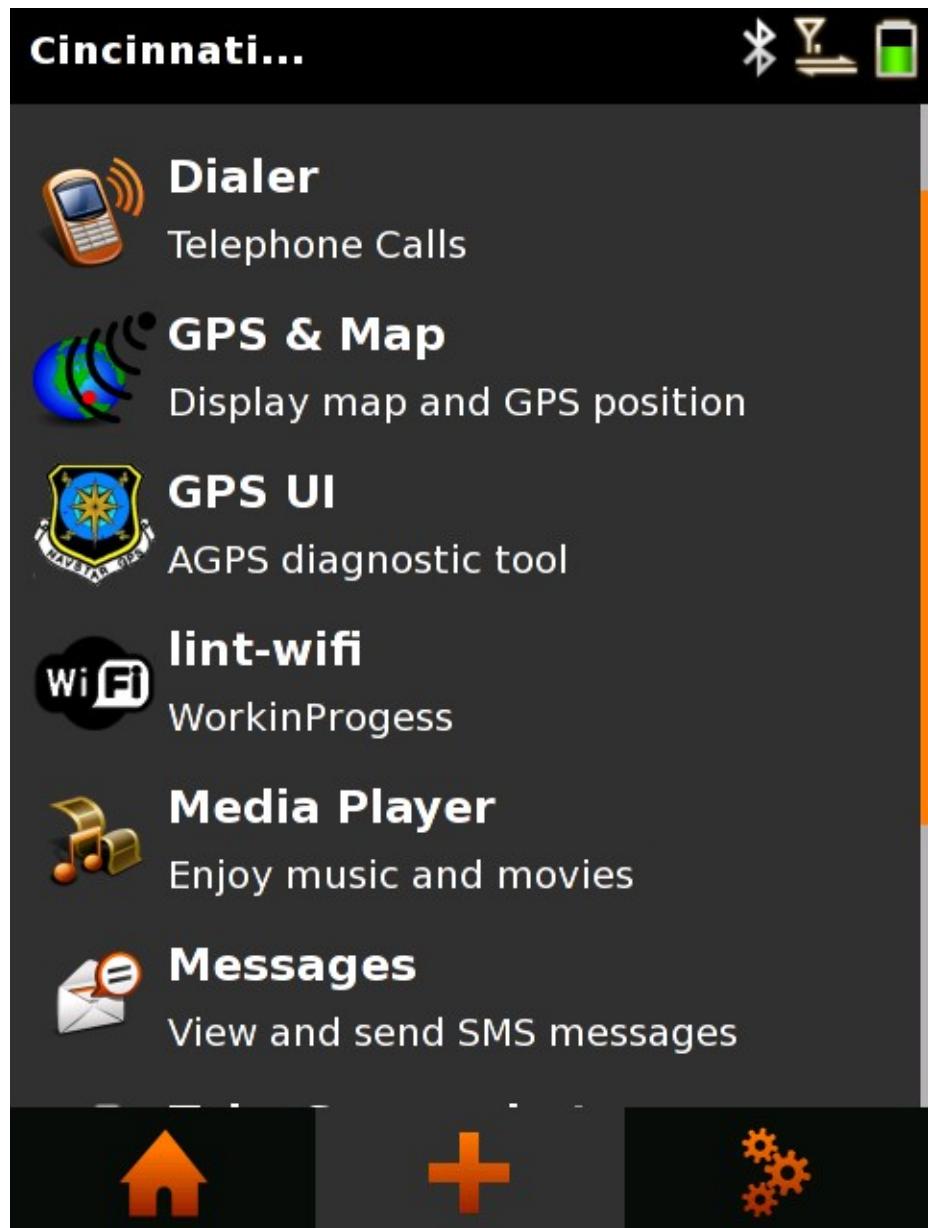
**IDA Systems Pvt Ltd
11 Uniara Garden
Jaipur 302004
Rajasthan
India**

<http://idasystems.net/>

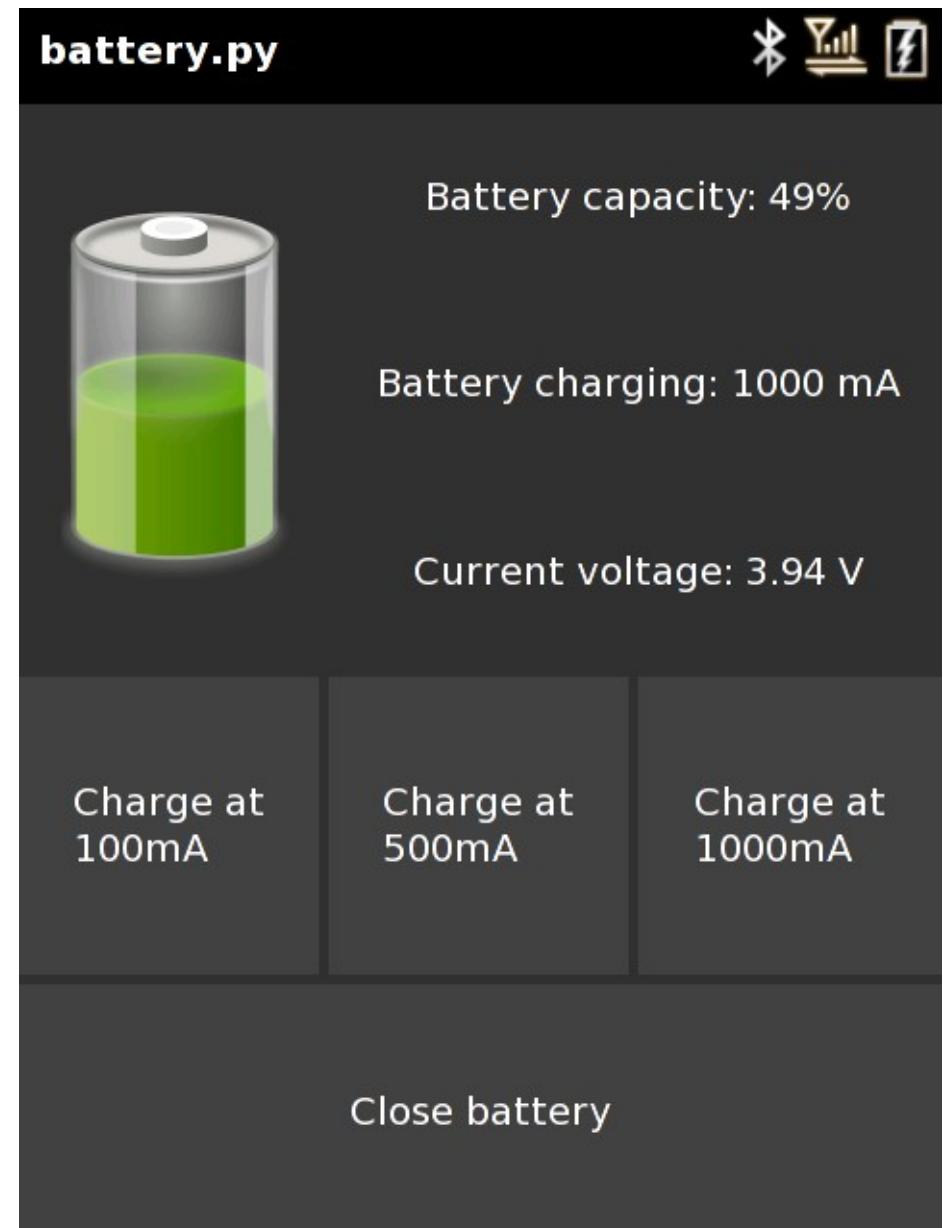
Web:

<http://www.openmoko.com>

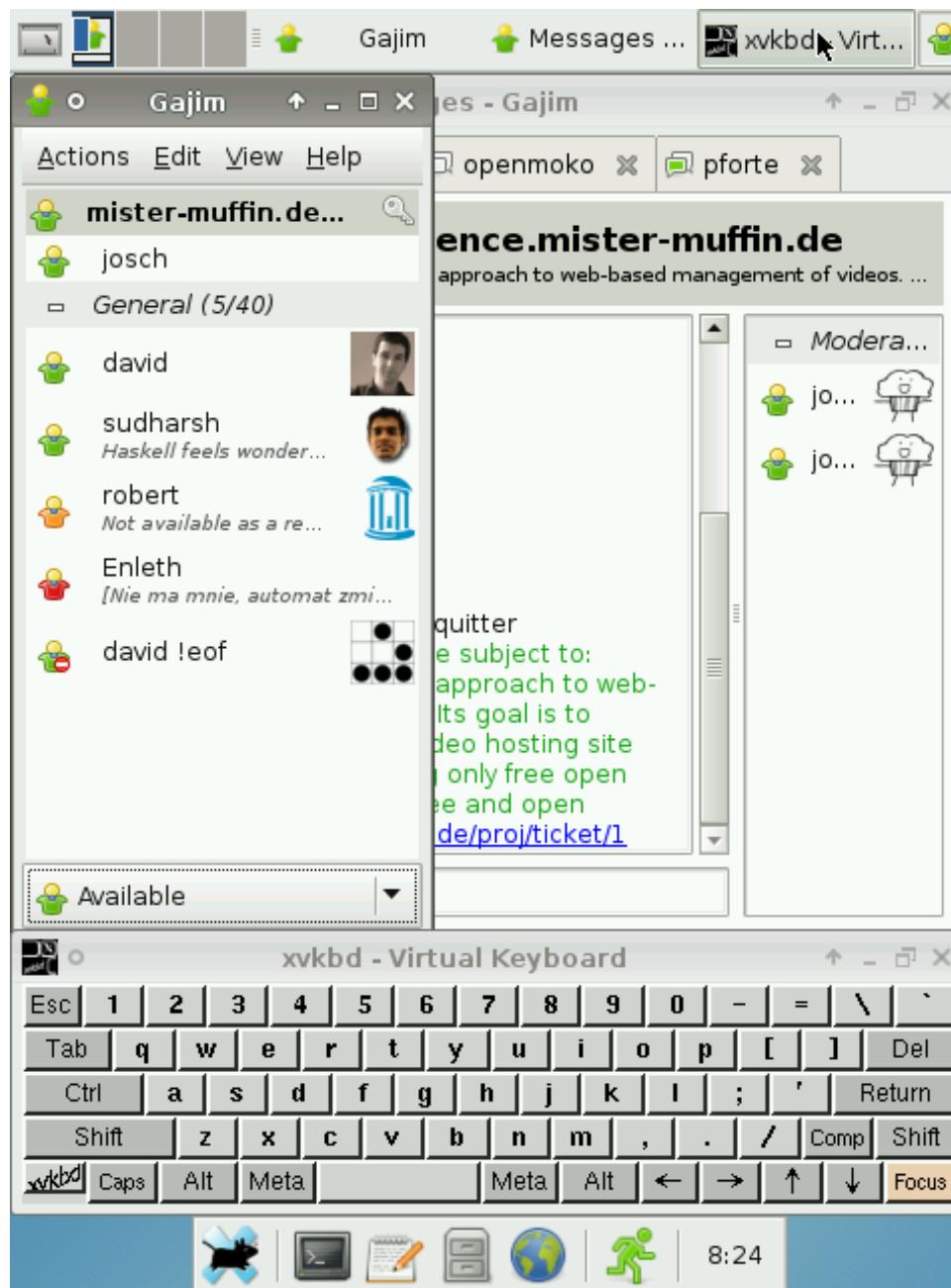
“Recipes”



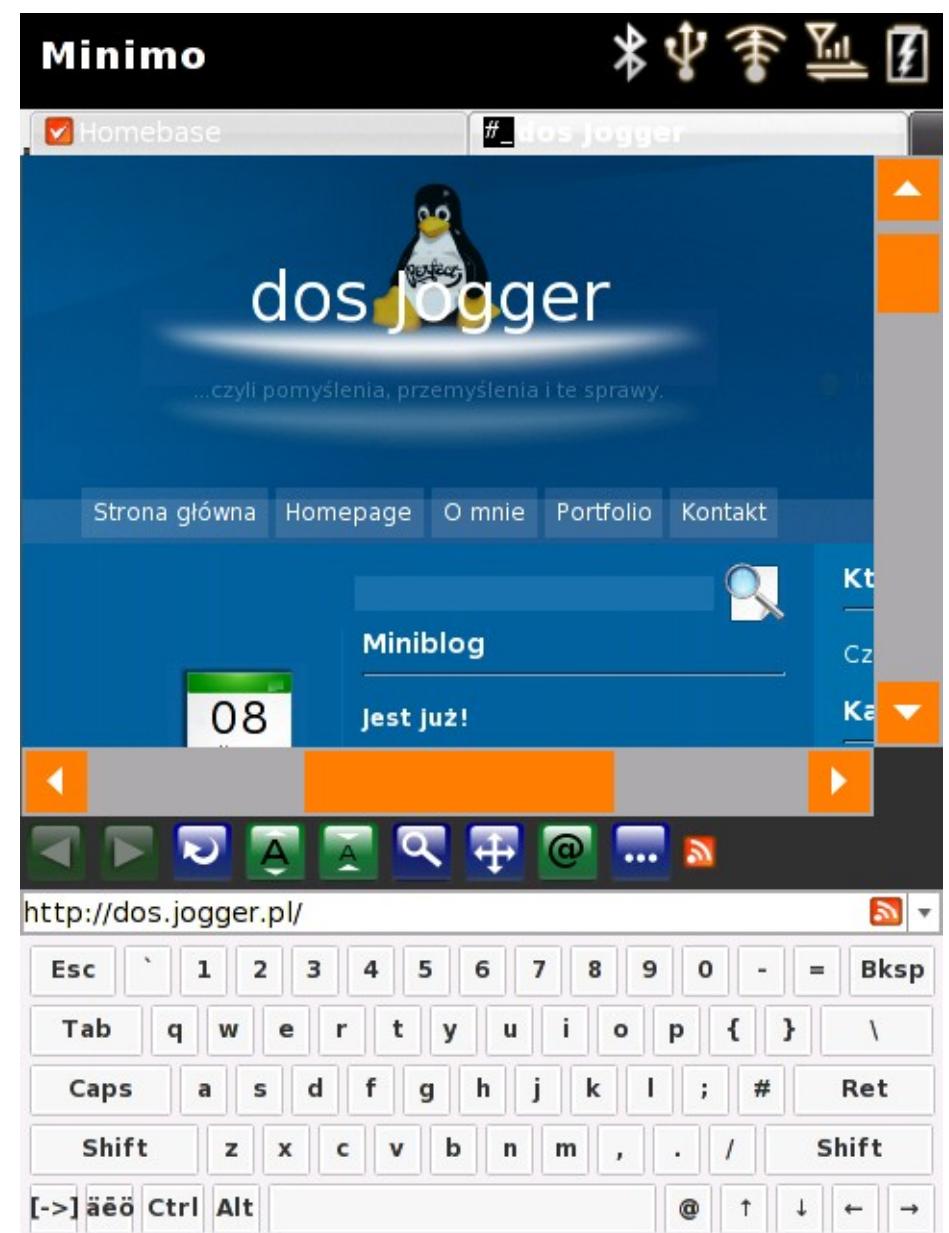
“Powerdrome”



“Gajim”



“Minimo”



Flavors

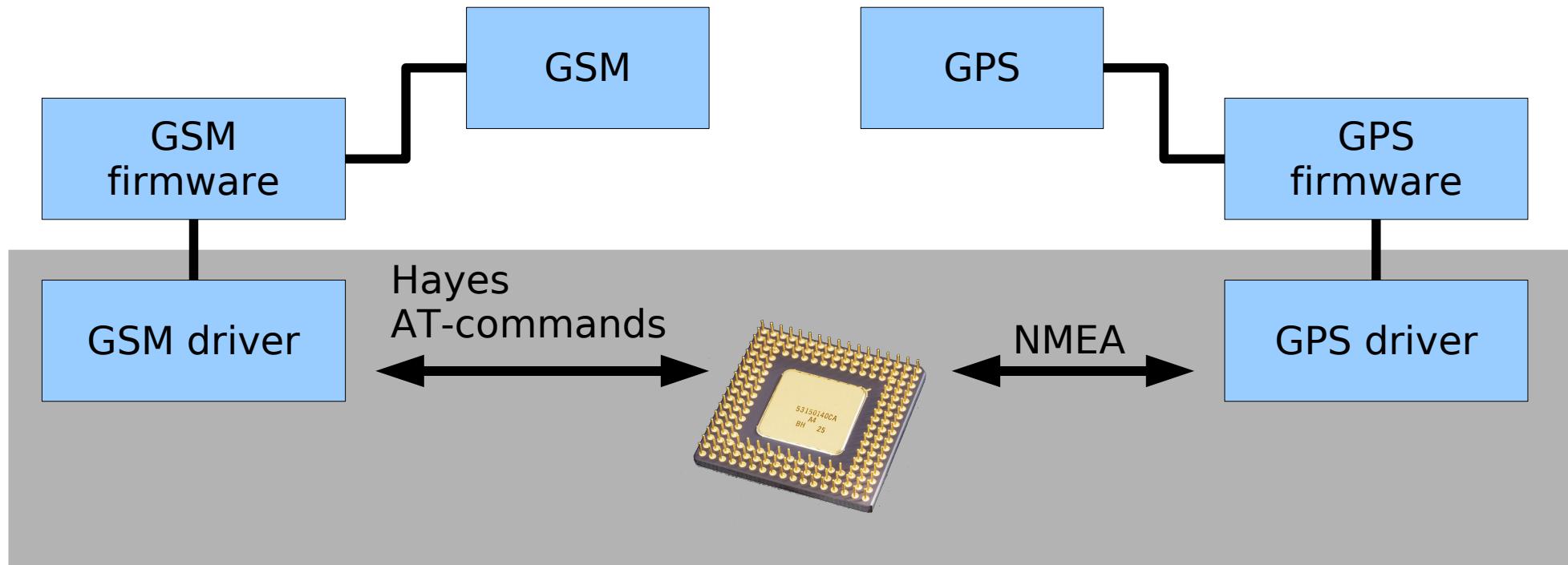
- “OM2007.2”
 - “FSO”
 - “ASU”
 - “SHR”
 - “Qttopia”
 - “Debian”

“Drastic Plastic”



http://wiki.openmoko.org/wiki/Hardware:Neo1973:Alternate_Cases:Hardware_keyboard_docking_station

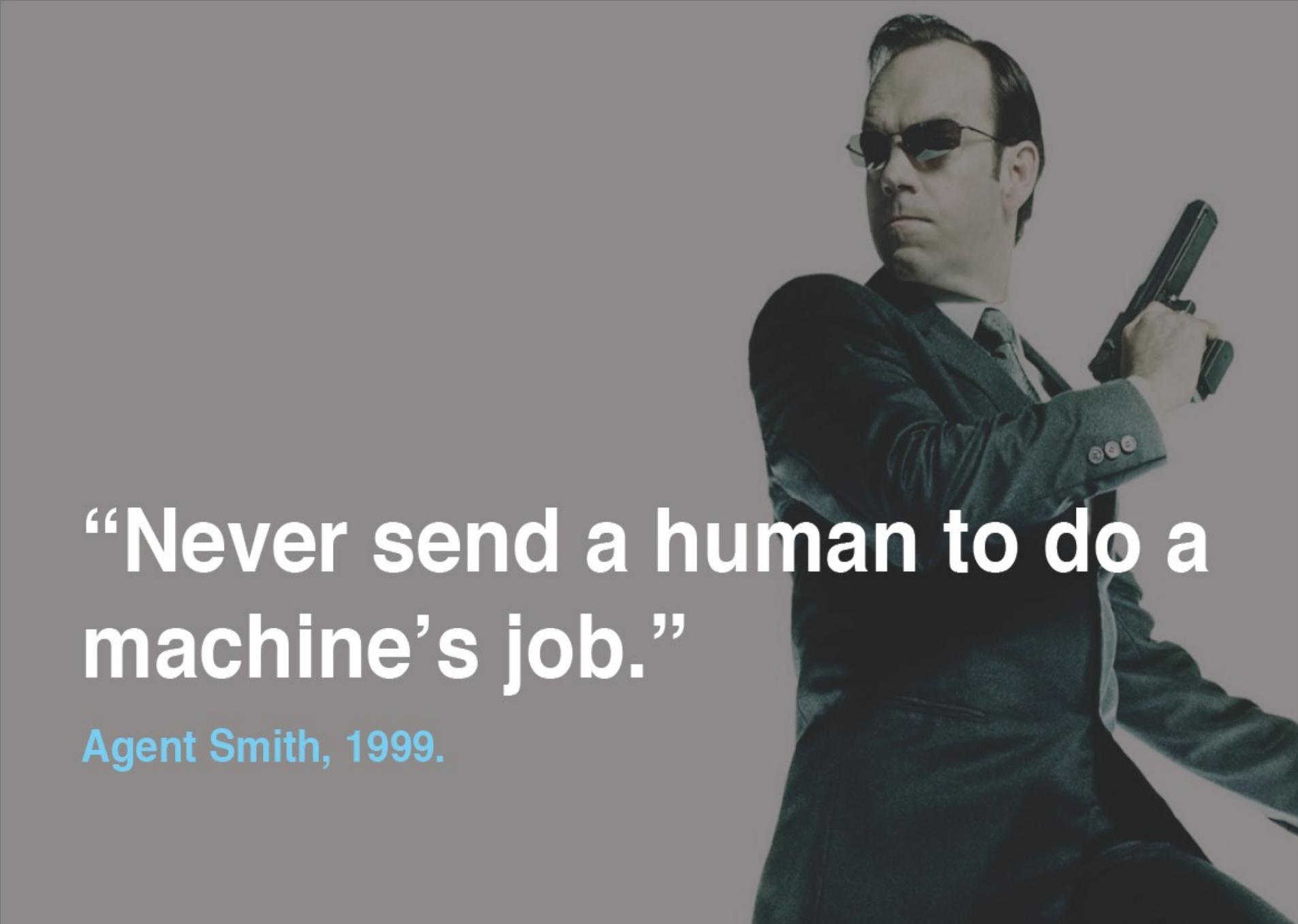
What is Libre on the Neo?



<http://www.openmoko.dk>

Danger of Software Patents

- The ideas might be patented:
 - as software
 - as firmware
 - as hardware
- Help us fight software patents
 - Join
 - <http://www.eff.org>
 - <http://www.ffii.org>
 - <http://www.fsf.org.in>
 - <http://www.fsfe.org>

A black and white photograph of Keanu Reeves as Agent Smith. He is wearing a dark suit, a white shirt, and a dark tie. He is also wearing sunglasses and has a serious expression. He is holding a handgun in his right hand, pointing it towards the camera. The background is plain and light-colored.

**“Never send a human to do a
machine’s job.”**

Agent Smith, 1999.

Flavored links

- **<http://wiki.openmoko.org>**
- **<http://bugzilla.openmoko.org>**
- **<http://lists.openmoko.org>**
- **<http://planet.openmoko.org>**
- **<http://projects.openmoko.org>**
- **<http://wiki.openmoko.org/wiki/MokoMakefile>**
- **<http://wiki.openmoko.org/wiki/Toolchain>**
- **<http://www.opensourcefood.com>**