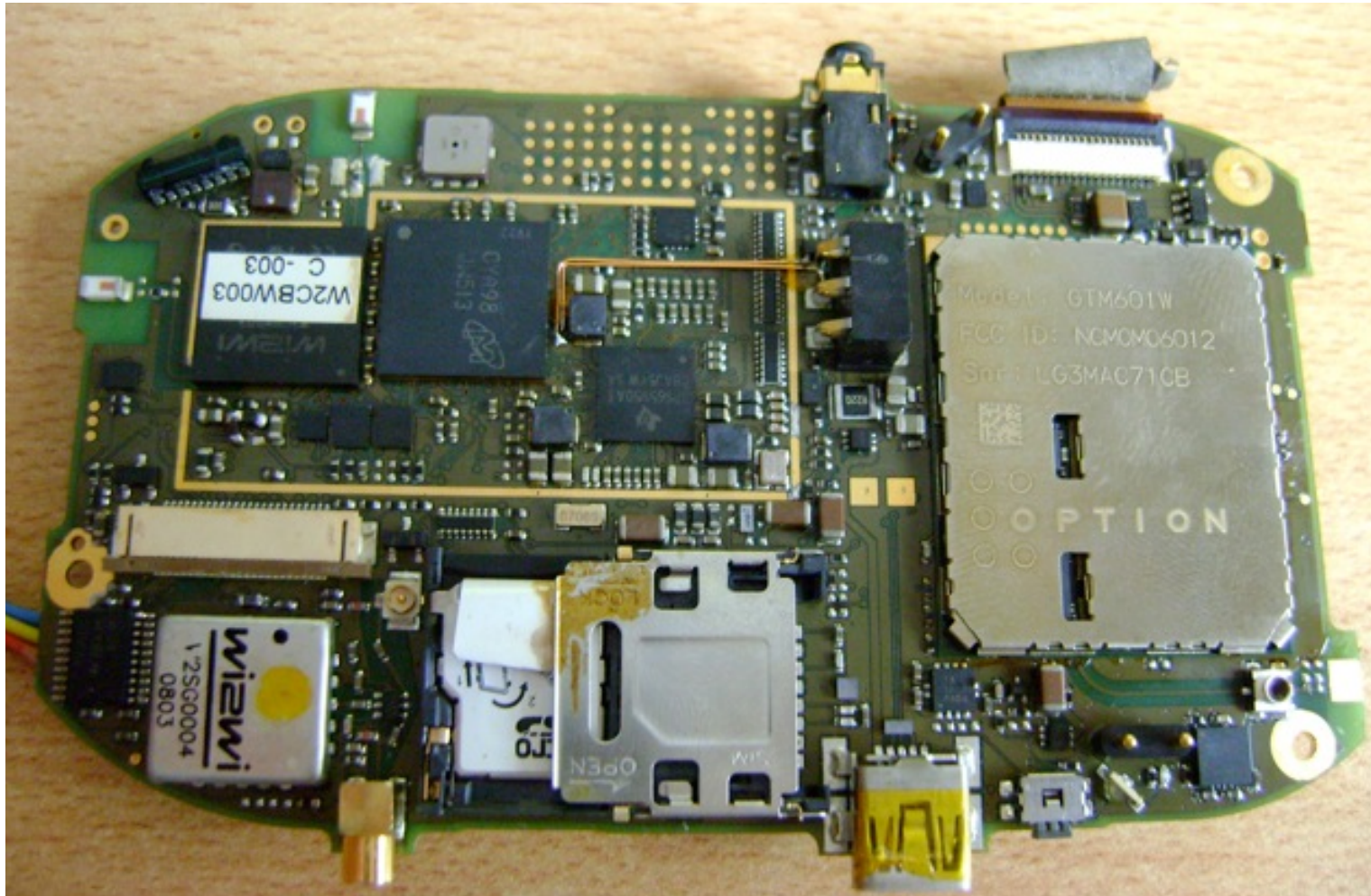


News from the GTA04A5 project

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OpenPhoenix Hard & Software Workshop
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What is GTA04A5?



What is GTA04A5?

- GTA04 is a 3G and OMAP3 based motherboard replacement **for Openmoko GTA01/02 (Neo 1973 / Neo Freerunner)** smartphone devices introduced in 2007/2008
- GTA04 was developed 2009 - 2011
- GTA04A3 and GTA04A4 was produced 2011 & 2012
- was not designed to be a complete product on its own (**only motherboard replacement**)
- „GTA04A5“ is a minor redesign (bug fixes) and (the last?) production batch



Benefits of GTA04 replacement compared to GTA01/02

- 2.5G triband \Rightarrow 3.75G pentaband
- 128 MB RAM \Rightarrow 512 MB RAM
- 256 MB NAND \Rightarrow 512 MB / 1 GB NAND
- 400 MHz \Rightarrow 1 GHz Cortex A8 CPU
- either stereo speakers (GTA01) or WLAN (GTA02) \Rightarrow both possible
- USB client \Rightarrow USB 2.0 OTG
- \Rightarrow more sensors (compass, gyroscope, barometer)
- \Rightarrow no throttle through „Glamo GPU“
- \Rightarrow optional camera
- \Rightarrow FM transceiver
- \Rightarrow TV-Out
- \Rightarrow kernel 3.18-rc6 (and some more years to expect support)

Benefits of Openmoko devices

compared to almost all other devices

- full schematics available
- all boot loaders and kernels are open source
- can be easily opened
- choice of different operation systems
- no locks, no „rooting“ / „jailbreak“ required
- no breach of warranty if new software is installed
- collector's benefit: was the first smartphone shipped with Linux
- feature set still good enough for daily use

Status: no stock of GTA04 but some low-level demand

- The last GTA04A4 was shipped in April 2013
- Crowd-Funding for another production batch started 2013:
 - we have currently 39 preorders of 100€ (or above)

What we need:

- orders to produce at least 100 devices
- otherwise, one-time cost (machine setup, stencil for solder paste, PCB production run etc.) will make the price very unreasonable
- price will still be high (expected: 500-600€)
- we would need ~5k orders to get down to ~200€
- this is unrealistic (because lack of fancy housing and some modern features) and limits demand

What are limits?

- availability of components
- availability of GTA01/GTA02 devices/cases and owners willing to replace their motherboard
- availability of satisfying (quality) solution for people who don't have a GTA01/02
- people find equally featured Android devices ~100€ in supermarkets and question the (high) GTA04 price
 - for the much lower price they get:
 - no support
 - no boot-loader nor kernel source (except a link to google)
 - no upgrades after 7 years (GTA01 came out 2007)
 - no hacking
 - no learning
 - no fun
 - potentially spyware on their device(s) - nobody can know
 - just for dumb users (and throw-away)

Getting replacements for obsolete or critical parts

Component	Nov 2013	Nov 2014
CPU/Memory		
3G Modem		
GPS module		
Charger FETs	Vishay*	Vishay*
BMA180	BMC050*	BMC150*
W2SG0004	W2SG0084*	W2SG0084*
W2CBW003		WG7351?
Vibramotor		solder to PCB*
Camera module		Chinese?
Earpiece receiver (Case	Knowles	Knowles
IrDA transceiver	3.3V var. + LSH	3.3V var. + LSH
Stereo speakers (Case	Kobitone*	
3G antenna	Antenova*	Antenova*
Case	3D print*	3D print*
GPS antenna	Taoglas*	Taoglas*
Battery	Nokia BL4/5X*	Nokia BL4/5X*



original part still available



replacement part found
(* = tested)

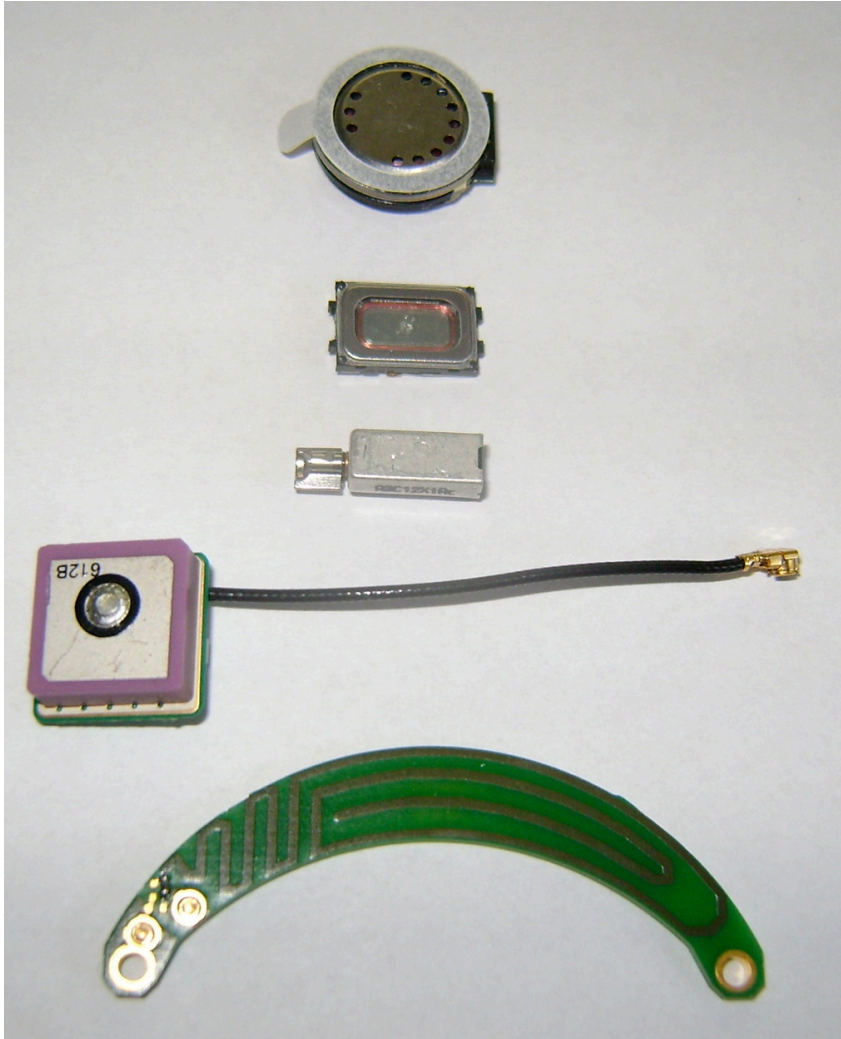


no replacement found
but we can try
component brokers



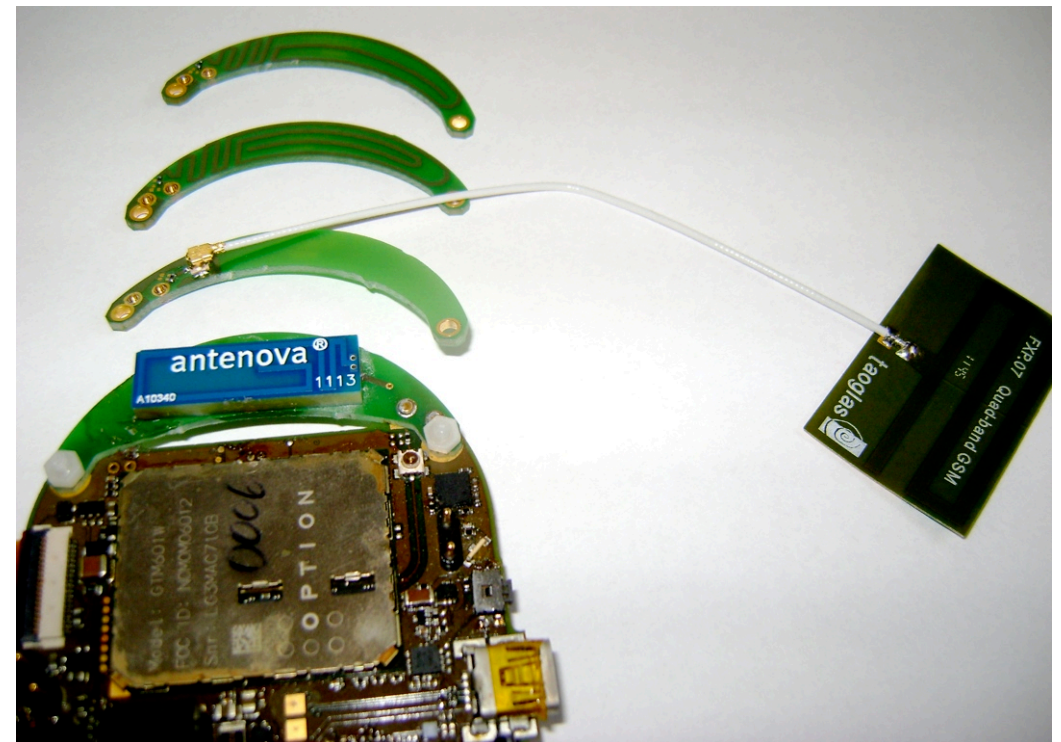
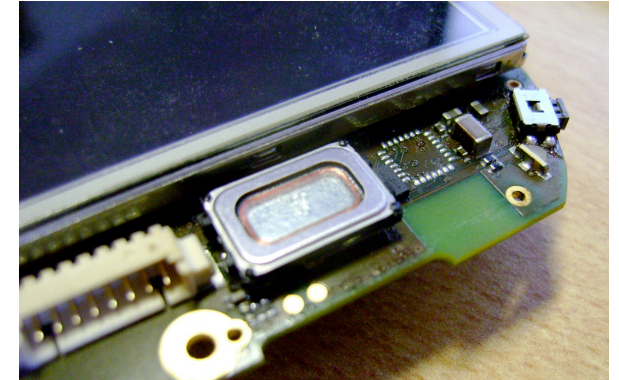
no source or
replacement found yet

Case Kit

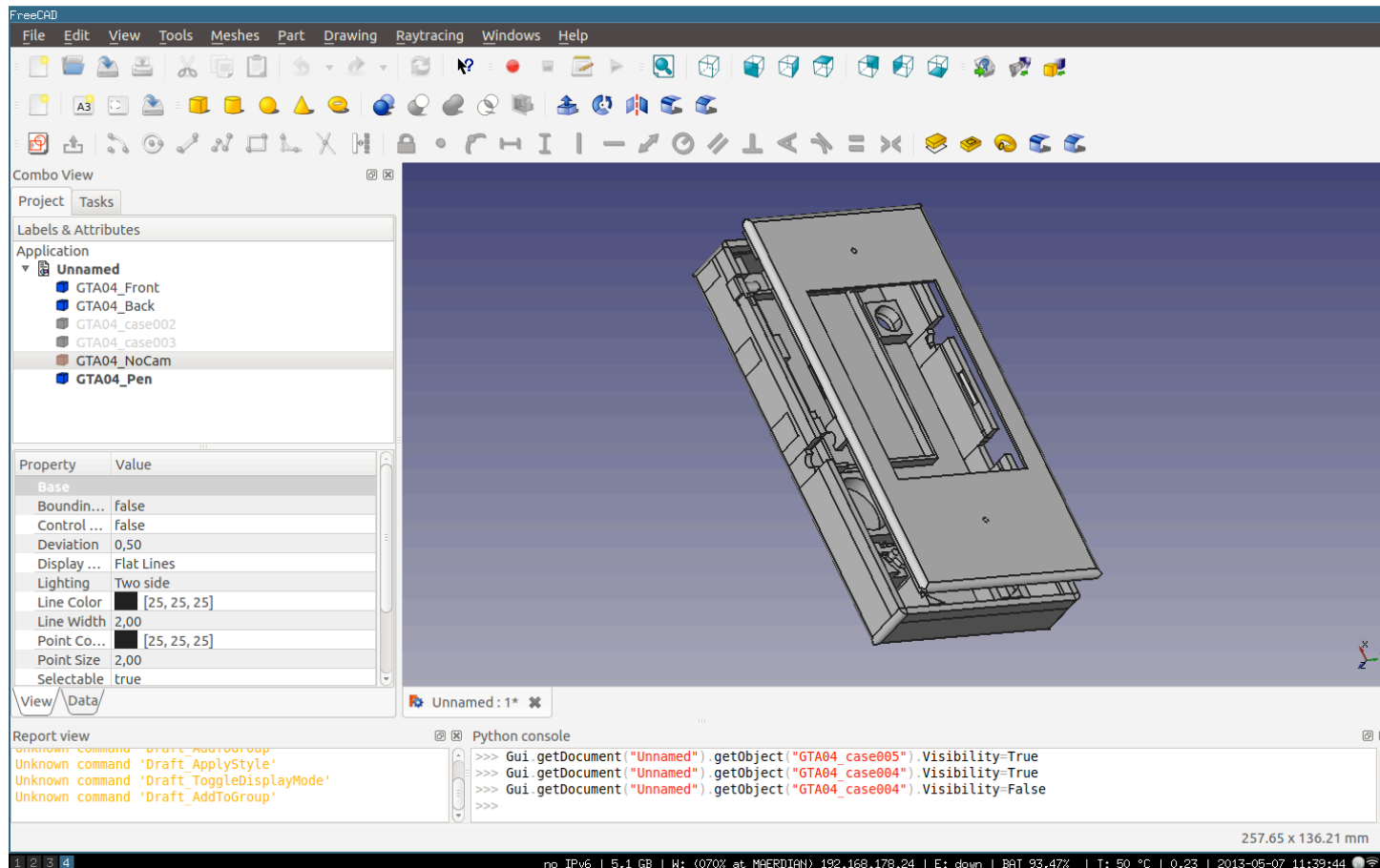


GTA04A5 needs:

Antenna variants:



3D printed case replacement



Wi2W2 vs. TI (TiWi5)

W2CBW003 module	WG735I module
<ul style="list-style-type: none"> + known to work + driver exists 	<ul style="list-style-type: none"> + 802.11a/b/g, BT 4 + 1.8V logic (saves level shifter) + lower power + better power control + available + not more expensive + integrated FM transceiver + smaller (11.6 x 9.6 x 1.4 vs. 12 x 12 x 1.4)
	~ good driver available?
<ul style="list-style-type: none"> - chip availability has become very problematic 	<ul style="list-style-type: none"> - untested circuits - risk of severe layout bugs - needs external quartz - how to connect FM transceiver?

much better;
but may not
work at all

difficult to test
without new
boards

decision is still open

Software

- Kernel
 - 3.7 good power management
 - 3.12.7 almost all features supported (except power mgmt)
 - 3.18-rc6 uses device tree (not as stable as 3.12 yet)
- QtMoko (Qt 4.5 based) v56 - uses 3.7 kernel
- SHR
- Replicant (Android based 4.2) - uses 3.12 kernel
- QuantumSTEP (GNUstep based) - prototype (not ready for daily use)
- who is working on: webOS, FireFoxOS, Maemo/Meego/Mer/Jolla, Plasma Active, ... ?

If you know someone...

- who owns an Openmoko that collects dust
- please make him / her know the GTA04A5 project and funding campaign