

BLEntaPHONE?

Goran Mahovlić



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Service guy	PC, laptops, monitors, printers, scanners ... ATM modules, POS devices ... @home for hobby: All sorts of repairs ... advanced soldering skills: SMD, SMT, BGA
Programmer	Simple apps with C#, java, Python ... embedded C++, C
Proud Member of	Radiona Zagreb Makerspace http://radiona.org Otvorena mreža http://www.otvorenamreza.org
More info & docs	http://www.lemilica.com http://radiona.org/wiki
Git repo	https://github.com/goran-mahovlic

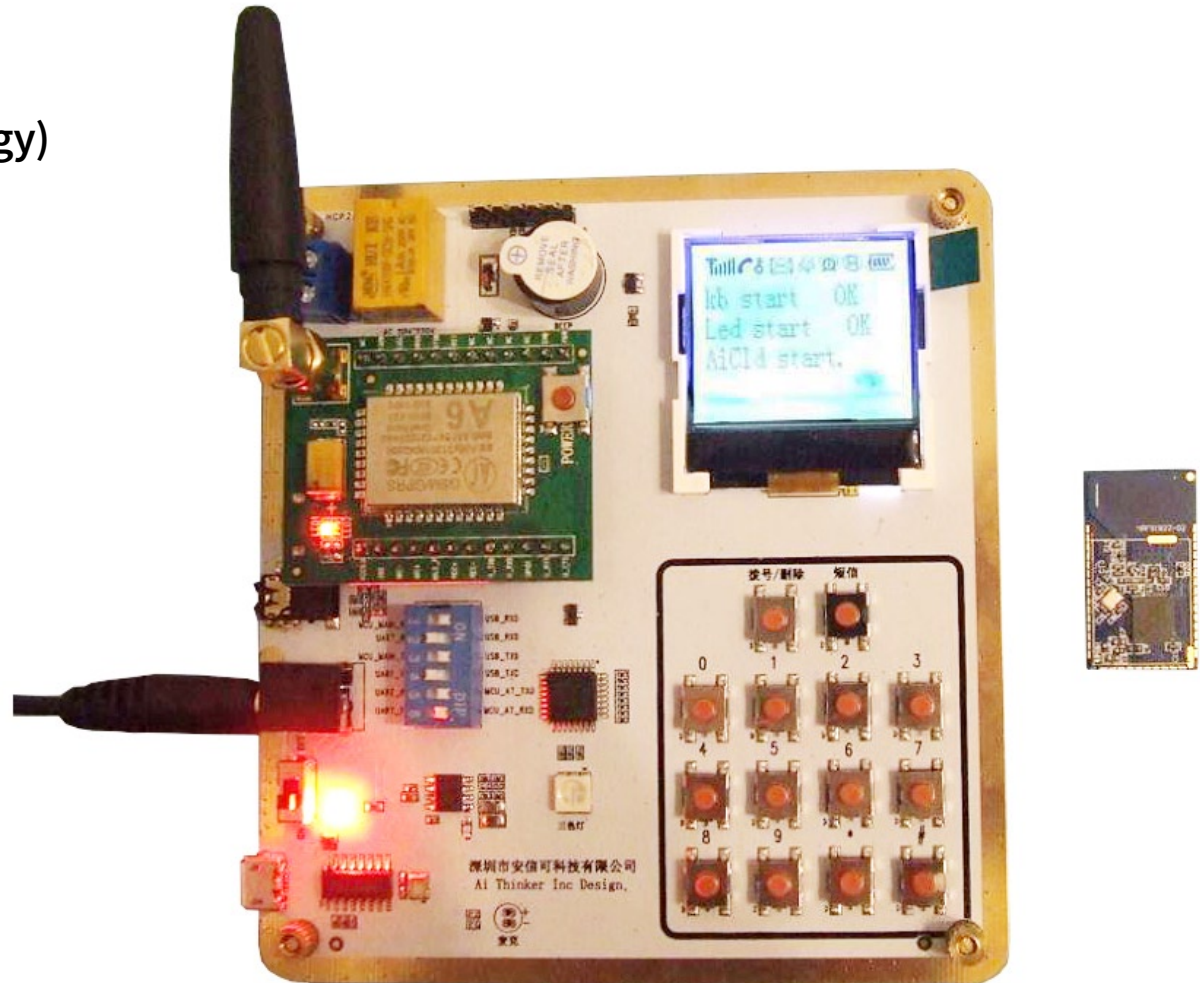
BLEntaPHONE

Not too smart PHONE

(cause I do not need too smart Phone)

BLE (Blue-tooth Low Energy)
nta (not so smart)
PHONE

This talk is not just about
open-source phone...



How did all start

One nice day of surfing lead me to Chipoteka's cheap bracelet

Did some research how can I reuse it and found Espruino

<http://forum.espruino.com/>

So I decides to buy it...



Pametna narukvica IDo 003 žuta

Osnovne značajke

sportske funkcije: pedometar, kalkulator kalorija, mjerenje prijedene udaljenosti

vremenske funkcije: alarm, vrijeme

ostale funkcije: praćenje sna, dolazni pozivi

softver: -

povezivost: Bluetooth

trajanje baterije: -

Šifra proizvoda: 9150023371

~~169,00 kn~~

67,60 kn

Jamstvo: 12 mjeseci

Isporučivo: ne

Jednokratno plaćanje:

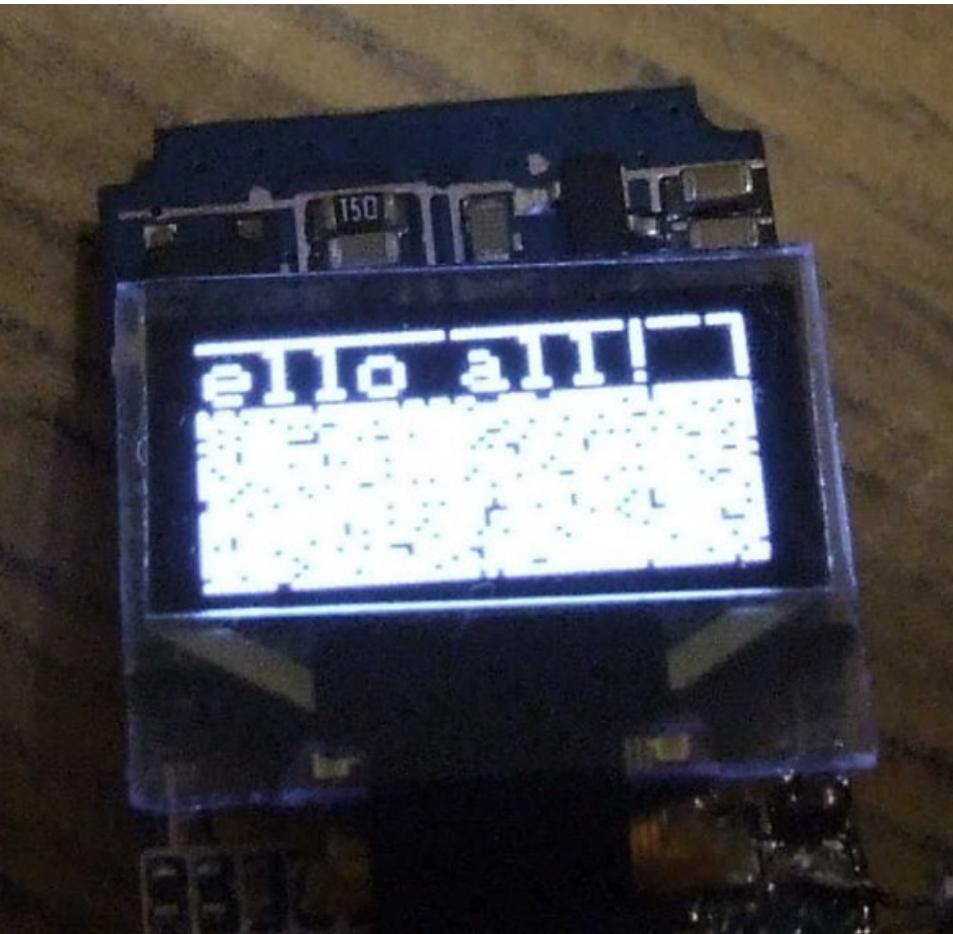
- ✓ Internet bankarstvo (virman)
- ✓ American Express, MasterCard, VISA, Maestro

Obročno plaćanje:

- ✓ American Express 2-10 rata

I have failed to load sample from Espruino, so I decided to search for alternative soft.

Found Roger Clark with nRF for arduino and contacted him for help. Together we manage to get bracelet working.



If you want your version be aware...

Not all watches are nRF based

Good soldering skills still needed

ID003 && ID107HR

What is working

- ▶ newest Softdevice with <https://github.com/sandeepmistry/arduino-nRF5>
- ▶ OLED
- ▶ Buttons
- ▶ Vibro motor
- ▶ BLE peripheral
- ▶ I2C scan detects KX022-1020 accelerometer

Still not working

- ▶ KX022 accelerometer (worked with oldest Softdevice)
- ▶ ID107HR only - Silicon labs Si1142 HRM (worked with oldest Softdevice did not test with new)
- ▶ DFU (direct firmware update)
- ▶ ((You still need soldering skills to upload open-source code))

<https://gitter.im/nRF51822-Arduino-Mbed-smart-watch/Lobby>

Other purposes

- ▶ midi instruments
- ▶ instruments for disabled people
- ▶ epileptic seizure — needs smart-phone
(or other **central device**)
- ▶ Heart rate monitor panic
- ▶ Panic button
- ▶ fall of an old person — needs smart-phone
(or other **central device**)
- ▶ home security — needs **central device**

Central device?!

Central device

- ▶ Needs to have nRF chip
- ▶ Needs some connection (internet, call, sMs)
- ▶ Simple phone (SmS, Call) that has modern functions (BLE, LoRa, LTE ...)

One nice day of surfing lead me to cheap development board
I have spotted one cheap development board.

It was 12\$ at that time of purchase with A6 GSM module included



★★★★★ Be the first to [write a review](#).

Item condition: **New**

Quantity:

1

10 available

Was: ~~US \$22.99~~ [?](#)

You save: **\$2.99 (13% off)**

Price: **US \$20.00**

[Buy It Now](#)

[Add to cart](#)

2 watching

[Add to watch list](#)

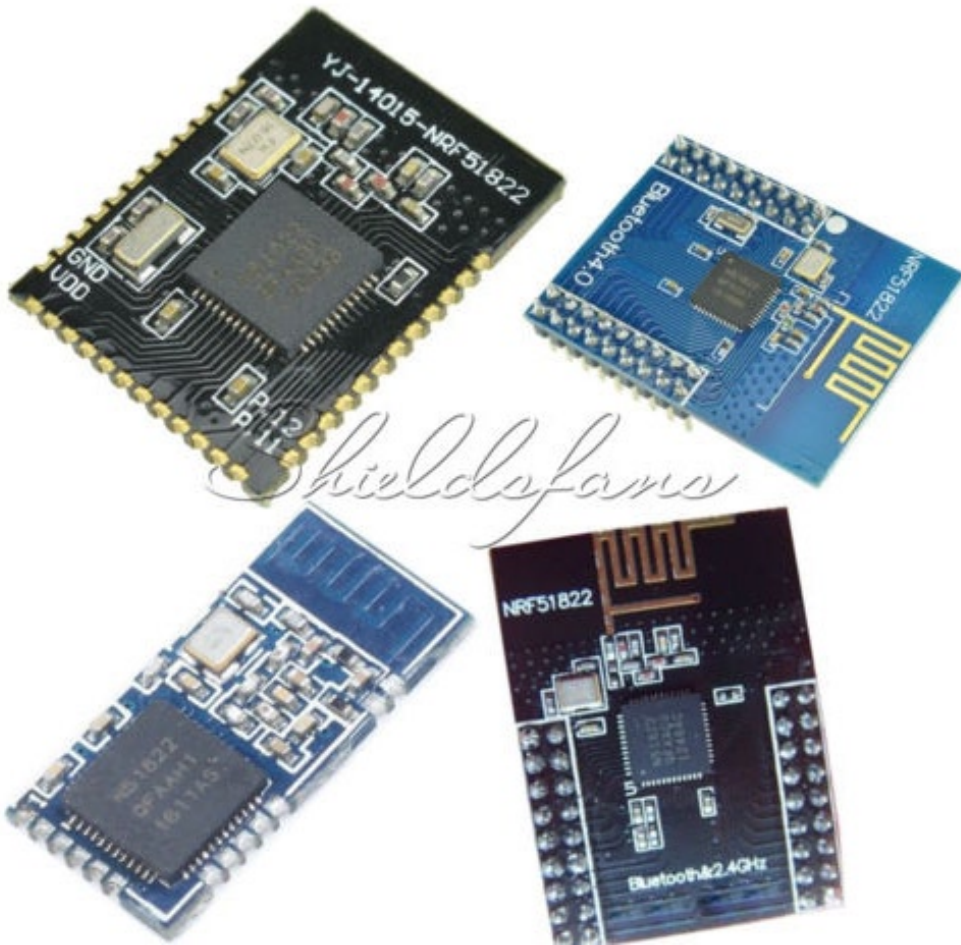
[Add to collection](#)

Shipping: **\$2.00** Economy International Shipping | [See detail](#)

International items may be subject to customs processing and charges.

I have tested this board with supported opensource 8051 code,
but it was so badddd...

So I can fix bad code or start from beginning...
So lets get started :)



YJ-14015 NRF51822 BLE4.0 Bluetooth 2.4GHz Network

Item condition: **New**

option:

Quantity:

More than 10 available / 20 sold

Price: **AU \$3.50**
Approximately US \$2.61

[Buy It Now](#)

[Add to cart](#)

1 watching

[Add to watch list](#)

[Add to collection](#)

20
Sold

More than 49%
Sold

Free
Shipping

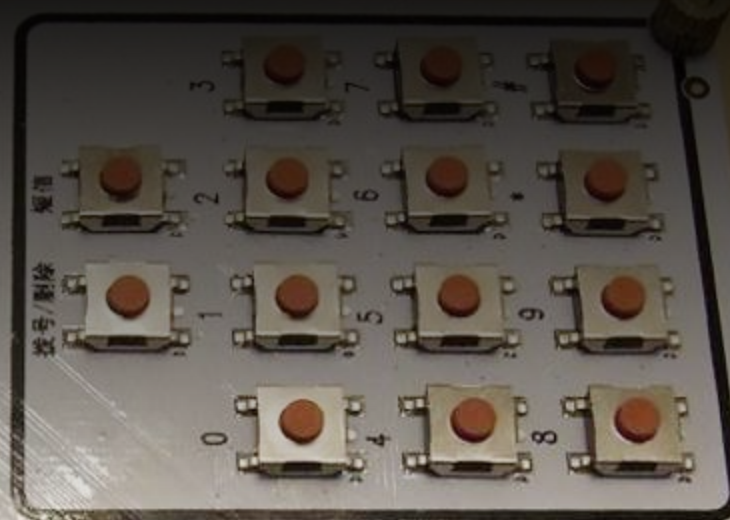
Shipping: **FREE** AusPost Sea Mail Parcel | [See details](#)

International items may be subject to customs processing and additional charges. [?](#)

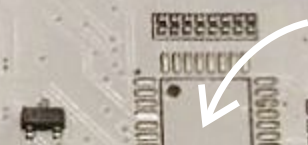
Item location: ShenZhen, China

Ships to: Worldwide [See exclusions](#)

So I need just a bit of soldering skills
to make Open Source BLEntaPHONE



Removed
original MCU



深圳市安信可科技有限公司
Ai Thinker Inc Design



Adding nRF51 module to development board



Working phone ...



拨号/删除

短信



Current status

Working

- ▶ Make A call
- ▶ Receive Call
- ▶ Send SMS

Still not working

- ▶ Receive SMS
- ▶ BLE master (receive events from slave) (now possible in Softdevice S130 v2)
- ▶ Do all event based stuff (call on distress, send SMS when needed...)
- ▶ Controlling NASA space ship...

More @

SmartyV1 && V2

https://github.com/goran-mahovlic/nRF51_ID107_libs

<http://www.lemilica.com/hacking-smart-bracelet-wristband/>

<http://www.lemilica.com/smarty-the-watch-it-is-aliveeee/>

BLEntaPHONE

[http://www.lemilica.com/turning-cheap-gsm-](http://www.lemilica.com/turning-cheap-gsm-development-board-into-opensource-ble-mobile-phone/)

[development-board-into-opensource-ble-mobile-phone/](http://www.lemilica.com/turning-cheap-gsm-development-board-into-opensource-ble-mobile-phone/)

<https://gitter.im/nRF51822-Arduino-Mbed-smart-watch/Lobby>

Thank you!



S.T.E.A.M.