

# Android MIT Inventor

(pokračovanie)

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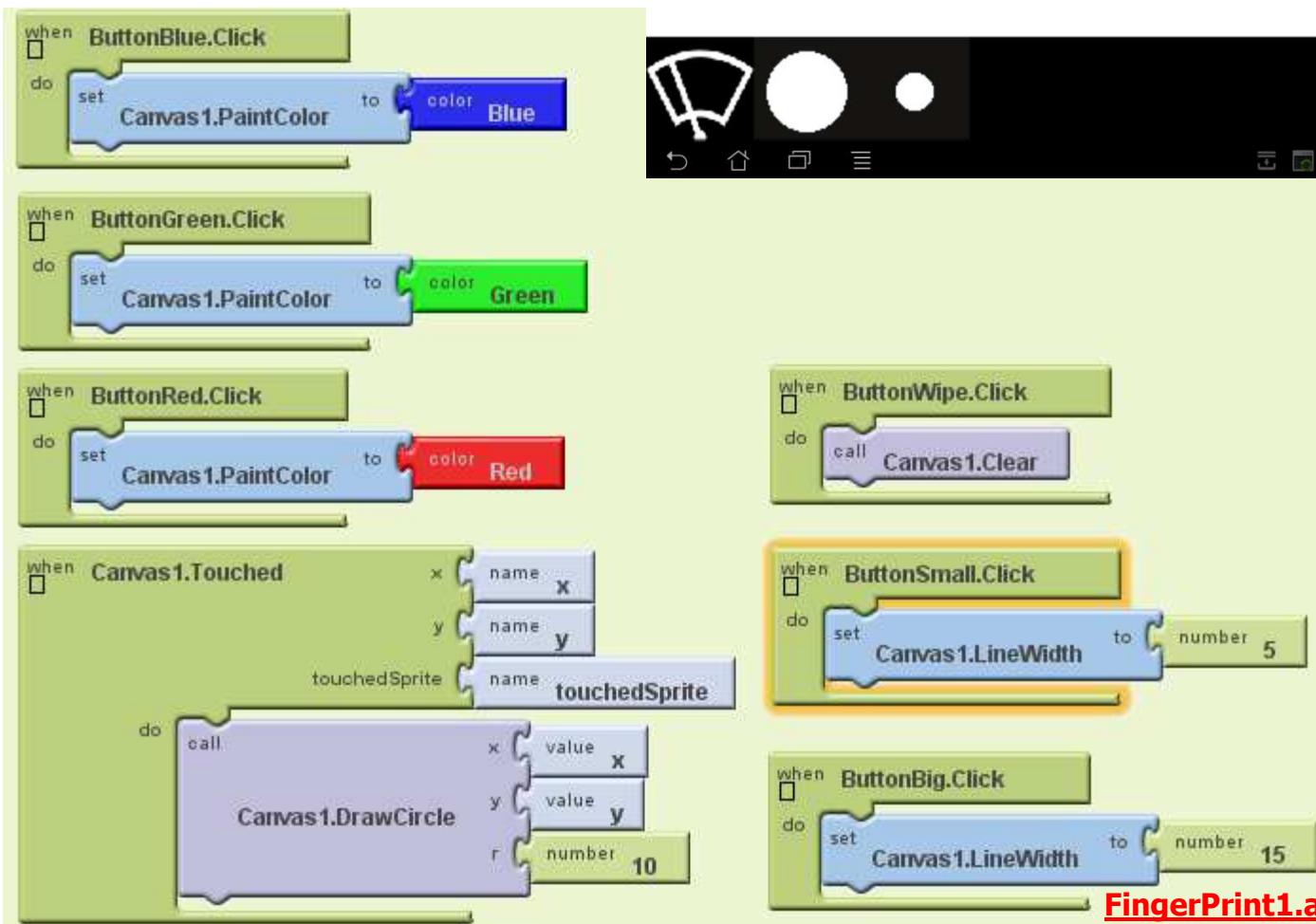
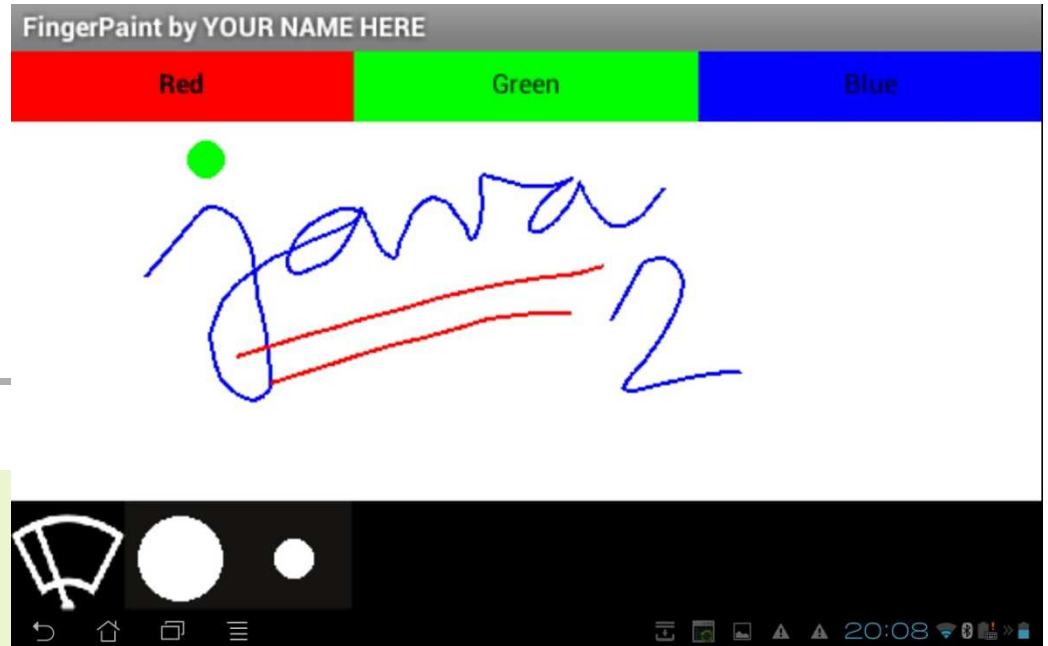


Peter Borovanský  
KAI, I-18

borovan 'at' ii.fmph.uniba.sk

# FingerPaint

jednoduché malovátko prstom

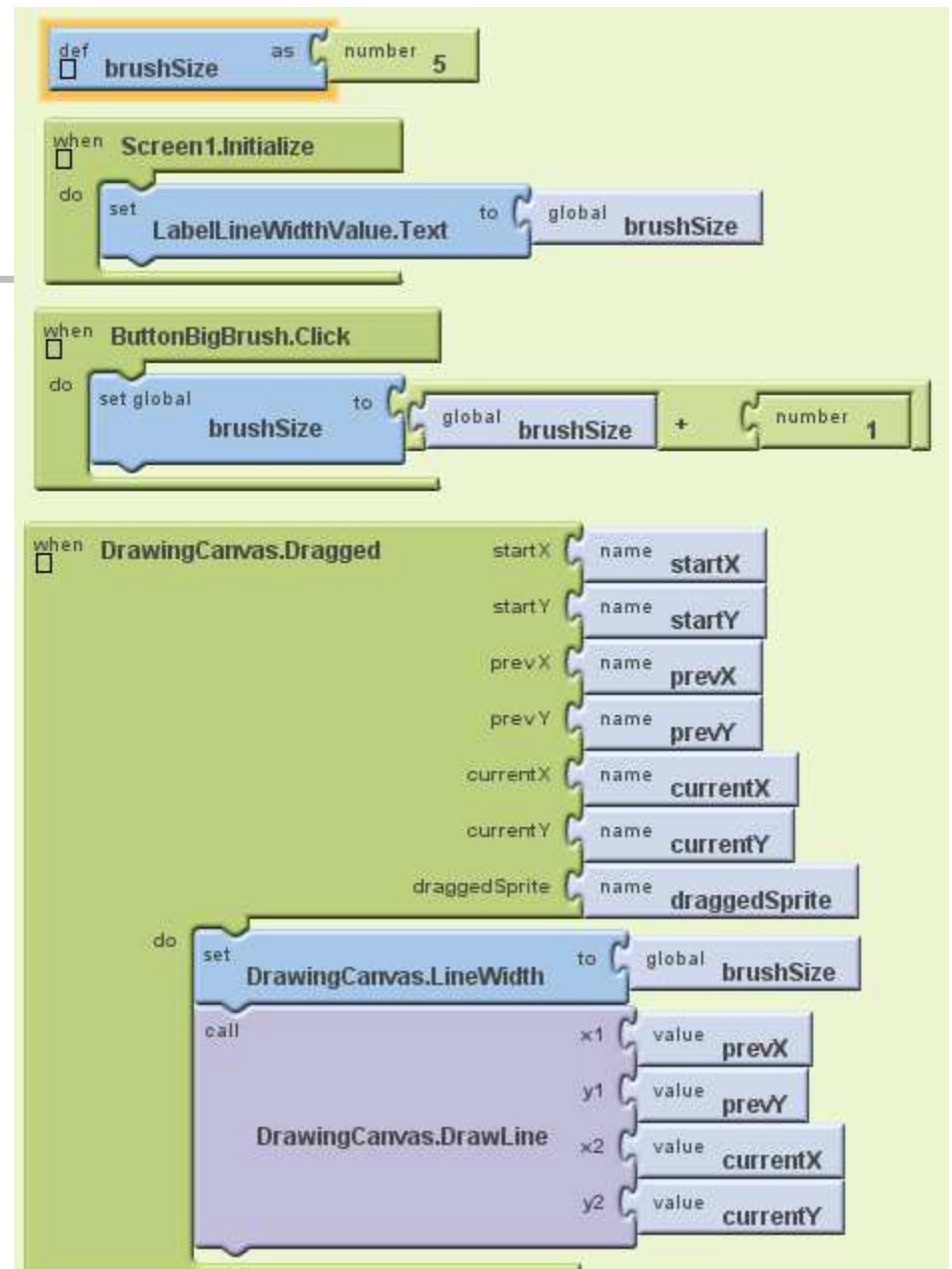


[FingerPrint1.aia](#), [FingerPrint.apk](#)

# FingerPaint2

Pokročilejšia verzia

- Screen.Initialize
- globálna premenná brushSize
- drawingCanvas.Dragged



[FingerPrint2.aia](#), [FingerPrint2.apk](#)

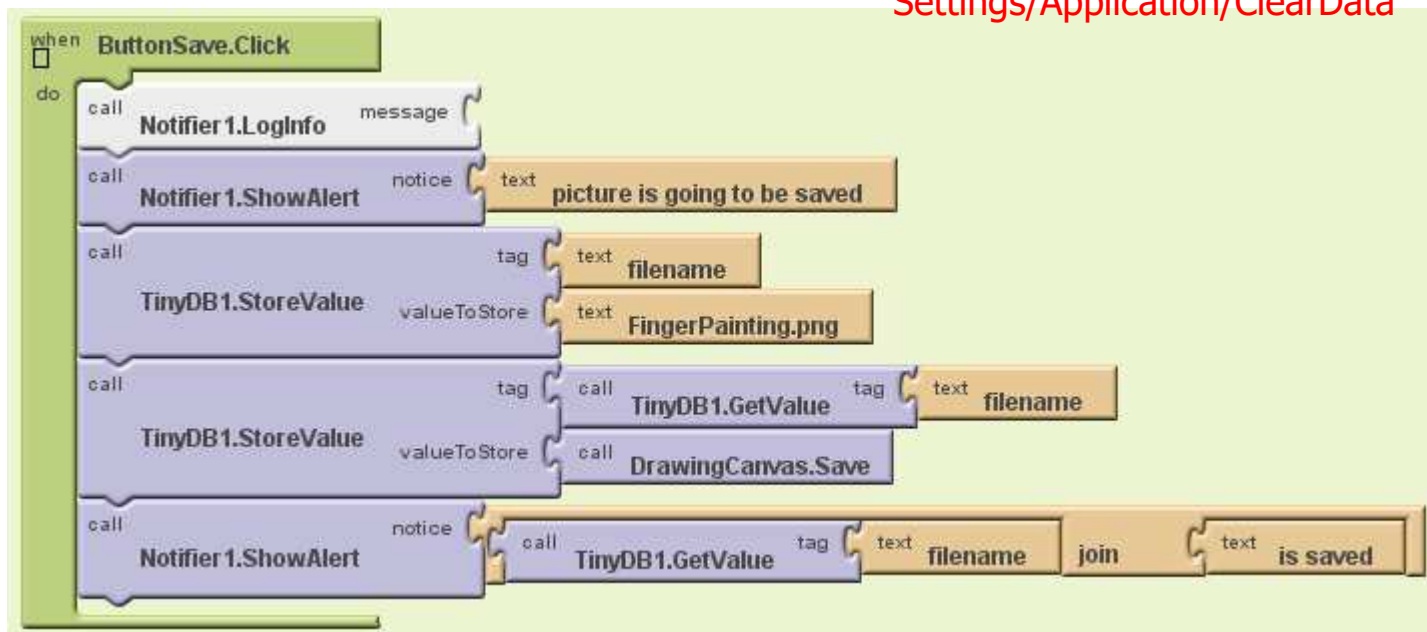
# FingerPaint2

Pokročilejšia verzia

- Persistencia

The data in TinyDB is persistent only when you have packaged and downloading your app. If you are developing connected to the phone, and you restart the Appinventor application, or if you disconnect and reconnect the phone, then the data base will start fresh. This is a case where the application is not merely being stopped and restarted; it is being removed from the phone and then reloaded.

Ak chcete zmazať perzistentné dáta,  
Settings/Application/ClearData

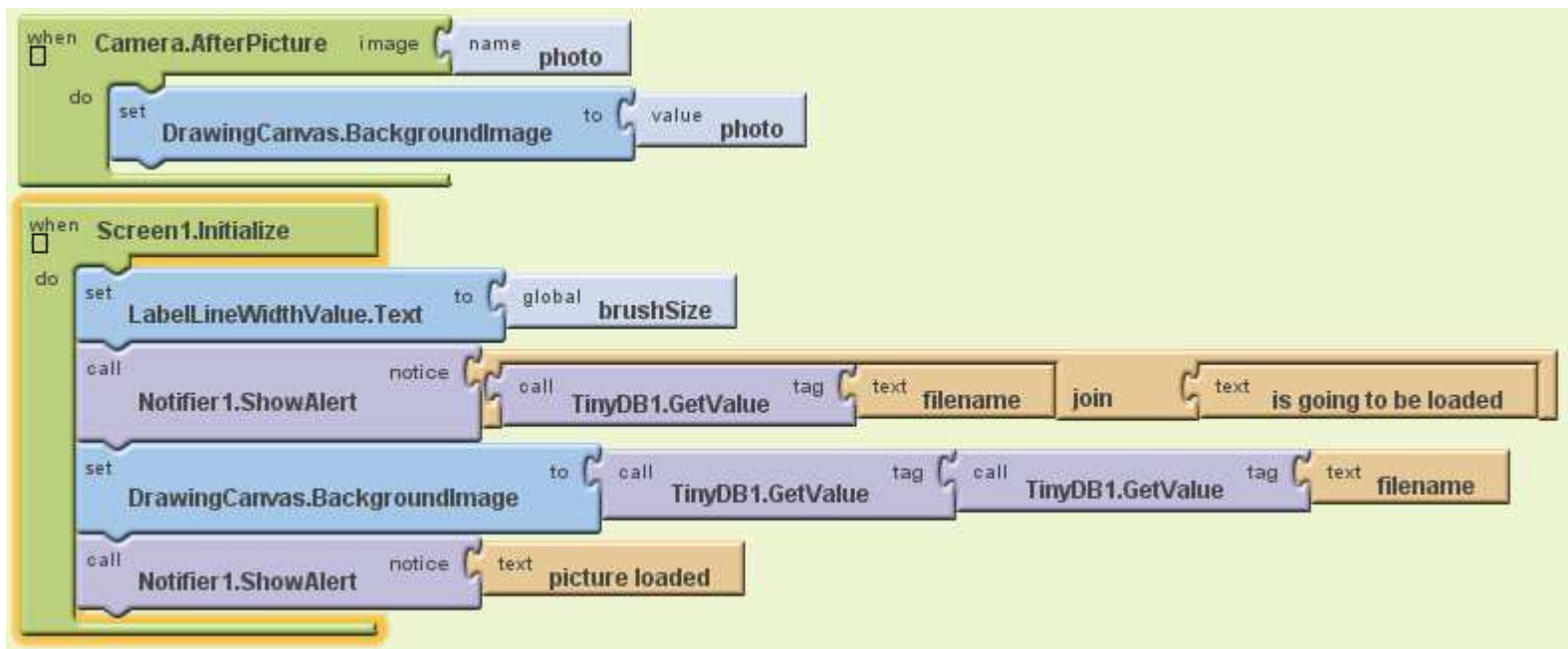


**FingerPrint2.aia, FingerPrint2.apk**

# FingerPaint2

komponenty

- Camera
- TinyDB



# Zoznam

- zoznam (reťazcov)
- procedúra (paint) a jej volanie

```
when Screen1.Initialize
do call paint
```

```
initialize global zoznam to
make a list
" 11-2-pokemon-png.png "
" 12-2-pokemon-free-download-png.png "
" 1-2-pokemon-download-png.png "
" 13-2-pokemon-png-image.png "
" 3-2-pokemon-png-file.png "
" 4-2-pokemon-transparent.png "
" 5-2-pokemon-high-quality-png.png "
" 7-2-pokemon-png-picture.png "
" 8-2-pokemon-free-png-image.png "
" 9-2-pokemon-png-clipart.png "
```

```
initialize global index to 0
```

```
when NextBtn.Click
do set global index to
get global index + 1
call paint
```

```
when PrevBtn.Click
do set global index to
get global index - 1
Show Warnings
```

```
to paint
do set global index to
modulo of get global index + 10
initialize local subor to
select list item list get global zoznam
index get global index + 1
in set Canvas1.BackgroundImage to get subor
set TextBox1.Text to get subor
```





# Zoznam objektov



The image shows a Scratch script for initializing a list of balls. The script starts with a 'to init' block, followed by a 'do' block containing an 'add items to list' block. The 'add items to list' block has a 'list' dropdown set to 'global zoznam' and three 'item' dropdowns set to 'Ball1', 'Ball2', and 'Ball3'. Below this is a 'for each item in list' loop. Inside the loop, there are several 'set' blocks for the 'Ball' component: 'set Ball. X' to a random integer from 1 to 400, 'set Ball. Y' to a random integer from 1 to 400, 'set Ball. Speed' to a random integer from 3 to 15, 'set Ball. Radius' to a random integer from 5 to 15, 'set Ball. PaintColor' to a 'pick a random item' from a 'make a list' block (which has four color options: red, green, blue, yellow), and 'set Ball. Heading' to a random integer from -30 to 30. The 'set Ball. Heading' block is a 'set' block for the 'Ball' component, with the 'value' field containing a 'Ball. Heading' block (of component 'get item') plus a random integer from -30 to 30.

foreach object in a list

for each item in list  
do

Any component

- any ball
- any clock
- any canvas
- any Vertical

Zatiaľ nevieme **dynamicky** tvoriť objekty

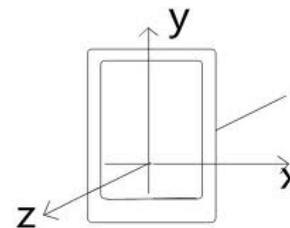
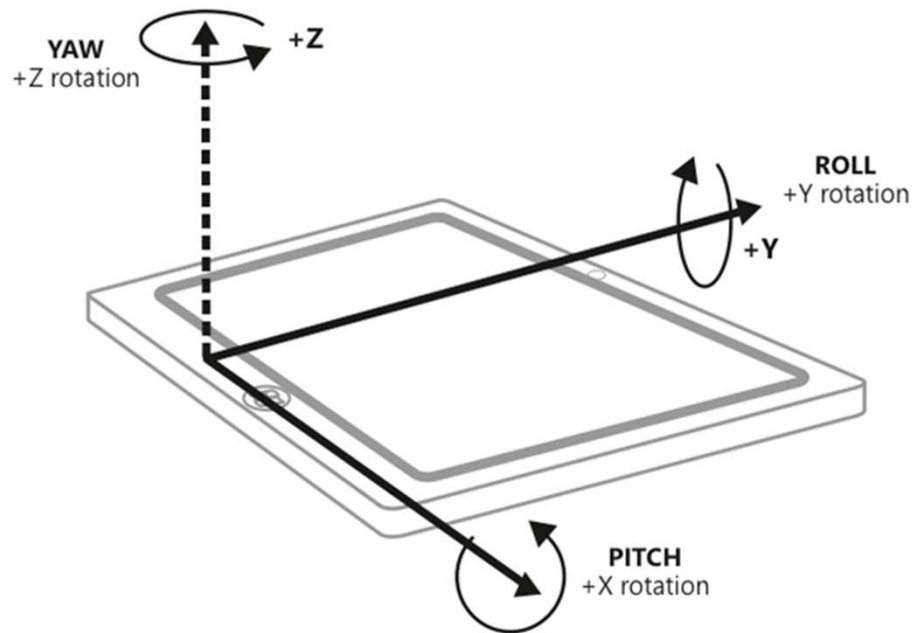
- vieme ich **vytvoriť veľa** v design time
- a podľa stavu, **meniť visible-invisible**
- vznikne tak **dojem**, že vznikajú/zanikajú
- ale to je dojem...

# Orientácia



Orientáčny senzor nájdete v každom mobile

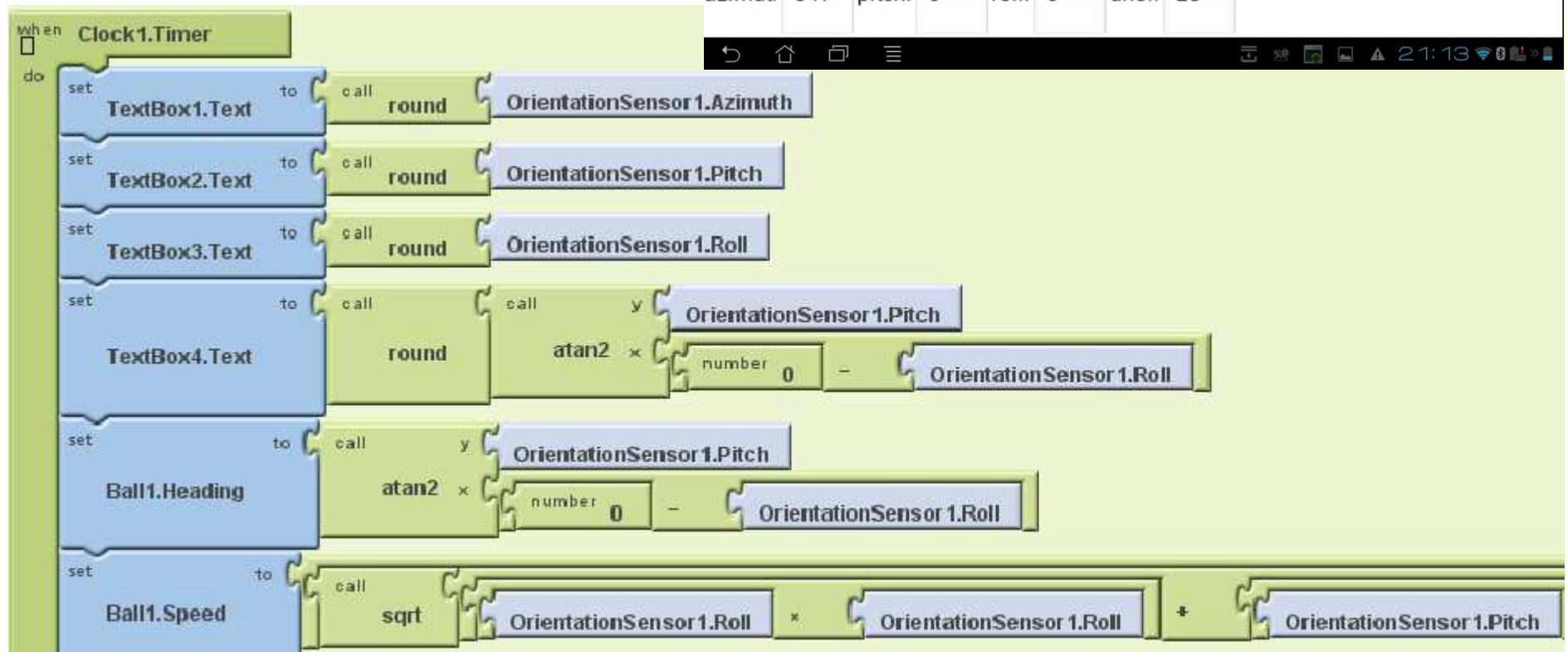
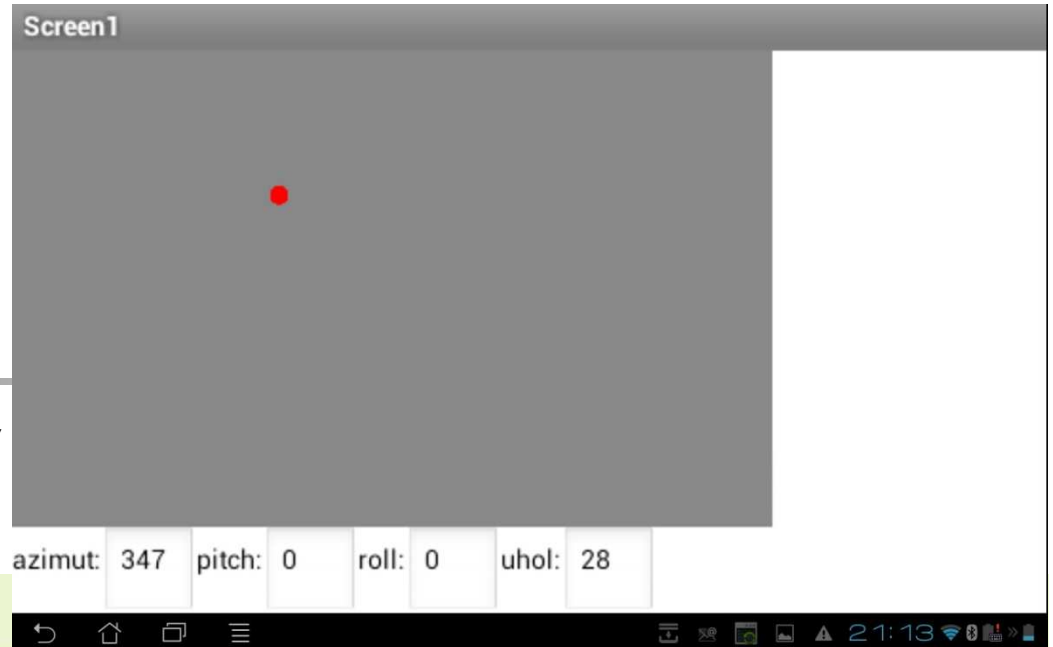
Jeho výstupom sú tri reálne čísla, pitch (X), roll (Y), yaw (Azimut)...



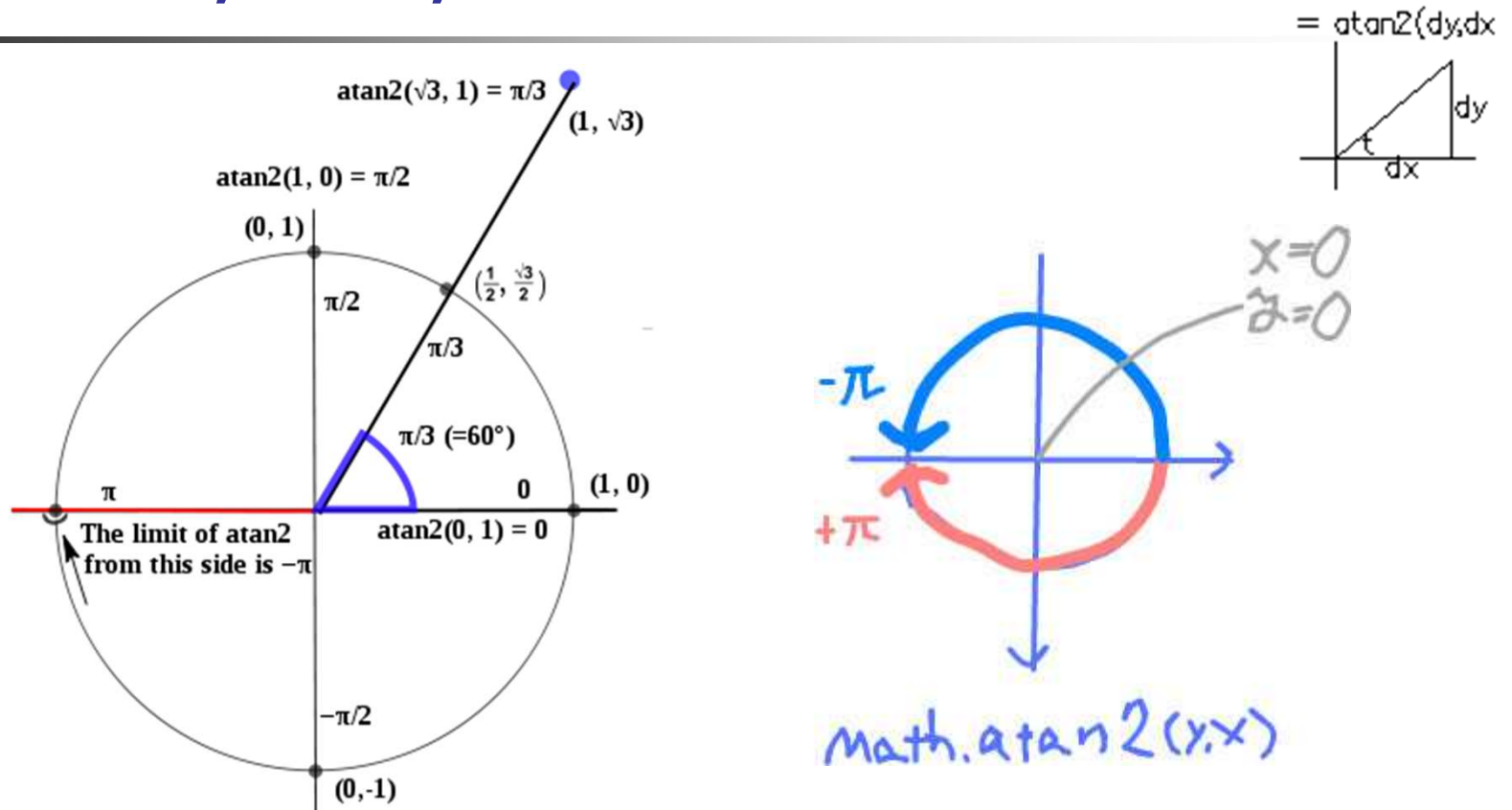


# Labilo

ako z Pitch(X) a Roll(Y) vypočítať  
kam smeruje guľička (heading) ?



# Pitch,Roll,Azimut=Yaw

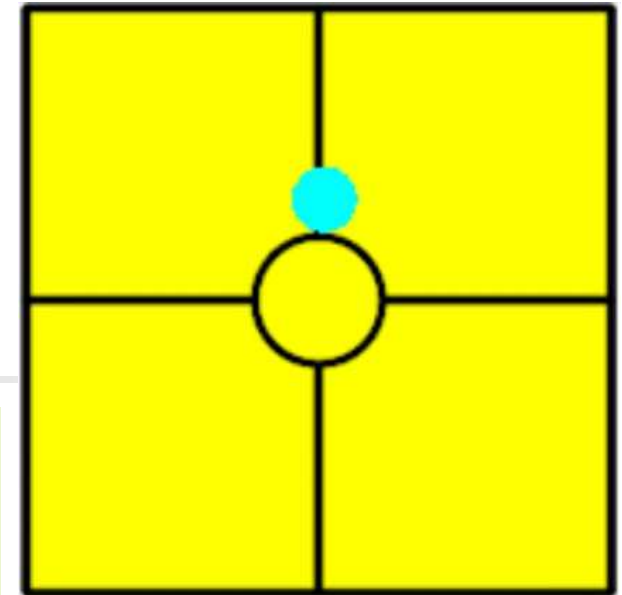
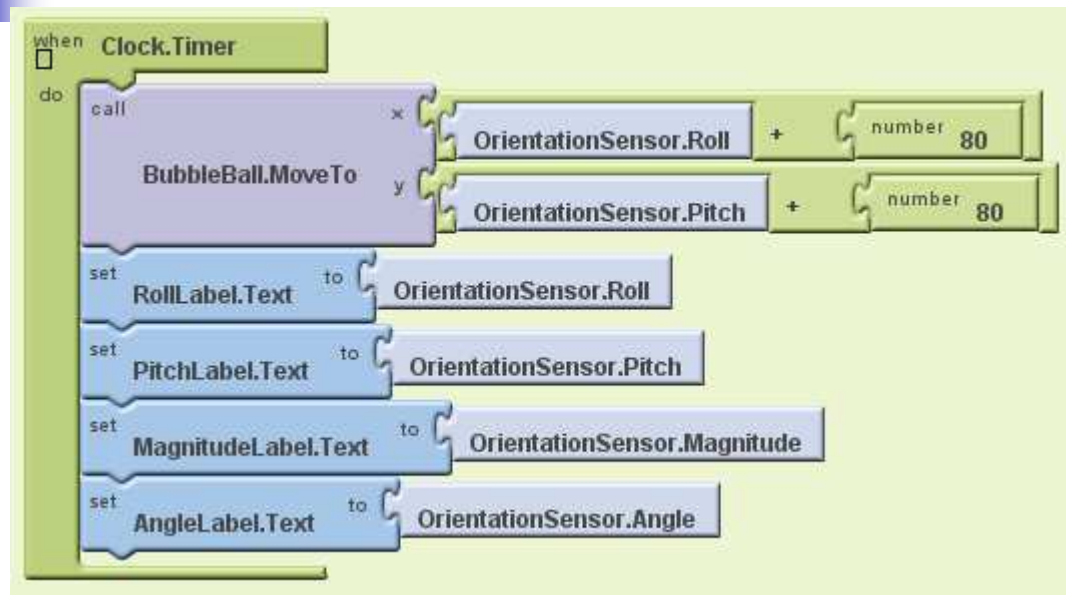


<http://en.wikipedia.org/wiki/Atan2>

- Nefungovalo mi OrientationSensor.OnChanged – hrýzla sa apka
- Preto je použitý Timer, 10 ms

[Labilo.aia](#), [Labilo.apk](#)

# Vodovážka

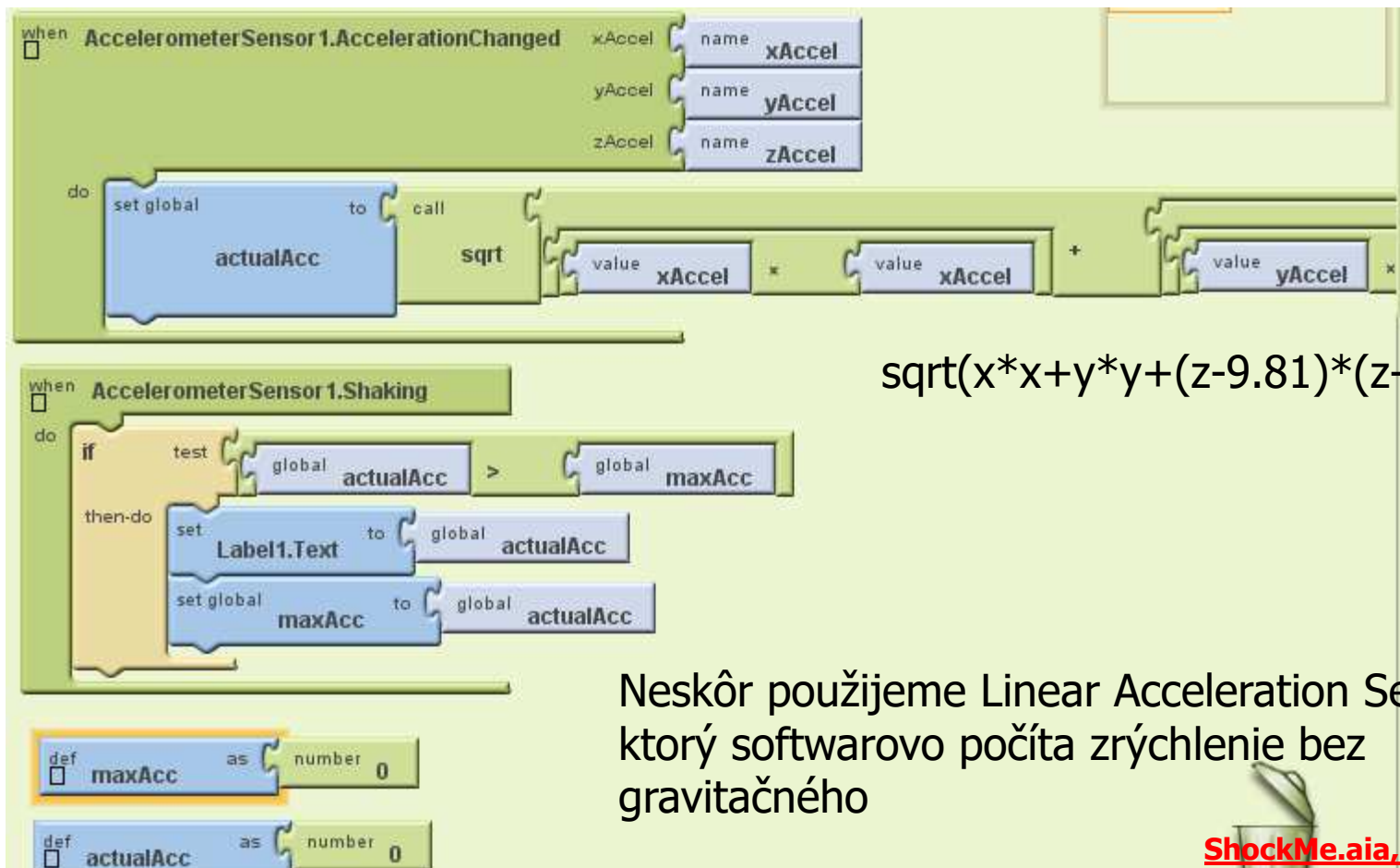


Roll: 1.83868  
Pitch: -30.22783

21.99883

# ShockMe

Akcelerometer meria zrýchlenie (m/s<sup>2</sup>) v troch osiach (x,y,z)



# Senzory

Telekom SK 100 % 18

**Senzory**

Pedo: 0

Proxi: 5

Bar Code: Hint for TextBox1

Lati: Hint for TextBox1 Longi: Hint for TextBox2

AccelX: 0.26815 AccelY: -0.15323 AccelZ: 9.81623

GyroX: -0.77 GyroY: 0 GyroZ: 0.42

Vyzváňací tón

STLMIČ ☐

```
when Pedometer1 .StoppedMoving
do set Pedo . Text to Pedometer1 . SimpleSteps
```

```
when BarcodeScanner1 .AfterScan
result
do set BarCode . Text to get result
```

```
when ProximitySensor1 .ProximityChanged
distance
do set Proxi . Text to get distance
```

```
when LocationSensor1 .LocationChanged
latitude longitude altitude speed
do set Lati . Text to get latitude
set Longi . Text to get longitude
```

```
when AccelerometerSensor1 .AccelerationChanged
xAccel yAccel zAccel
do set AccelX . Text to get xAccel
set AccelY . Text to get yAccel
set AccelZ . Text to get zAccel
```

```
when PedoResetBtn .Click
do call Pedometer1 .Reset
call Pedometer1 .Start
```

```
when ScanBtn .Click
do call BarcodeScanner1 .DoScan
```

```
when Clock1 .Timer
do Timer has gone off. Text to Pedometer1 . SimpleSteps
```

```
when GyroscopeSensor1 .GyroscopeChanged
xAngularVelocity yAngularVelocity zAngularVelocity timestamp
do set GyroX . Text to get xAngularVelocity
set GyroY . Text to get yAngularVelocity
set GyroZ . Text to get zAngularVelocity
```

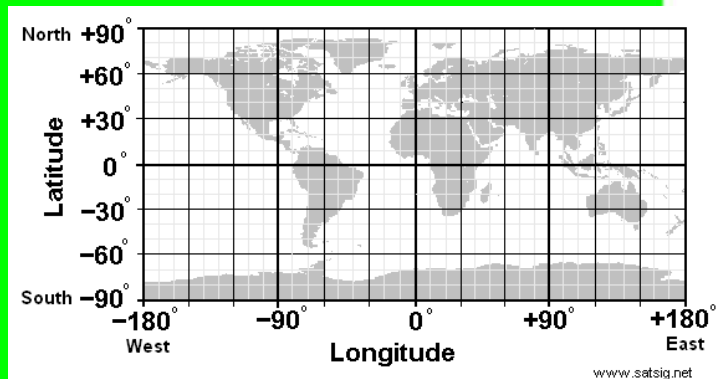
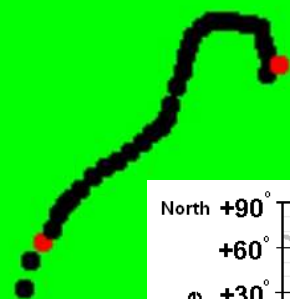
```
when OrientationSensor1 .OrientationChanged
azimuth pitch roll
do set Azim . Text to get azimuth
set Pitch . Text to get pitch
set Roll . Text to get roll
```

**Senzory.zip, Senzory.apk**

# GPS Art

GPSArt

Pointa aplikácie GPSArt  
je pohybovať sa v teréne tak,  
aby ste vytvorili nejaký  
zaujímavý obrázok  
(*moderného umenia :-)*)



[x,y] | 82.37588, long.: -71.55161, accur.: 32.0, prov.: gps, adr: Jeséniova 5A 83101 N

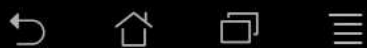
Lat 48.16678

Long 17.10979

GPS

Exit 1000

[GPSArt.aia](#), [GPSArt.apk](#)

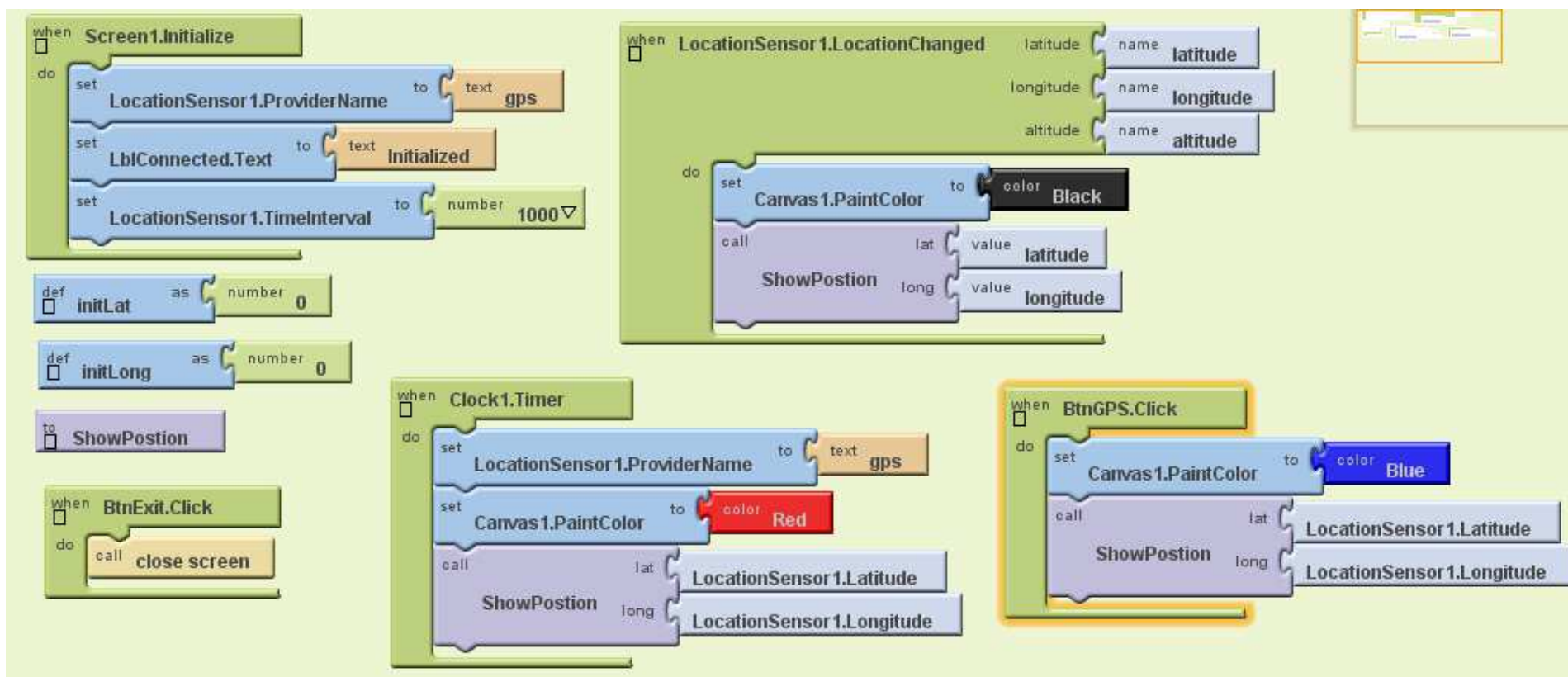




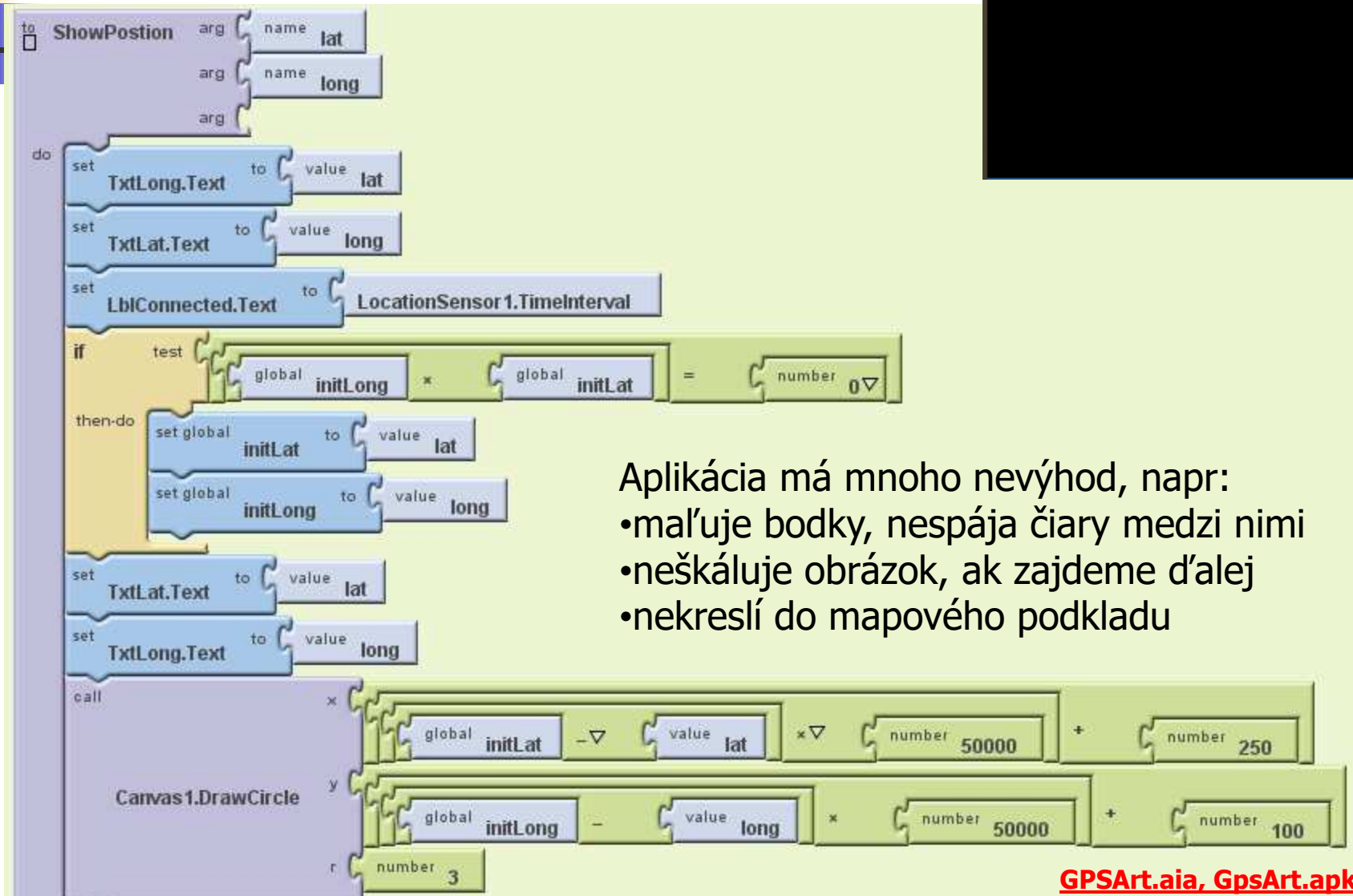
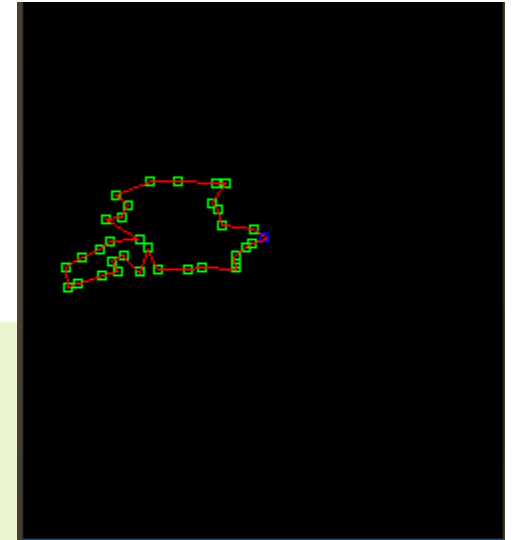
# GPS Art

Kedže som mal problémy s triggerom LocationChanged

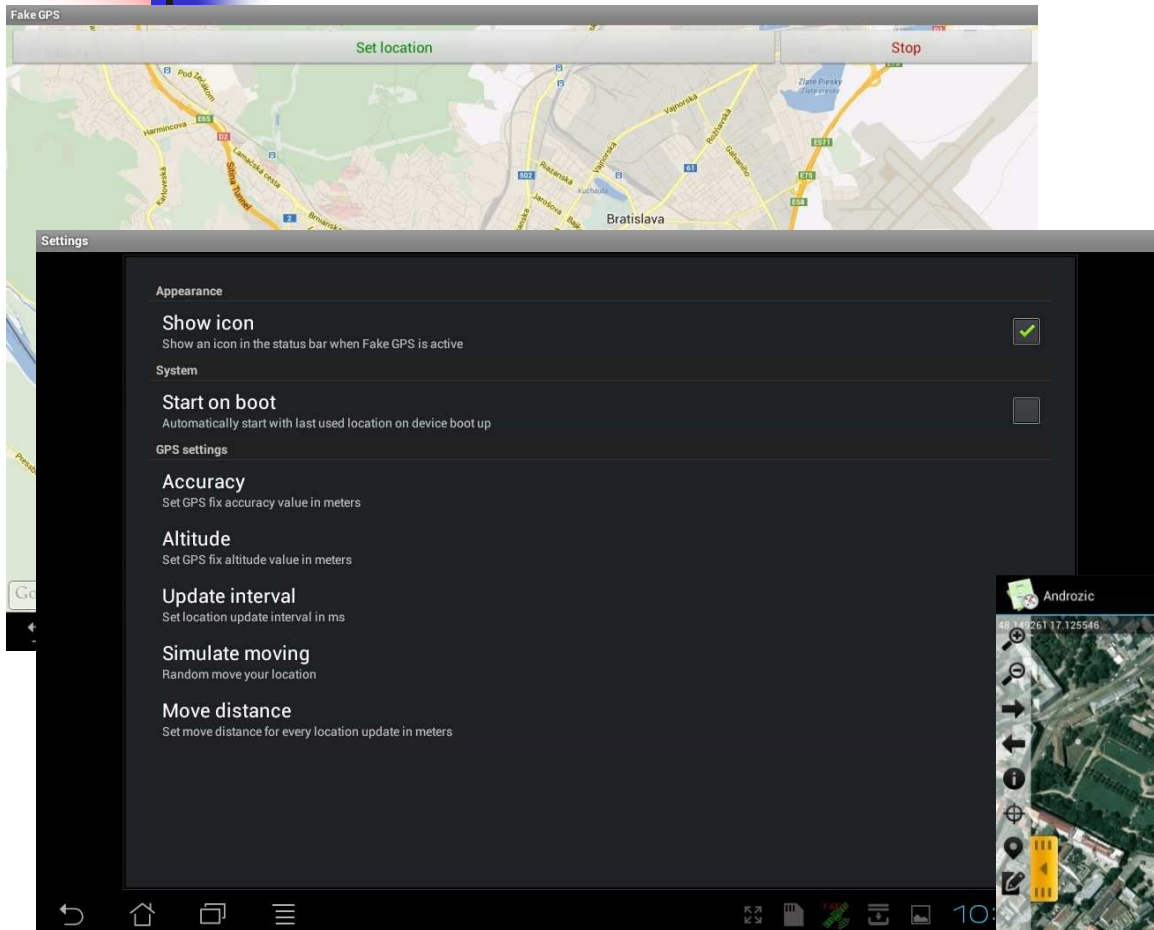
- čierna poloha sa maľuje pri LocationChanged
- červená na Timer tick
- modrá na Button click



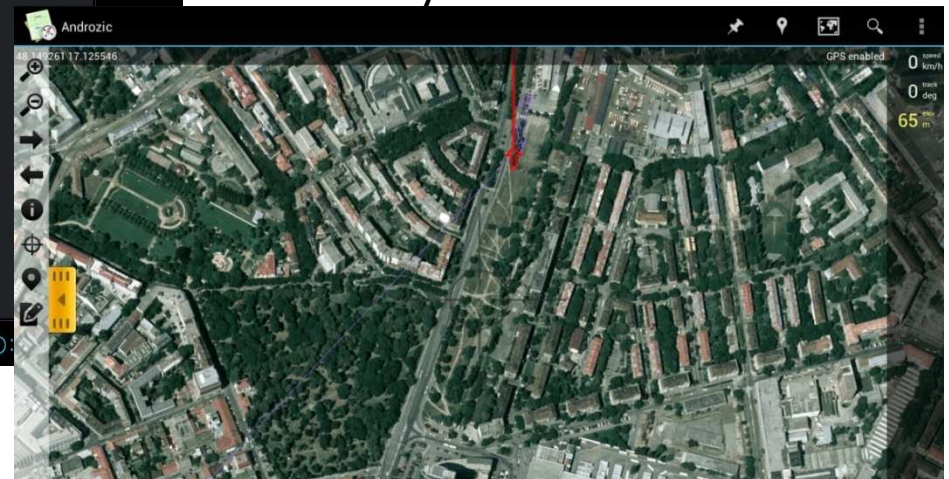
# GPS Art



# fakeGPS

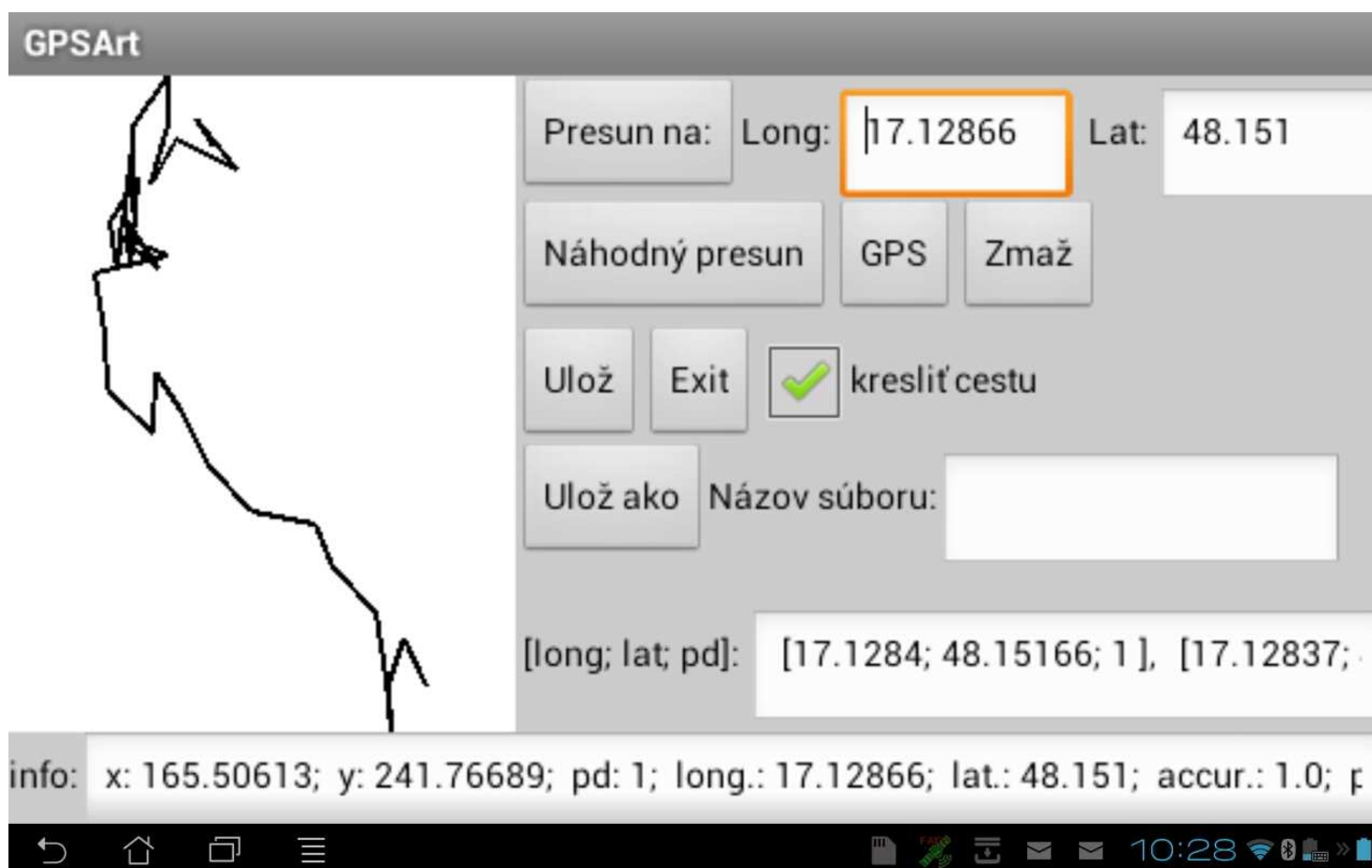


- nainštalujeme si nejaké fakeGPS
- nastavíme miesto, kde chceme ísť aplikáciu
- zvolíme si simuláciu pohybu, časový interval, krok, ...
- pre istotu, skontrolujeme v nejakej (nie našej) aplikácii, či sme, kde sme chceli byť, a či sa hýbeme...



# Príklad Domácej úlohy 1

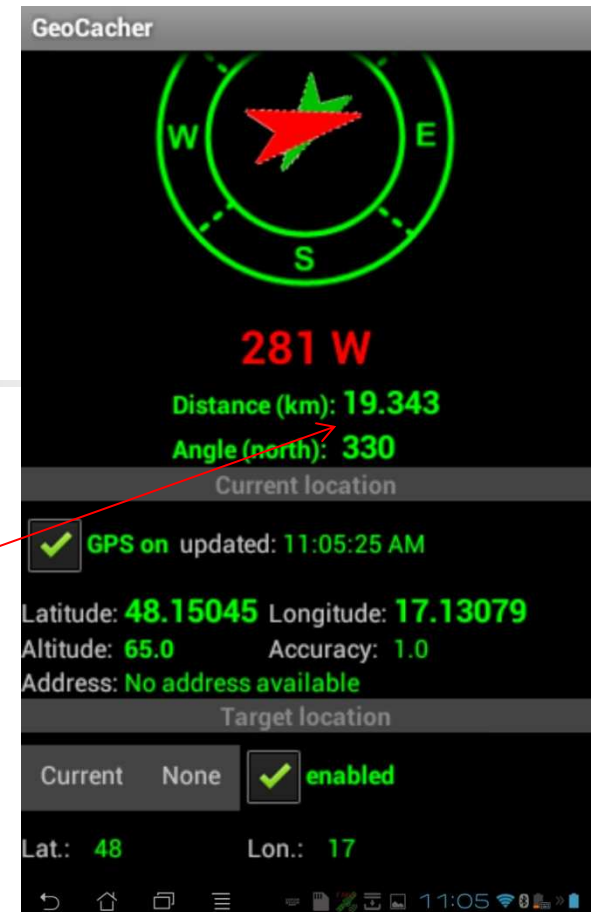
Autor: Adrian Ritomský



[RitomskyAdrian.aia](#),  
[RitomskyAdrian.apk](#)

# Geochaching

Magnetický senzor meria orientáciu v magnetic-  
kom poli zeme, môžeme ho použiť ako kompas  
Akceleračný senzor meria zrýchlenie v 3 smeroch  
Gyroskop meria zmenu orientácie v 3 osiach



## Formulas [\[edit source\]](#)

Let  $\phi_1, \lambda_1$  and  $\phi_2, \lambda_2$  be the geographical [latitude](#) and [longitude](#) of two points 1 and 2, and  $\Delta\phi, \Delta\lambda$  their absolute differences; then  $\Delta\sigma$ , the [central angle](#) between them, is given by the [spherical law of cosines](#):

$$\Delta\sigma = \arccos(\sin \phi_1 \sin \phi_2 + \cos \phi_1 \cos \phi_2 \cos \Delta\lambda).$$

The distance  $d$ , i.e. the [arc length](#), for a sphere of radius  $r$  and  $\Delta\sigma$  given in

$$d = r \Delta\sigma.$$

A good choice<sup>[5]</sup> for the radius is the [mean earth radius](#),

$$R_1 = \frac{1}{3}(2a + b) \approx 6371 \text{ km (for the WGS84 ellipsoid)}$$

[http://en.wikipedia.org/wiki/Great-circle\\_distance](http://en.wikipedia.org/wiki/Great-circle_distance)



# HRM



- Pair: 1234, ak nie, skúšame 0000, 00000, potom už čítame návod
- HXM012233
- Connect to serial port, napr. COM5
- Pozrieme si COM v termináli



HTC Desire S  
Smart Phone



iNvior  
Unknown: Major(31), Minor(0)



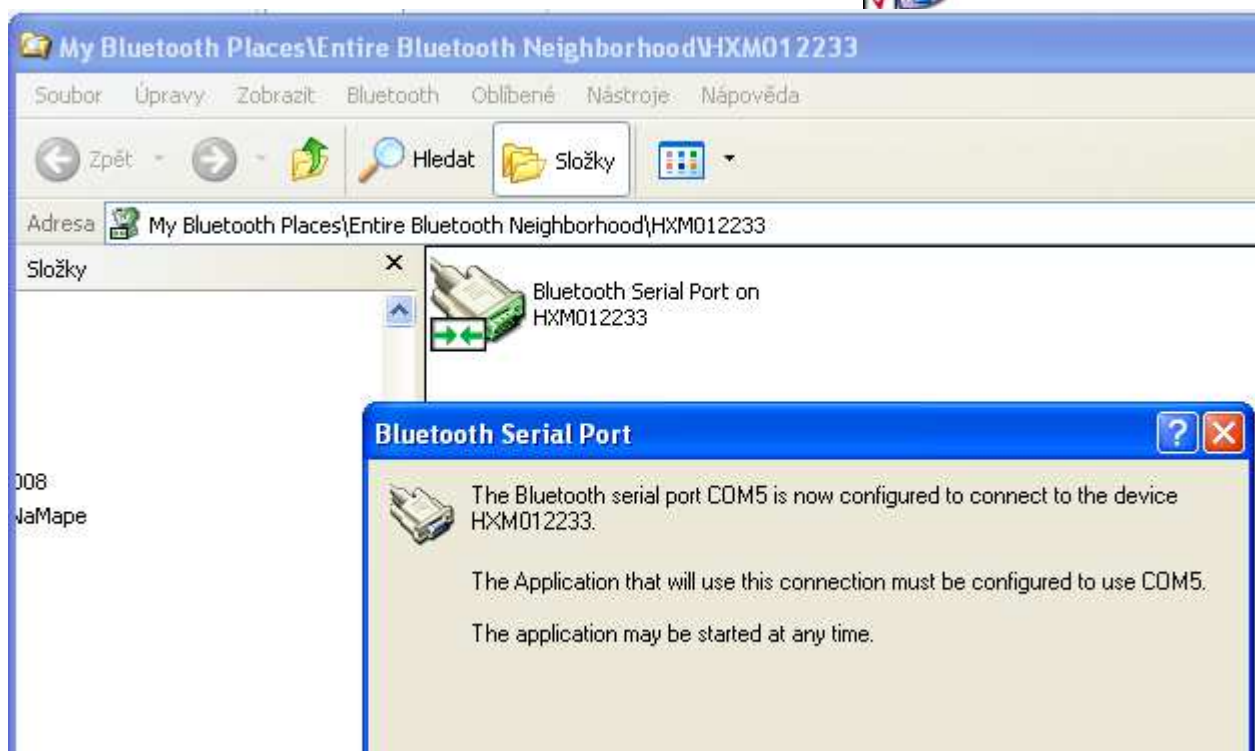
HXM012233  
Unknown: Major(31), Minor(0)



Nokia 5530 XpressMusic  
Smart Phone

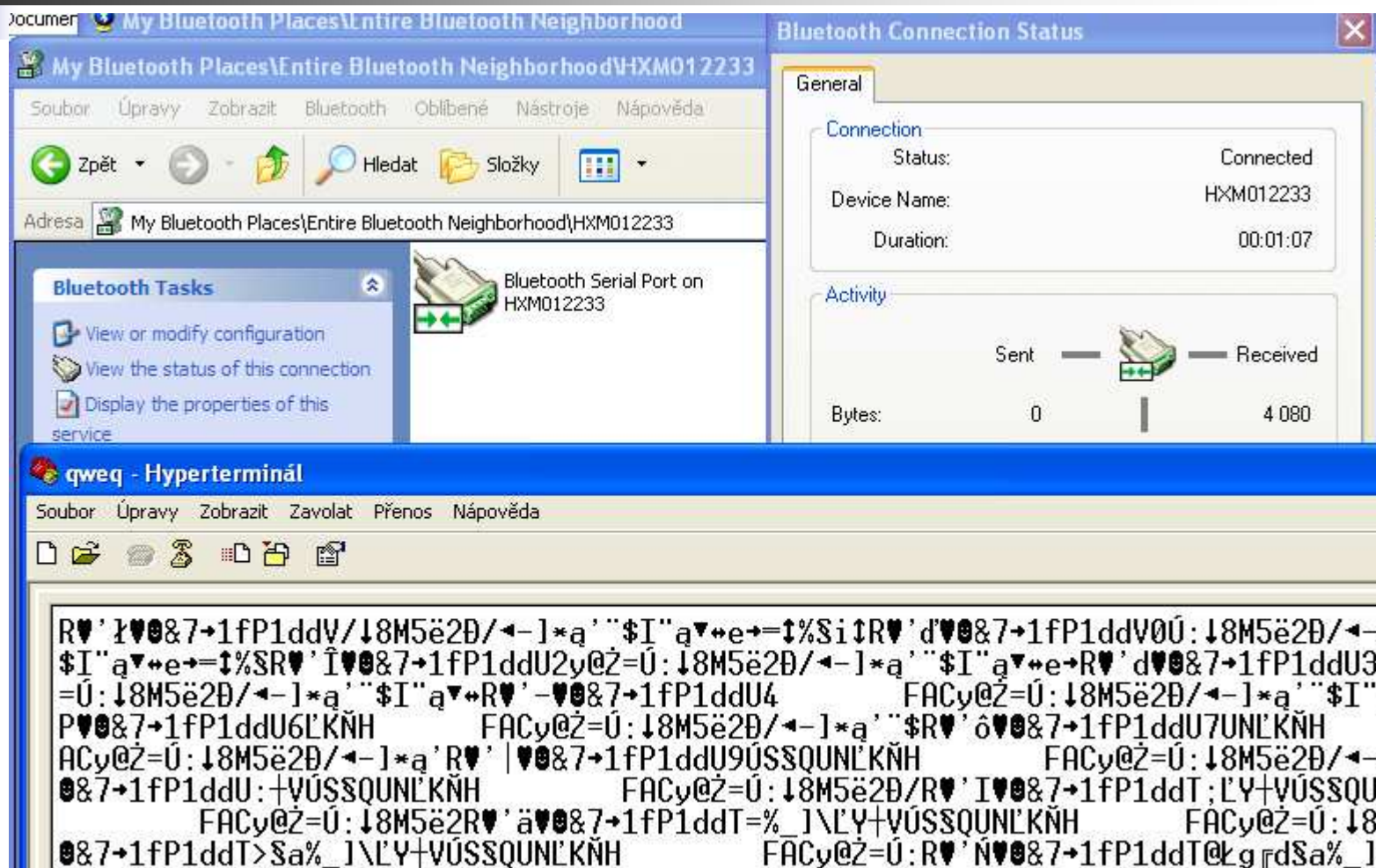


Transformer Prime TF201  
Personal Digital Assistant



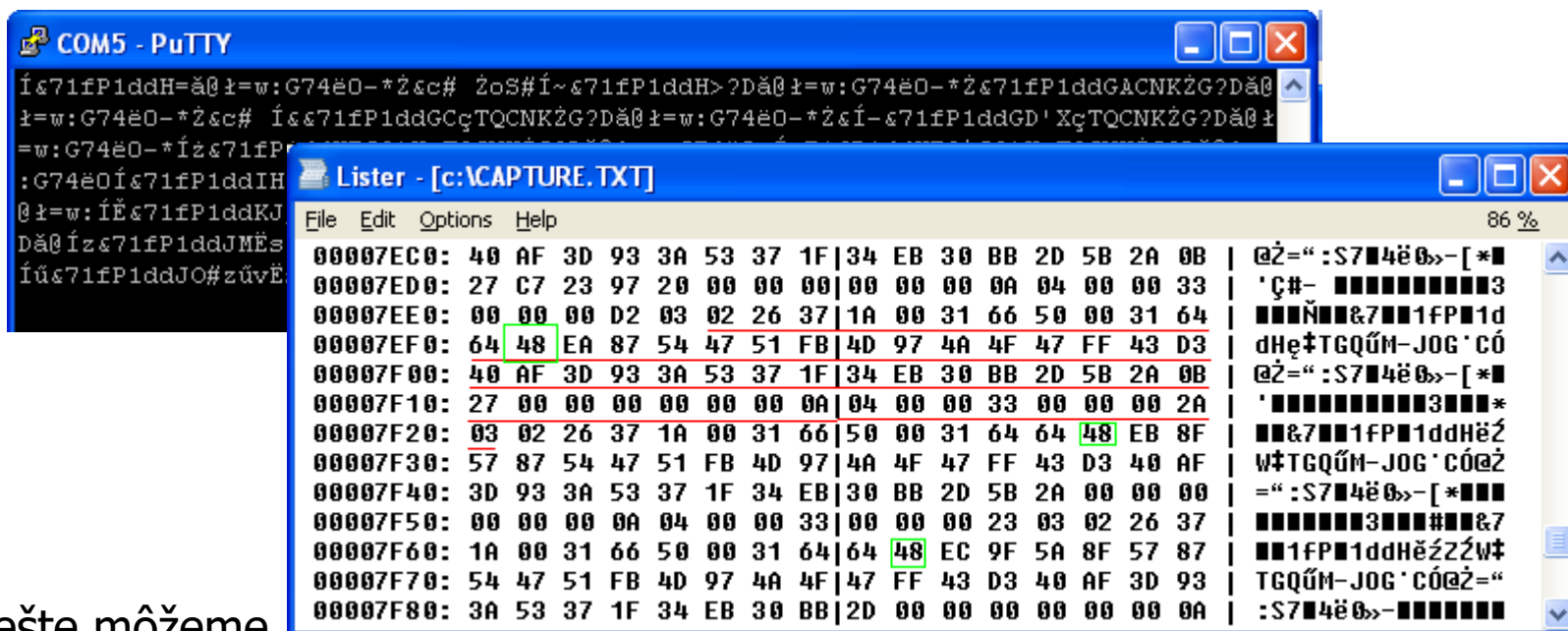


# Radost' z párovania



# Spárovené a rozpráva sám

Najpríjemnejšie, ak spárované zariadenie vysiela správy samé, hoc aj kódované. Ušetrí nám to študovanie komunikačného protokolu, riešenie problémov s rýchlosťou komunikácie, odozvou, a pod.



COM5 - PuTTY

```
Í&71fP1ddH=ä@ł=w:G74ëO-*Ž&c# žoS#Í~&71fP1ddH>?Dä@ł=w:G74ëO-*Ž&71fP1ddGACNKŽG?Dä@ł=w:G74ëO-*Ž&c# Í&71fP1ddGCgTQCNKŽG?Dä@ł=w:G74ëO-*Ž&Í-&71fP1ddGD' XgTQCNKŽG?Dä@ł=w:G74ëO-*Í&71fP1ddIH :G74ëOÍ&71fP1ddIH @ł=w:Í&71fP1ddKJ Dä@Í&71fP1ddJMĚs Í&71fP1ddJO#zůvĚ
```

Lister - [c:\VCAPTURE.TXT]

File	Edit	Options	Help
00007EC0:	40 AF 3D 93 3A 53 37 1F	34 EB 30 BB 2D 5B 2A 0B	@Ž=":S7■4ë0>-[*■
00007ED0:	27 C7 23 97 20 00 00 00	00 00 00 0A 04 00 00 33	'Ç#- ■■■■■■■■■■3
00007EE0:	00 00 00 D2 03 02 26 37	1A 00 31 66 50 00 31 64	■■■■■&7■■■1FP■1d
00007EF0:	64 48 EA 87 54 47 51 FB	4D 97 4A 4F 47 FF 43 D3	dHe\$TGQŮM-JOG' CŮ
00007F00:	40 AF 3D 93 3A 53 37 1F	34 EB 30 BB 2D 5B 2A 0B	@Ž=":S7■4ë0>-[*■
00007F10:	27 00 00 00 00 00 00 0A	04 00 00 33 00 00 00 2A	'■■■■■■■■■■3■■■*
00007F20:	03 02 26 37 1A 00 31 66	50 00 31 64 64 48 EB 8F	■■&7■■■1FP■1ddHëŽ
00007F30:	57 87 54 47 51 FB 4D 97	4A 4F 47 FF 43 D3 40 AF	w\$TGQŮM-JOG' CŮ@Ž
00007F40:	3D 93 3A 53 37 1F 34 EB	30 BB 2D 5B 2A 00 00 00	=":S7■4ë0>-[*■■■
00007F50:	00 00 00 0A 04 00 00 33	00 00 00 23 03 02 26 37	■■■■■■■■3■■■#■■&7
00007F60:	1A 00 31 66 50 00 31 64	64 48 EC 9F 5A 8F 57 87	■■1FP■1ddHëŽZŽw\$
00007F70:	54 47 51 FB 4D 97 4A 4F	47 FF 43 D3 40 AF 3D 93	TGQŮM-JOG' CŮ@Ž="
00007F80:	3A 53 37 1F 34 EB 30 BB	2D 00 00 00 00 00 00 0A	:S7■4ë0>-■■■■■■■

Vždy ešte môžeme čítať manuál, resp. použiť hotové API

## Zephyr HxM Developer Kit

This bundled package is intended as a toolkit for implementing an API to enable communications with a Zephyr Bluetooth Heart Rate / Speed & Distance Monitor (HxM) and provides both PC and Android resources for connecting to the device to receive live data. [Click here to download \(185 MB\)](#)

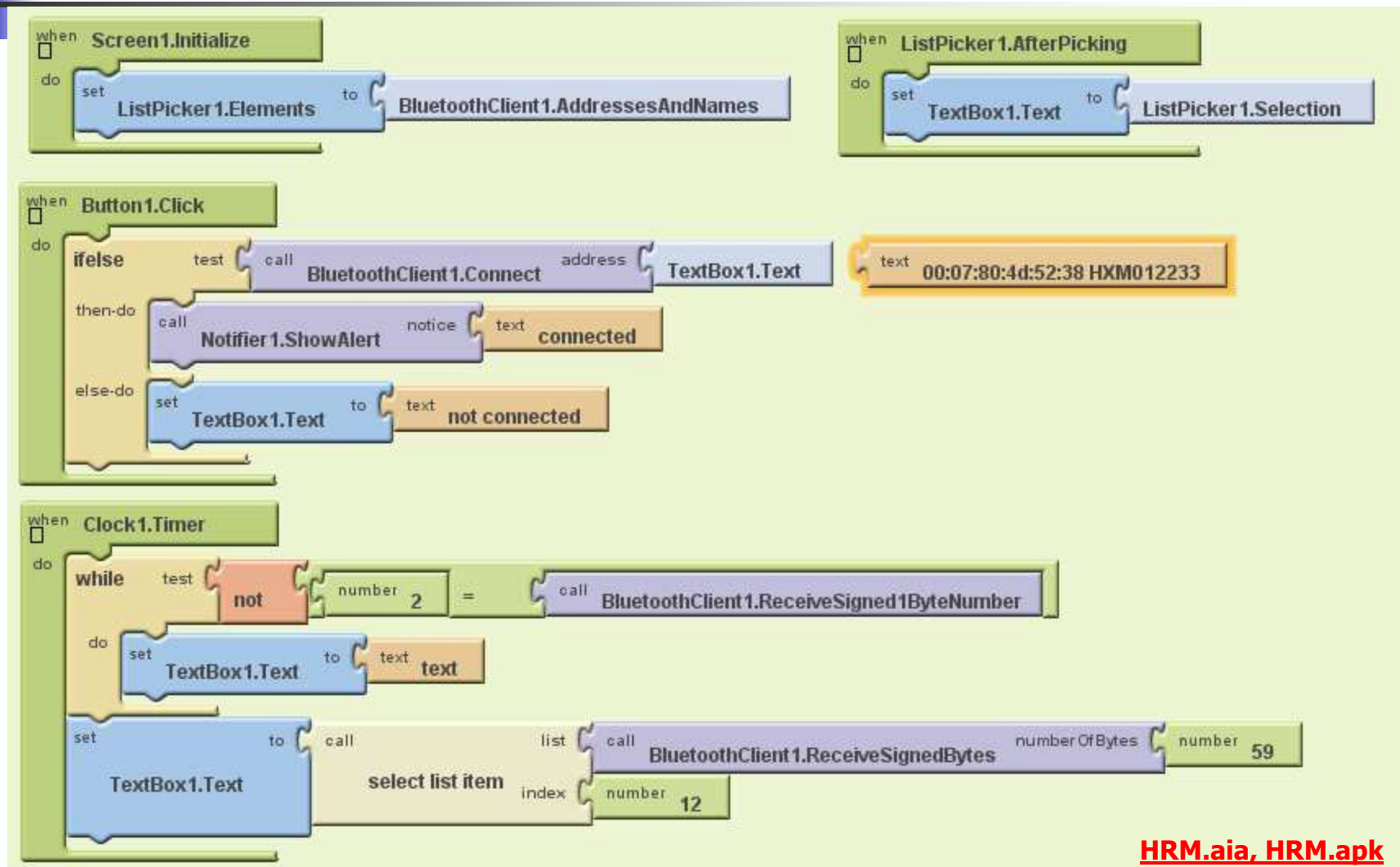
Name	Ext	Size	Date
↑ [..]		<DIR>	17.11.2012 23:09
[DotNetFX35SP1]		200 608 888	17.11.2012 23:09
[HxM Example Android Project]		293 223	17.11.2012 23:09
[HxM Packet Logger 9500.0030.v1f]		584 465	17.11.2012 23:09
HxM Android API User Guide 2011-06-24	pdf	268 525	17.11.2012 23:09
Bluetooth HXM API Guide 2011-05-05	pdf	748 453	17.11.2012 23:09

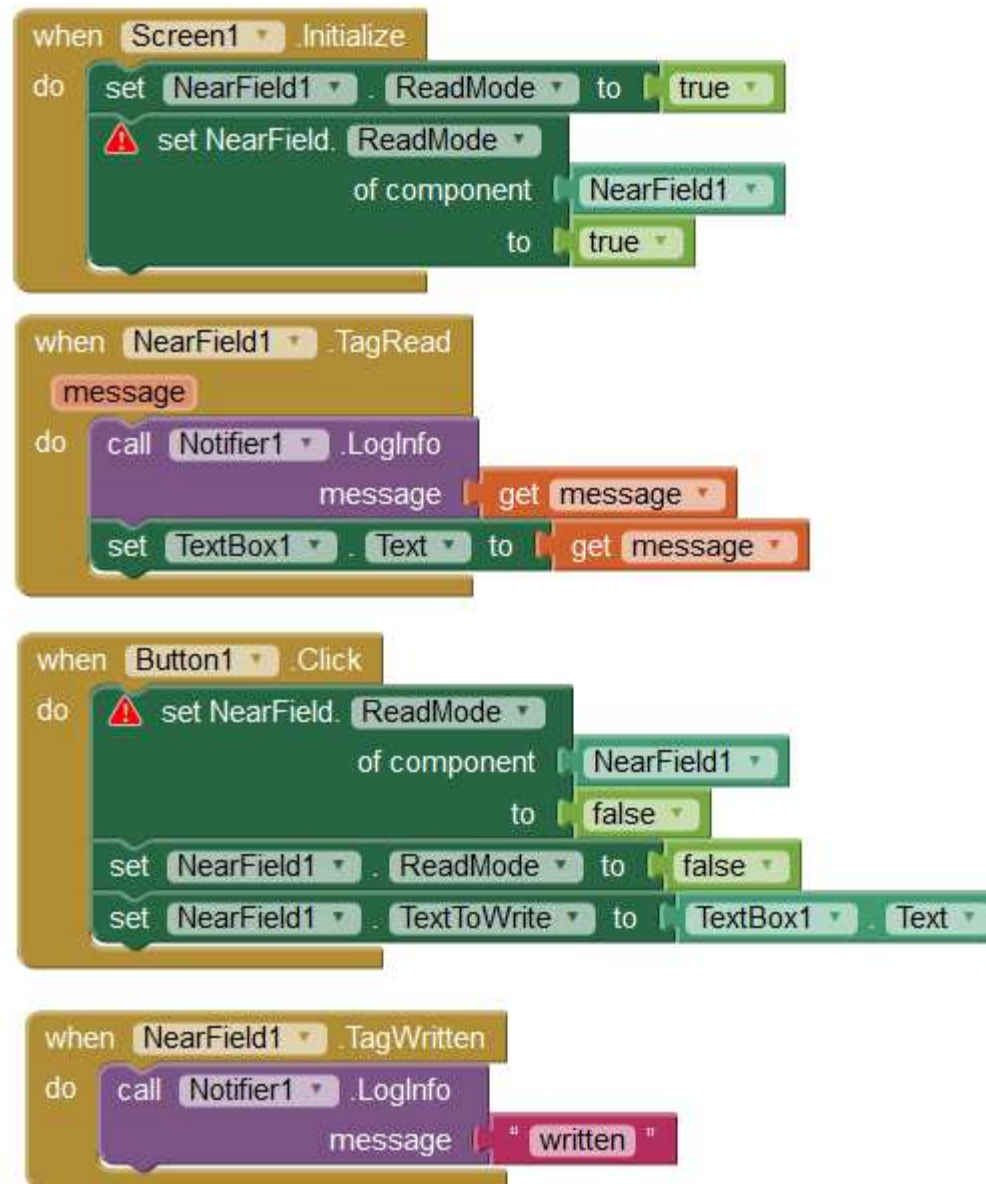
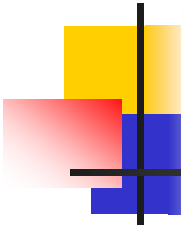
### 7.1. MSG:0x26 – Heart Rate, Speed & Distance packet

This message contains the heart rate data, including the last 15 RR timestamps, and speed & distance data. The packet is transmitted periodically at 1Hz.

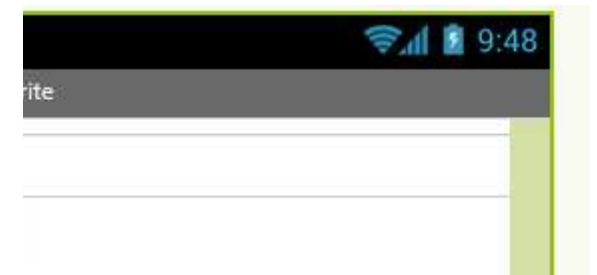
Byte/Bit	7	6	5	4	3	2	1	0	Field
0	STX								STX
1	0x26								Msg ID
2	55								DLC
3	Firmware ID								
5	Firmware Version								
7	Hardware ID								
9	Hardware Version								
11	Battery Charge Indicator								
12	Heart Rate								
13	Heart Beat Number								
14	Heart Beat Timestamp #1 (Newest)								
16	Heart Beat Timestamp #2								
18	Heart Beat Timestamp #3								

# HRM





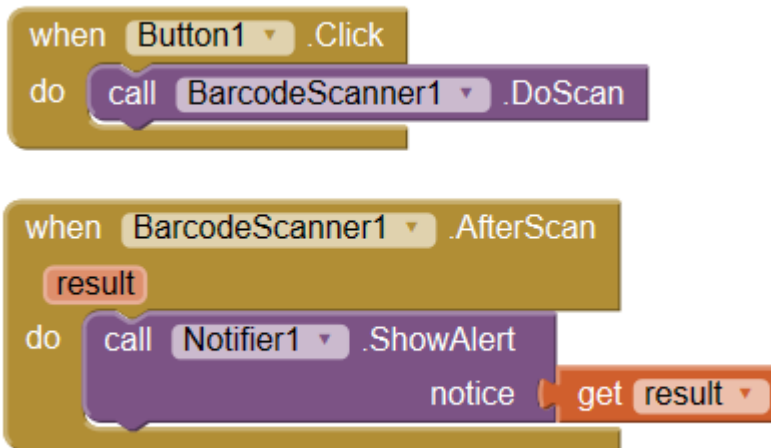
# NFC





# BarCodeScanner

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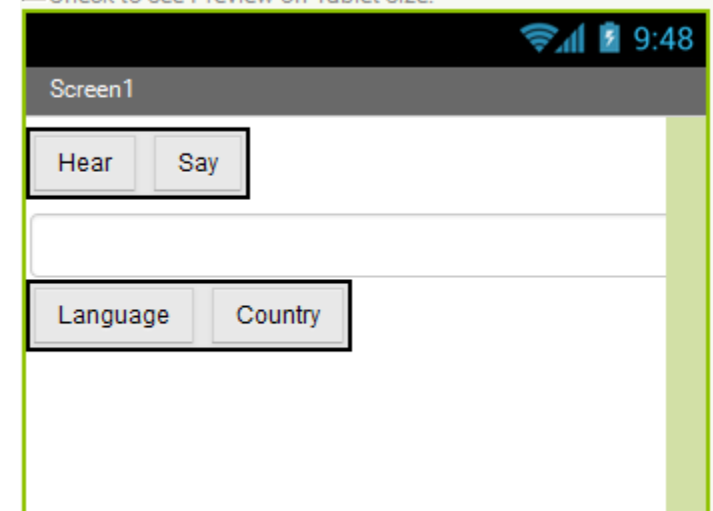


# SpeechRecognizer, TextToSpeech

```
when HearBtn.Click
do call SpeechRecognizer1.GetText

when SayBtn.Click
do set TextToSpeech1.Language to LanguageList.Selection
   set TextToSpeech1.Country to CountryList.Selection
   call TextToSpeech1.Speak
      message TextBox1.Text

when SpeechRecognizer1.AfterGettingText
result
do set TextBox1.Text to SpeechRecognizer1.Result
```



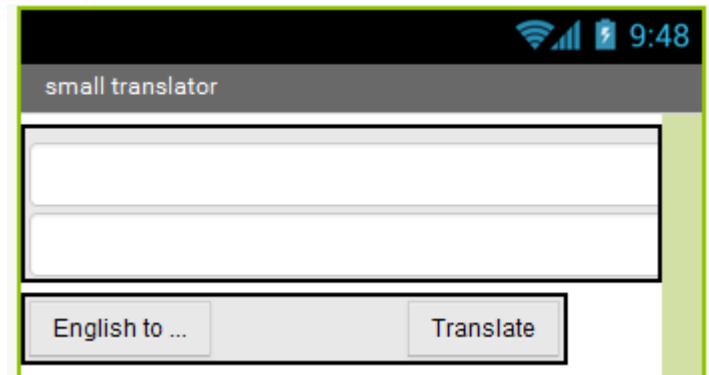
# FromEnglishTranslator

```
when Button1.Click
do
  call YandexTranslate1.RequestTranslation
    languageToTranslateTo Label1.Text
    textToTranslate from.Text
```

```
when YandexTranslate1.GotTranslation
  responseCode translation
do
  set to.Text to get translation
  call Notifier1.ShowAlert
    notice get responseCode
```

```
when ListPicker1.AfterPicking
do
  set Label1.Text to ListPicker1.Selection
```

```
when Screen1.Initialize
do
  set Label1.Text to "slovak"
```




# Prešporské pivočiary

ilustrácia ActivityStarter

Malý turistický sprievodca pamiatkami Bratislavy

Prešporské pivočiary



PresporskPivociary

- Verne
- Slovak Pub
- Umelka
- Alibaba

Slovak Pub

4.0 ★★★★★ 84 reviews

Restaurant

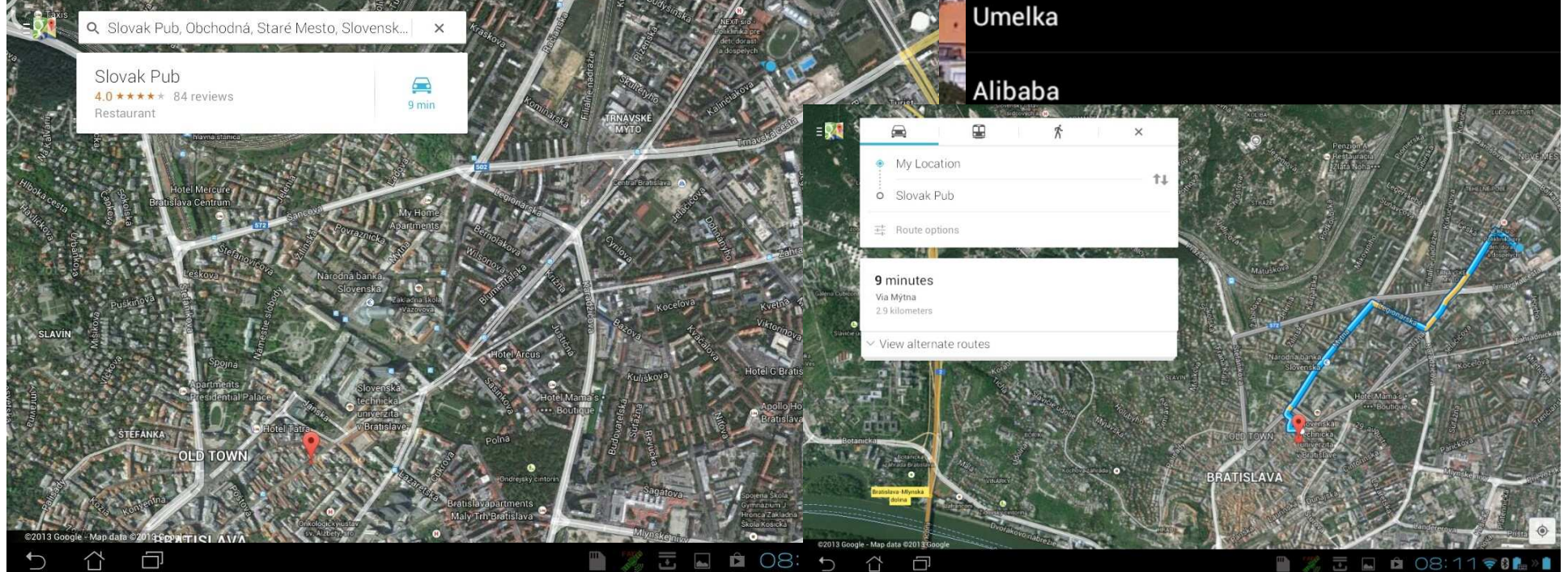
9 min

9 minutes

Via Mytná

2.9 kilometers

View alternate routes





# ActivityStarter

(google.maps)

- Action: android.intent.action.VIEW
- ActivityClass: com.google.android.maps.MapActivity
- ActivityPackage: com.google.android.apps.maps
- DataUri: <http://maps.google.com/???saddr=...&daddr=...>  
napr.: <https://maps.google.com/?saddr=bratislava&daddr=trnava>

Action

android.intent.action.VIEW

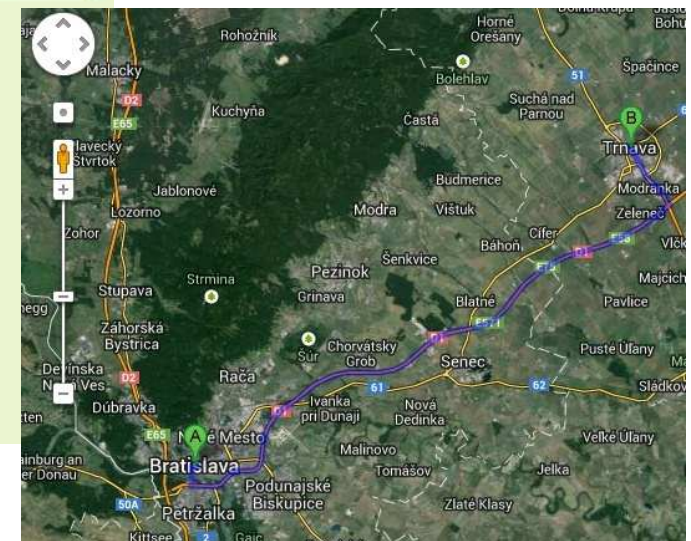
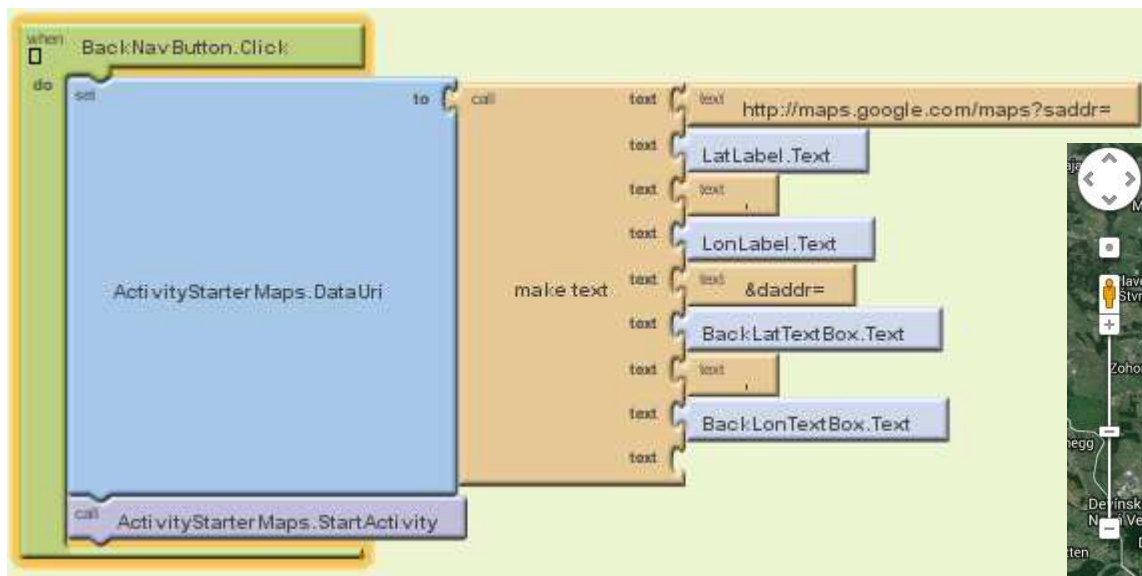
ActivityClass

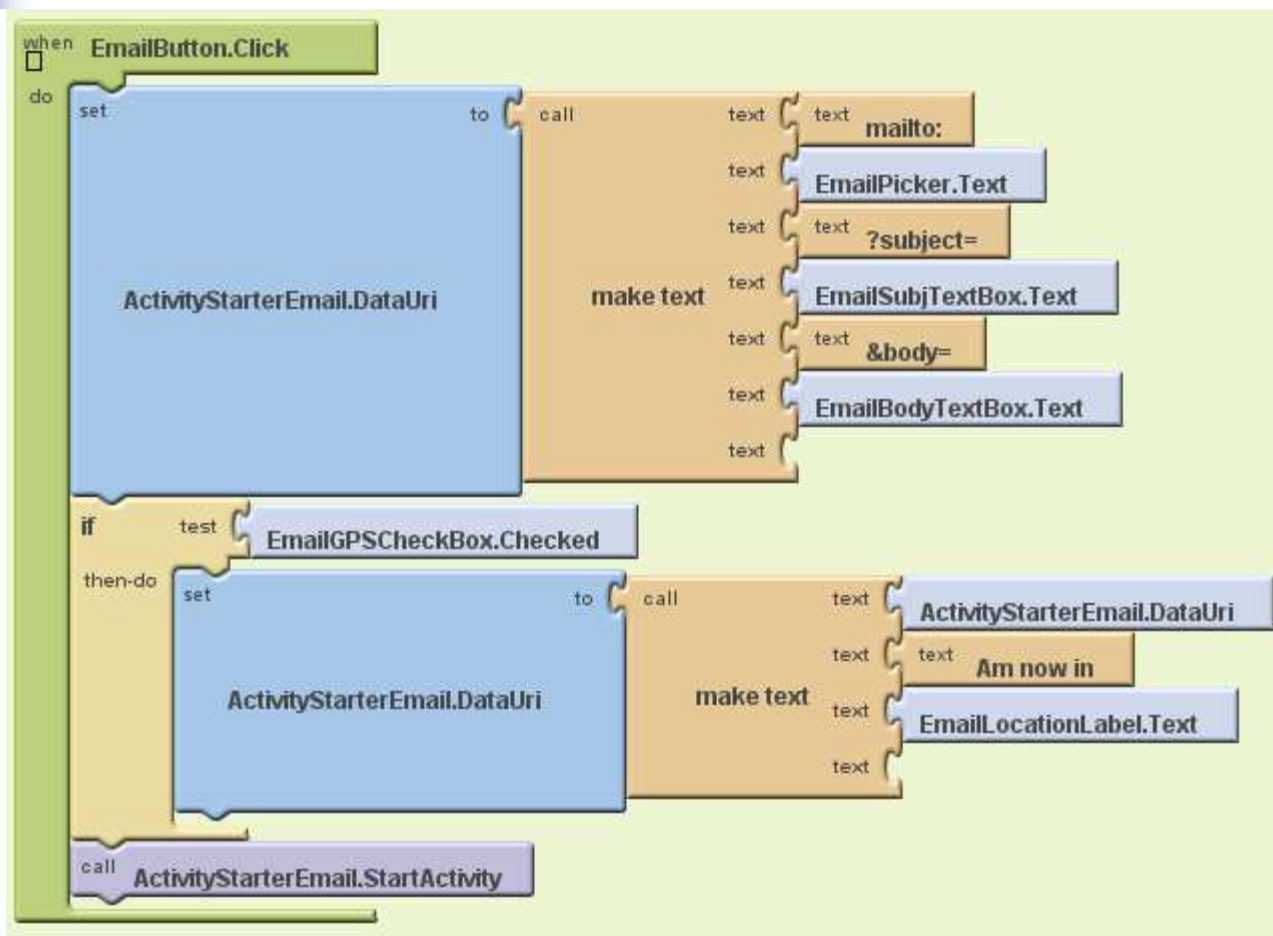
com.google.android.m

ActivityPackage

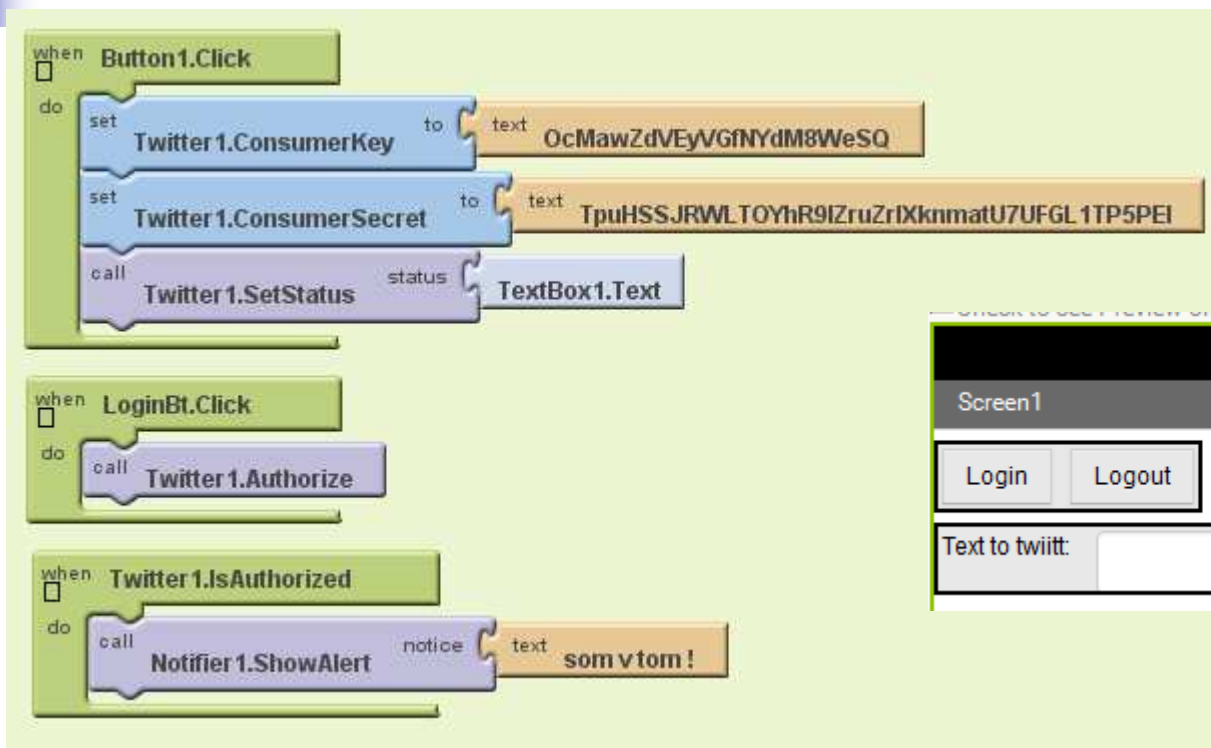
com.google.android.ap

DataType





# Twitter



Aplikáciu treba zaregistrovať na  
<https://dev.twitter.com/>  
[http://twitter.com/oauth\\_clients/new](http://twitter.com/oauth_clients/new)

**[Twiitingo.aia, Twiitingo.apk](#)**



# app.twitter.com

## Application Details

Name: \*

Twitingo

Your application name. This is used to attribute the sc

Description: \*

pry pokus

Your application description, which will be shown in

Website: \*

http://dai.fmph.uniba.sk/courses/VMA/

Your application's publicly accessible home page, wh

<https://apps.twitter.com/>

## Application Type

Access:

- ☐ Read only
- ☐ Read and Write
- ☒ Read, Write and Access direct messages

What type of access does your application need? Note: @Anywhere applications require read & write access. Find out more about our [Application Permission Model](#).

Callback URL:

http://twitter.com

Where should we return after successfully authenticating? For @Anywhere applications, only the domain specified in the call specify their oauth\_callback URL on the request token step, regardless of the value given here. To restrict your applica

☒ Allow this application to be used to [Sign in with Twitter](#)

## OAuth Settings

Consumer key: \*

OcMawZdVEyVGfNYdM8WeSQ

Consumer secret: \*

TpuHSSJRWLTOYhR9IZruZrIXknmatU7UFGL1TP5PEI

Remember this should not be shared.

[Twitingo.aia](#), [Twitingo.apk](#)

# Social Sharing

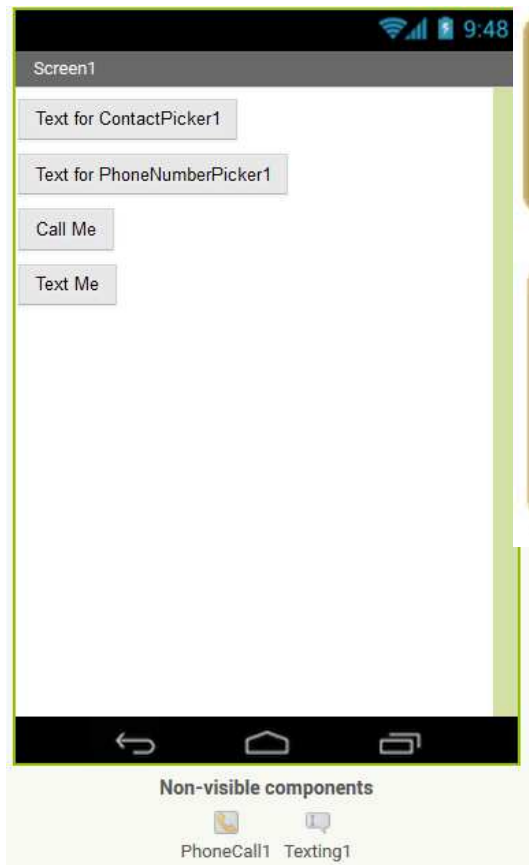
```
when Button1 .Click
do
  set Texting1 . PhoneNumber to cislottb . Text
  set Texting1 . Message to msgtb . Text
  call Texting1 .SendMessage
```

```
when Texting1 .MessageReceived
  number messageText
do
  set cislottb . Text to get number
  set msgtb . Text to get messageText
```

```
when Button2 .Click
do
  set Image1 . Picture to ImagePicker1 . Image
  call Sharing1 .ShareFileWithMessage
    file "/storage/sdcard0/Appinventor/assets/ANDROID.png"
    message "omg !"
  call Notifier1 .ShowAlert
    notice "a je to tam"
```



# Phone



```
when Button1 .Click
do
  set PhoneCall1 . PhoneNumber to "0911775039"
  call PhoneCall1 . MakePhoneCall
```

```
when Button2 .Click
do
  set Texting1 . PhoneNumber to "0911775039"
  set Texting1 . Message to "0918972645"
  call Texting1 . SendMessage
```



# Firebase

<https://firebase.google.com/>

---

Cloud vlastnený Google od 2014

- Firebase Cloud Messaging
- Firebase Auth
- Realtime Database
- Firebase Storage
- Firebase Web Hosting
- Firebase Remote Config
- Firebase Test Lab for Android
- Crash Reporting










# Iný cloud

<http://parse.com/>

Parse + Open Source = ❤️ X


## SDKs and Libraries



The open source versions of our SDKs with relevant links to learn more.


<div>iOS + OS X + tvOS</div> <div>★ 2180    P 583</div> <div></div>	<div>Android</div> <div>★ 1184    P 427</div> <div></div>	<div>JavaScript</div> <div>★ 451    P 249</div> <div></div>
<div>.NET + Xamarin</div> <div>★ 131    P 148</div> <div></div>	<div>Unity</div> <div>★ 131    P 148</div> <div></div>	<div>PHP</div> <div>★ 687    P 307</div> <div></div>
<div>Arduino</div> <div>★ 24    P 65</div> <div></div>	<div>Embedded C</div> <div>★ 210    P 112</div> <div></div>	<div>Cloud Code</div> <div>★ 256    P 113</div> <div></div>




# FireBaseConsole


 **Firebase**


 VMADemo 


 Analytics

DEVELOP


 **Auth**


 Database

 Storage

 Hosting

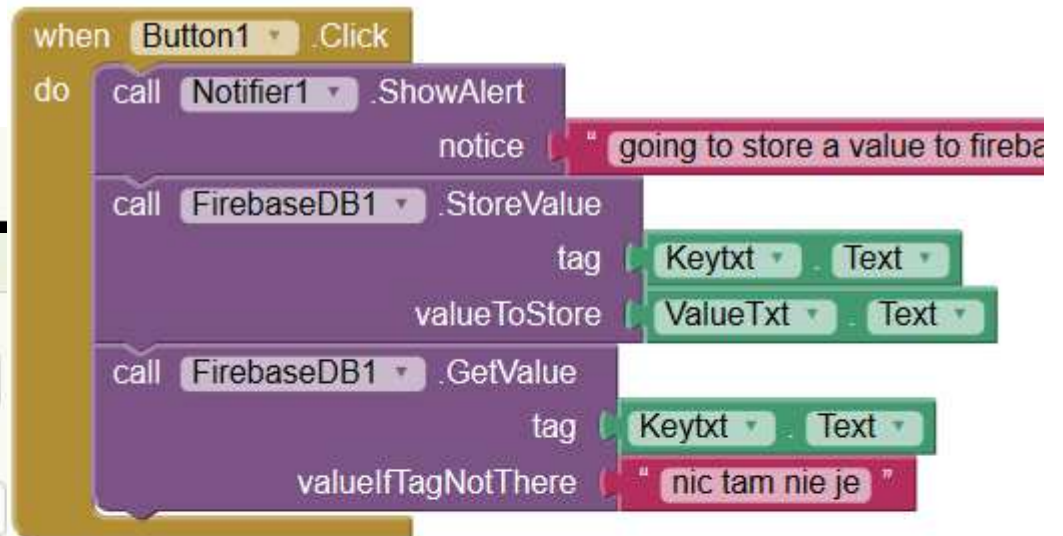
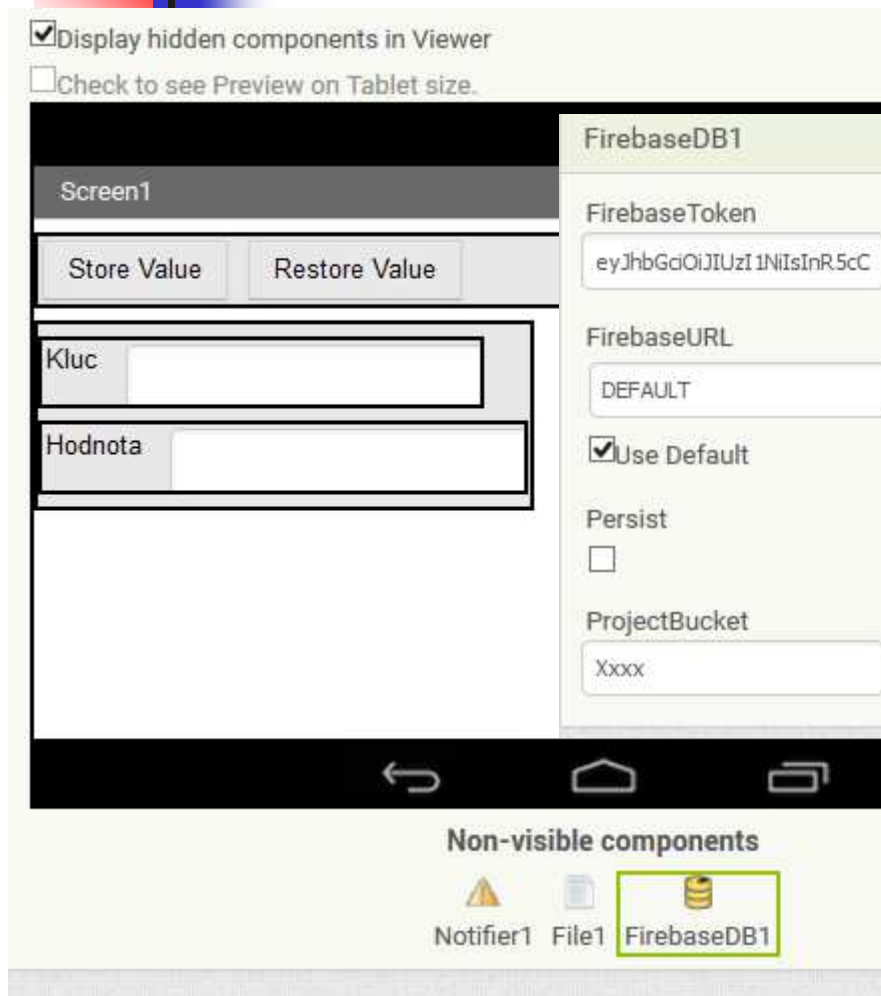
EMAIL TEMPLATES

 Search by email address or user UID

Email	Providers	Created ↓	Signed In	User UID
mercury.peter@yahoo.com		Sep 18, 2016	Sep 18, 2016	DtA3TCLI



# FireBase

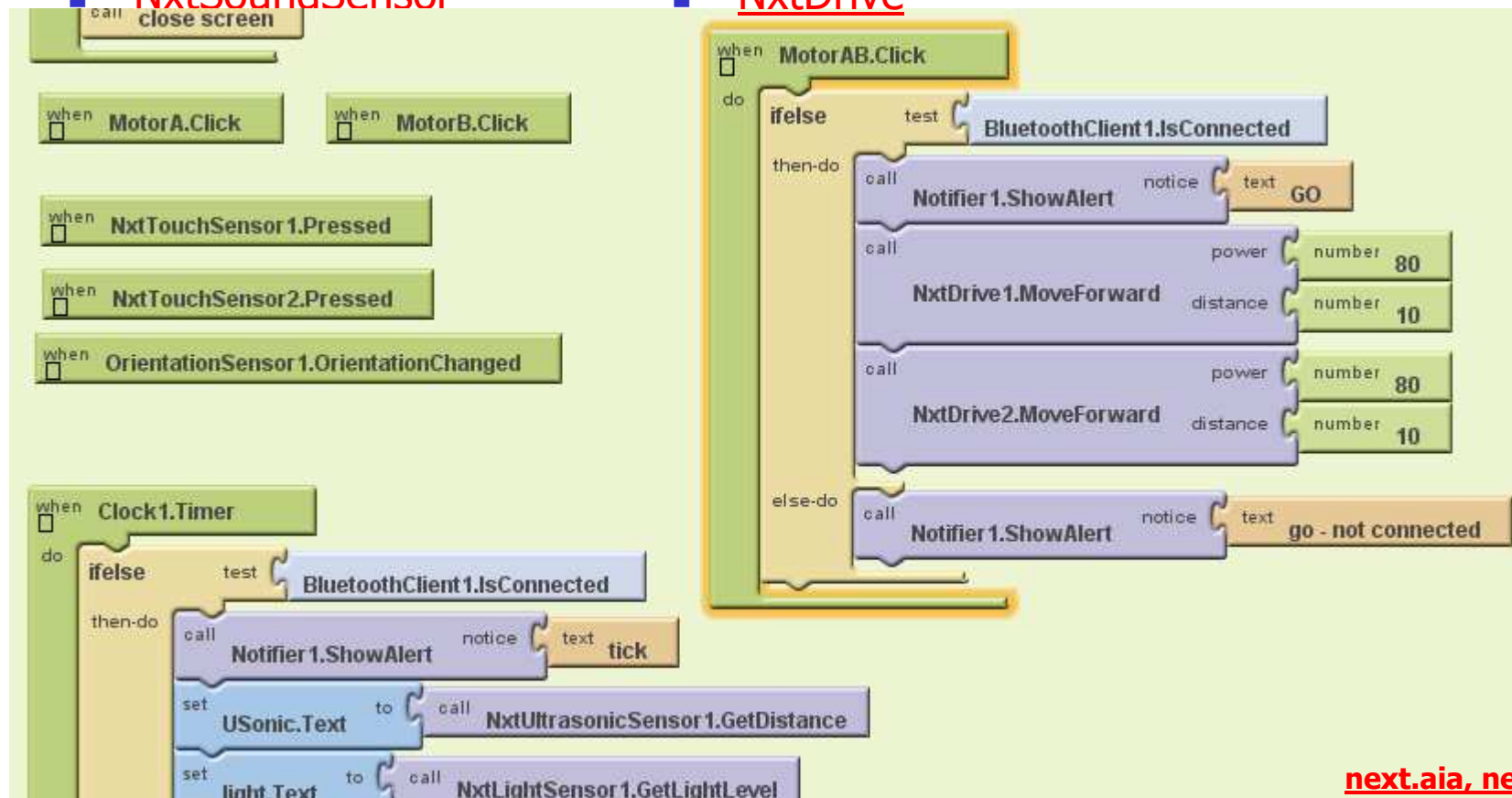


[Xxxx.aia](#), [Xxxx.apk](#)

# Lego NXT-EV3



- [NxtColorSensor](#)
- [NxtLightSensor](#)
- [NxtSoundSensor](#)
- [NxtTouchSensor](#)
- [NxtUltrasonicSensor](#)
- [NxtDrive](#)



# Domáca úloha



Ak vás niečo netriviálne napadne (príklad: Prešporské Pivočiary :-), skúste to vytvoriť, ale tak, že sa za to nebudete hanbiť, hodnotí to Michal Kováč.

Ak nie:

- Labilo
  - dorobiť na niečo ako vodováhu
- GPSArt
  - Kreslí čiary, nie bodky
  - Plocha obrázku sa škáluje podľa reálne prejdenej vzdialenosti
  - Má Pause na prerušenie maľovania za účelom presunu
  - Vie uložiť obrázok
  - Nakreslí sever
- HRM
  - Grafické zobrazenie
  - Priebeh, vývoj
- NXT-EV3
  - Čokoľvek pekné (segway :-)

