

# BLEntaPHONE?

Goran Mahovlić



Goran Mahovlić	<a href="https://www.linkedin.com/in/goran-mahovli%C4%87-11ab4938/">https://www.linkedin.com/in/goran-mahovli%C4%87-11ab4938/</a>
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 <a href="http://radiona.org">http://radiona.org</a> Otvorena mreža <a href="http://www.otvorenamreza.org">http://www.otvorenamreza.org</a>
More info & docs	<a href="http://www.lemilica.com">http://www.lemilica.com</a> <a href="http://radiona.org/wiki">http://radiona.org/wiki</a>
Git repo	<a href="https://github.com/goran-mahovlic">https://github.com/goran-mahovlic</a>

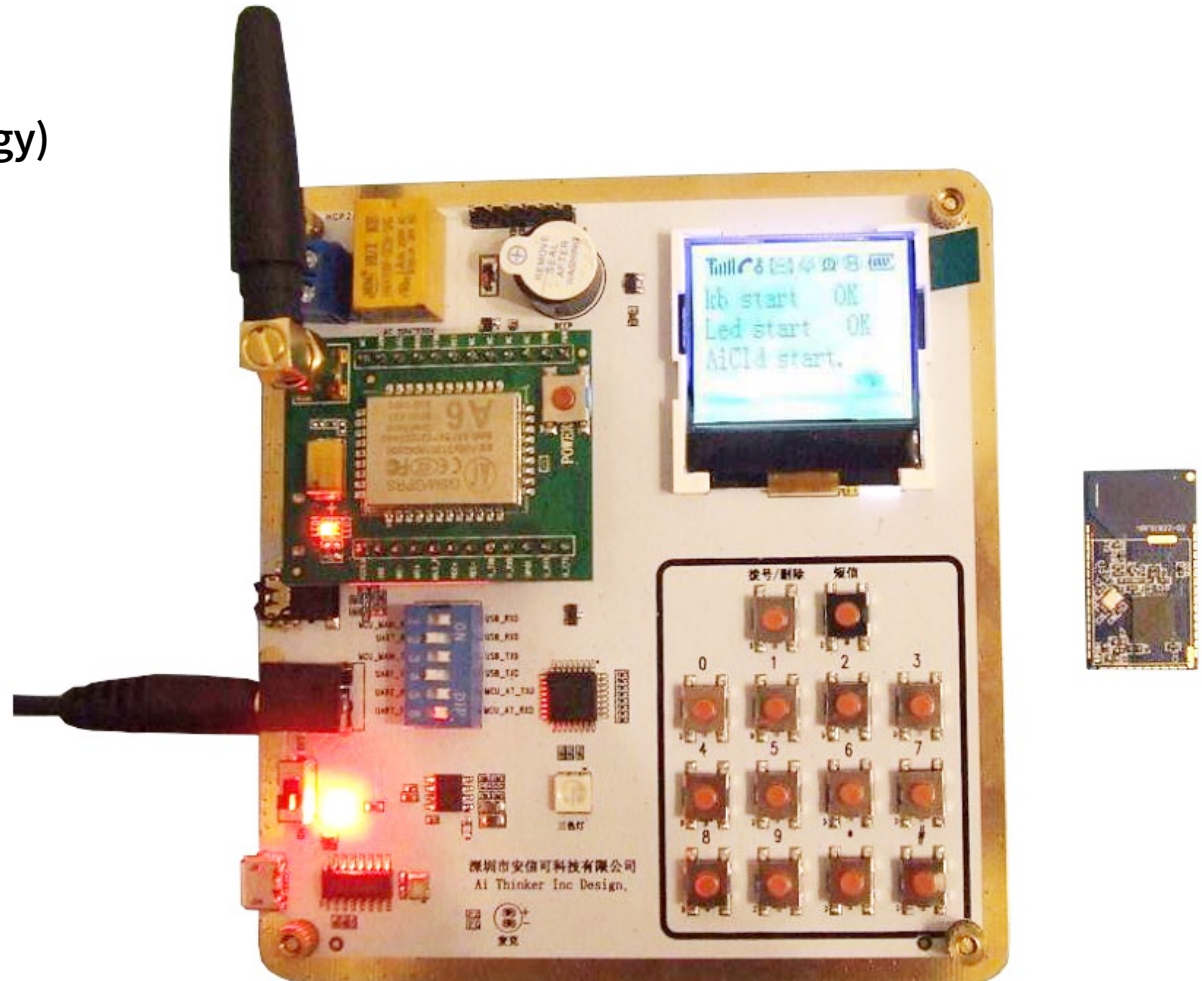
# BLEntaPHONE

## 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 prijeđene 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)

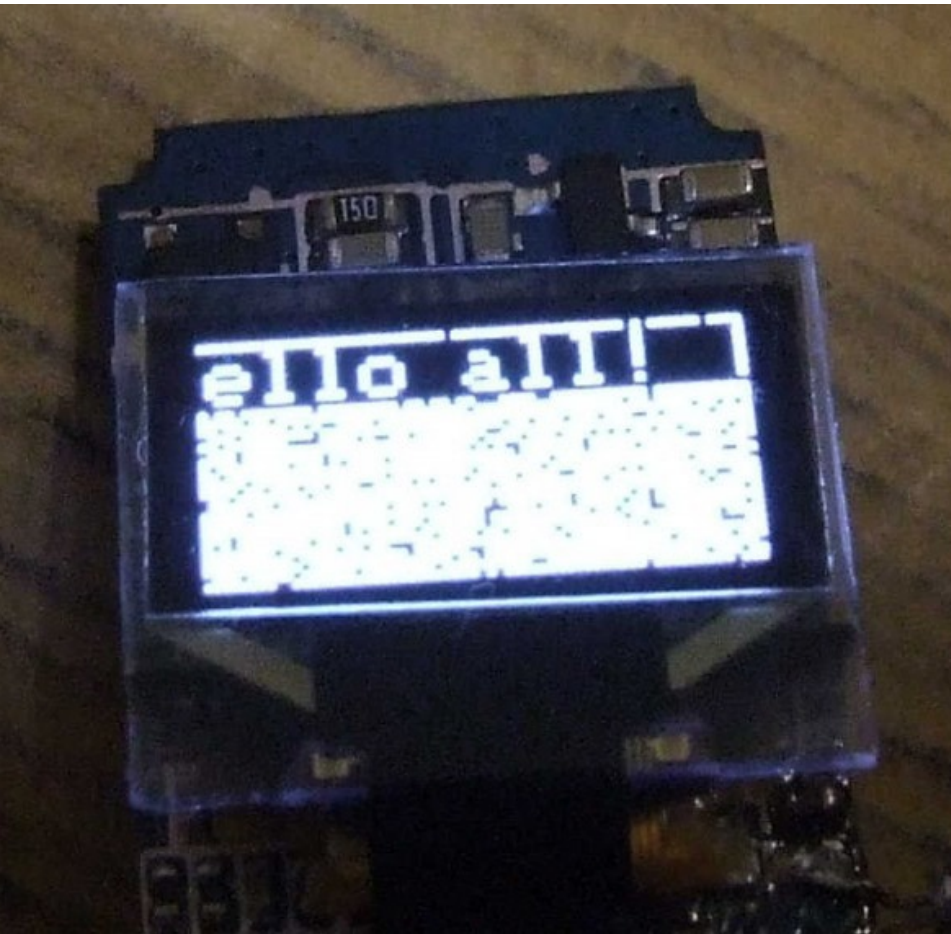
✓ American Express, MasterCard, VISA, Maestro

### 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](#)

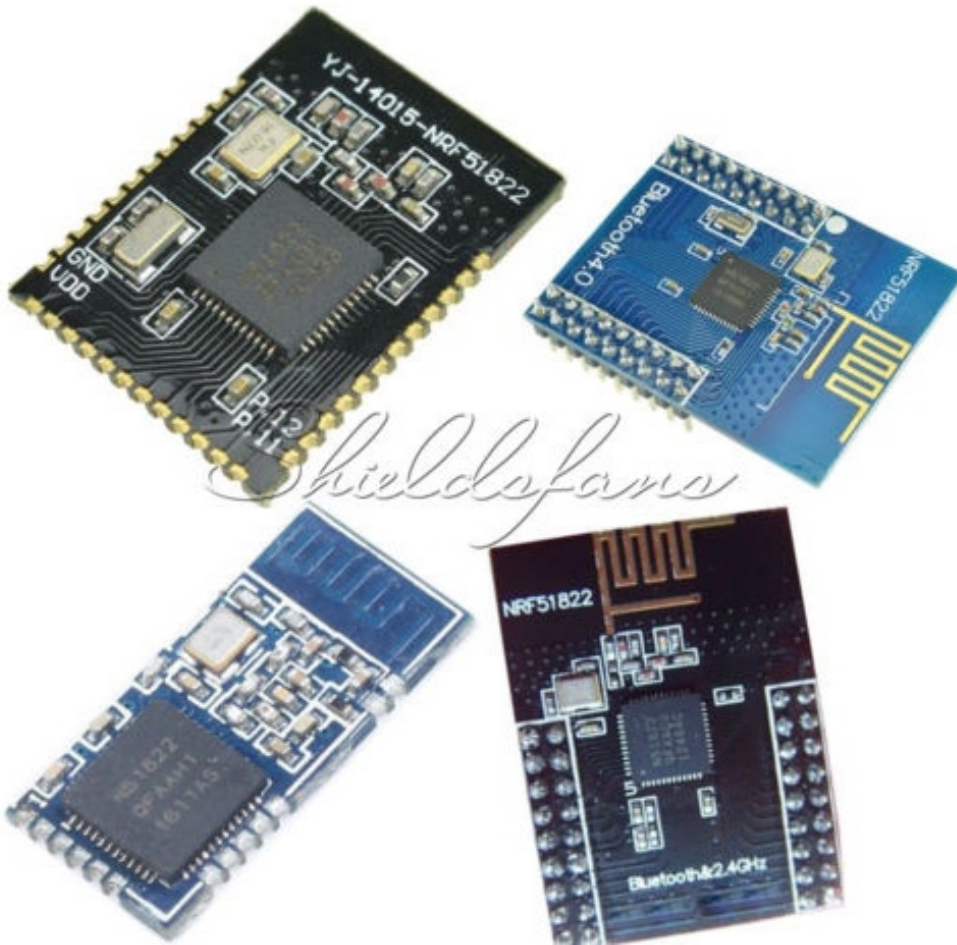
[Add to collection](#)

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 Netw

Item condition: **New**

option: **- Select -**

Quantity:

1

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



## Adding nRF51 module to development board





Working phone ...

Ti ⓘ✉

BLentaPHONE

Enter Phone no.

and Press OK for SMS

or Press C for CLEAR

0915177844



Blenta fon

Hello from

BLentaPHONE, SMS

is working now!

Options

Reply

Exit

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](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.