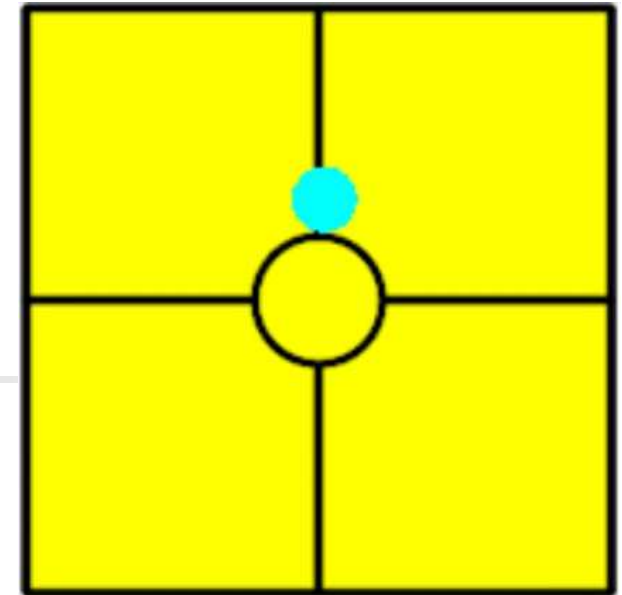# Android
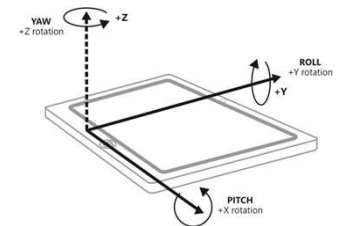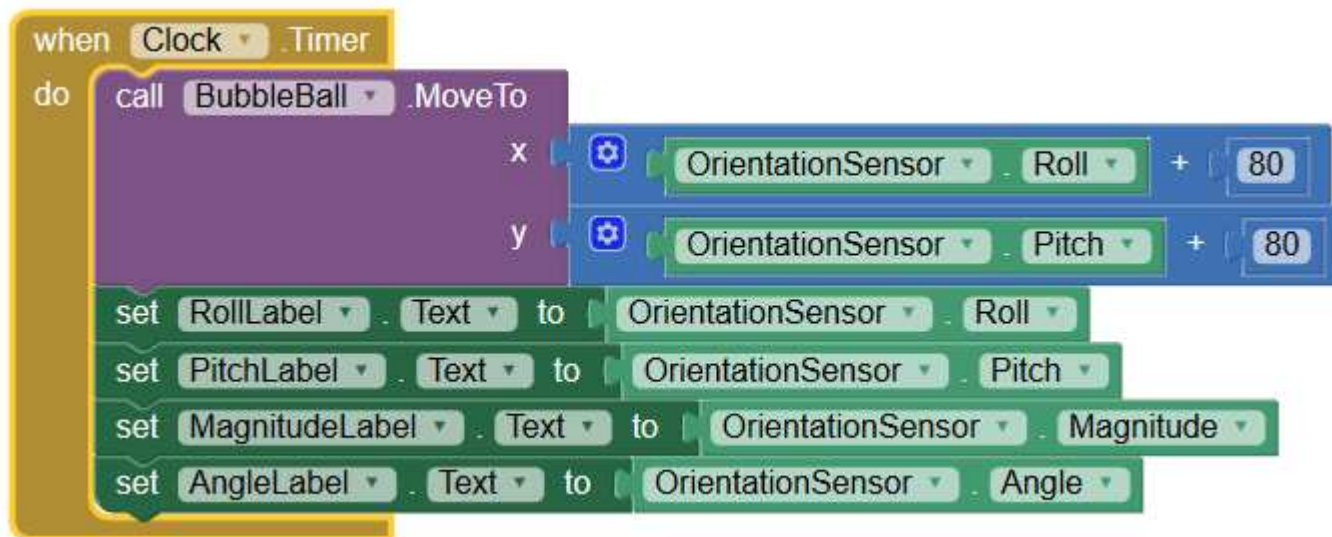# MIT Inventor
(pokračovanie)

Peter Borovanský
KAI, I-18

borovan 'at' ii.fmph.uniba.sk

Vodovážka

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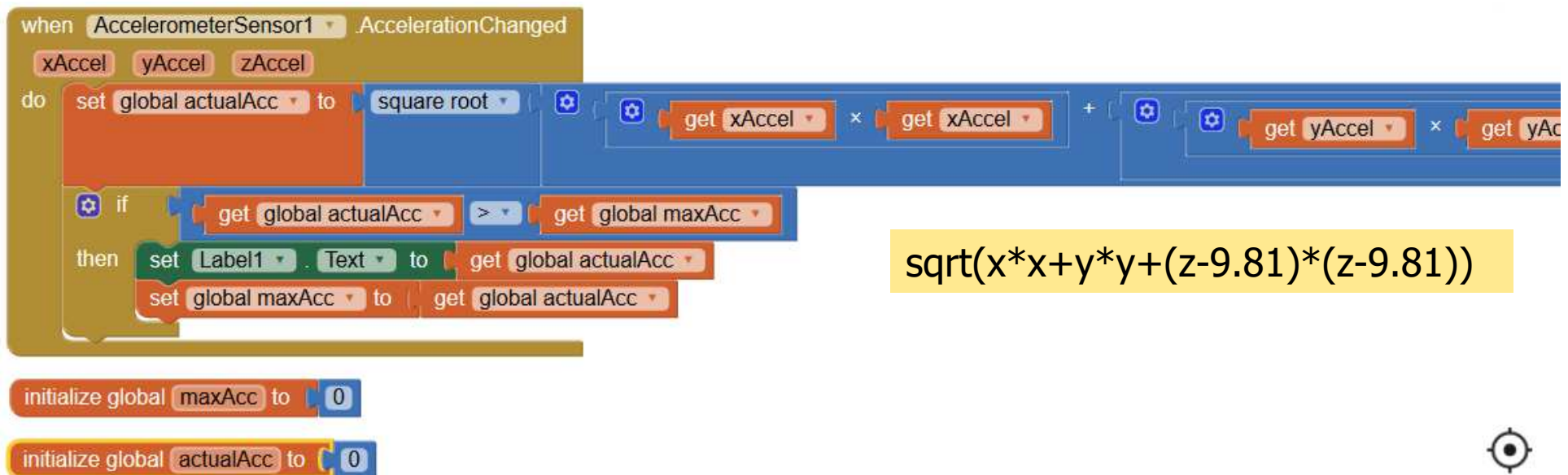v troch osiach (x,y,z)

Roll: 1.83868
Pitch: -30.22783

SpiritLevel.apk

21.99883

ShockMe

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

```
when  AccelerometerSensor1  .AccelerationChanged
  xAccel  yAccel  zAccel
do  set global actualAcc  to   square root
                                    get xAccel  ×  get xAccel  +    get yAccel  ×  get yAc

    if   get global actualAcc  >  get global maxAcc
    then  set Label1 . Text  to   get global actualAcc
          set global maxAcc  to   get global actualAcc

initialize global maxAcc to 0
initialize global actualAcc to 0
```

sqrt(x*x+y*y+(z-9.81)*(z-9.81))

Neskôr použijeme Linear Acceleration Sensor, ktorý softwarovo počíta zrýchlenie bez gravitačného

ShockMe.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
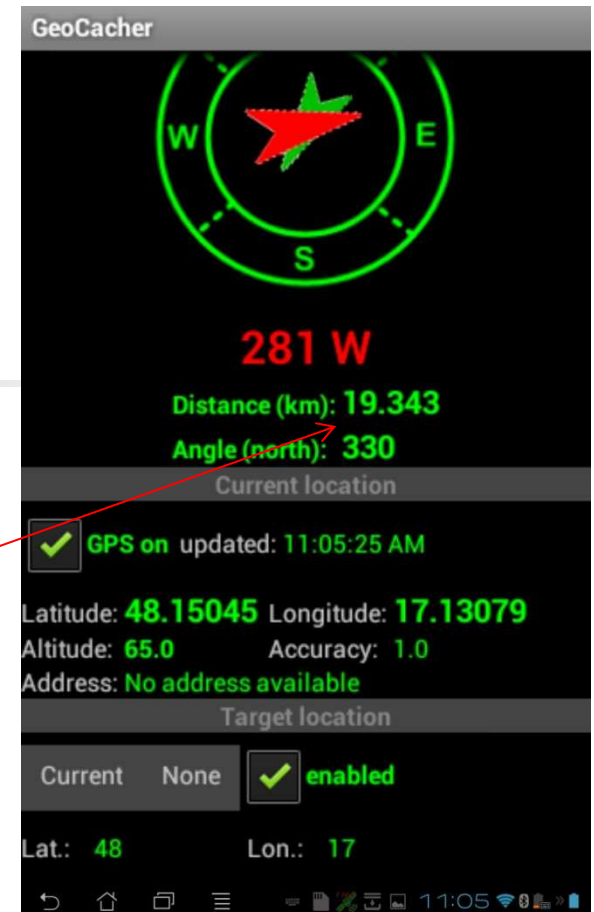
Formulas [edit source]

Let ϕ_1, λ_1 and ϕ_2, λ_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:

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

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[5] for the radius is the mean earth radius,

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

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
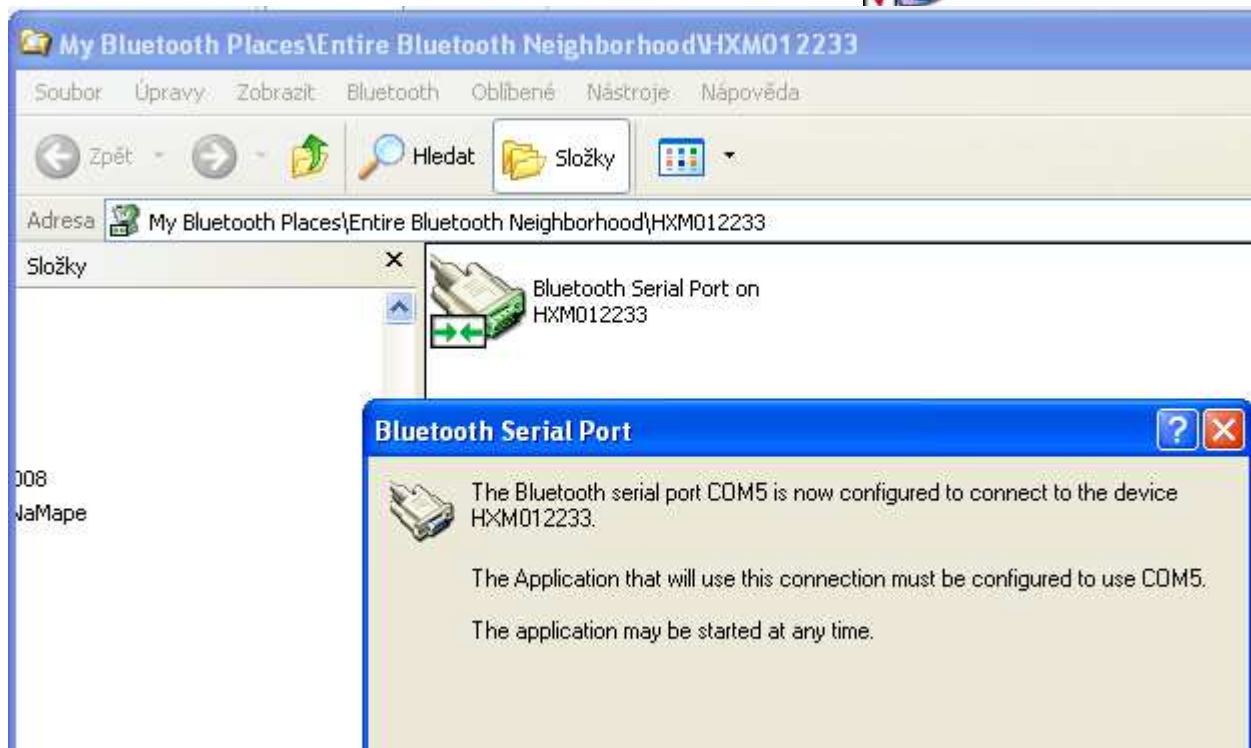Smart Phone

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

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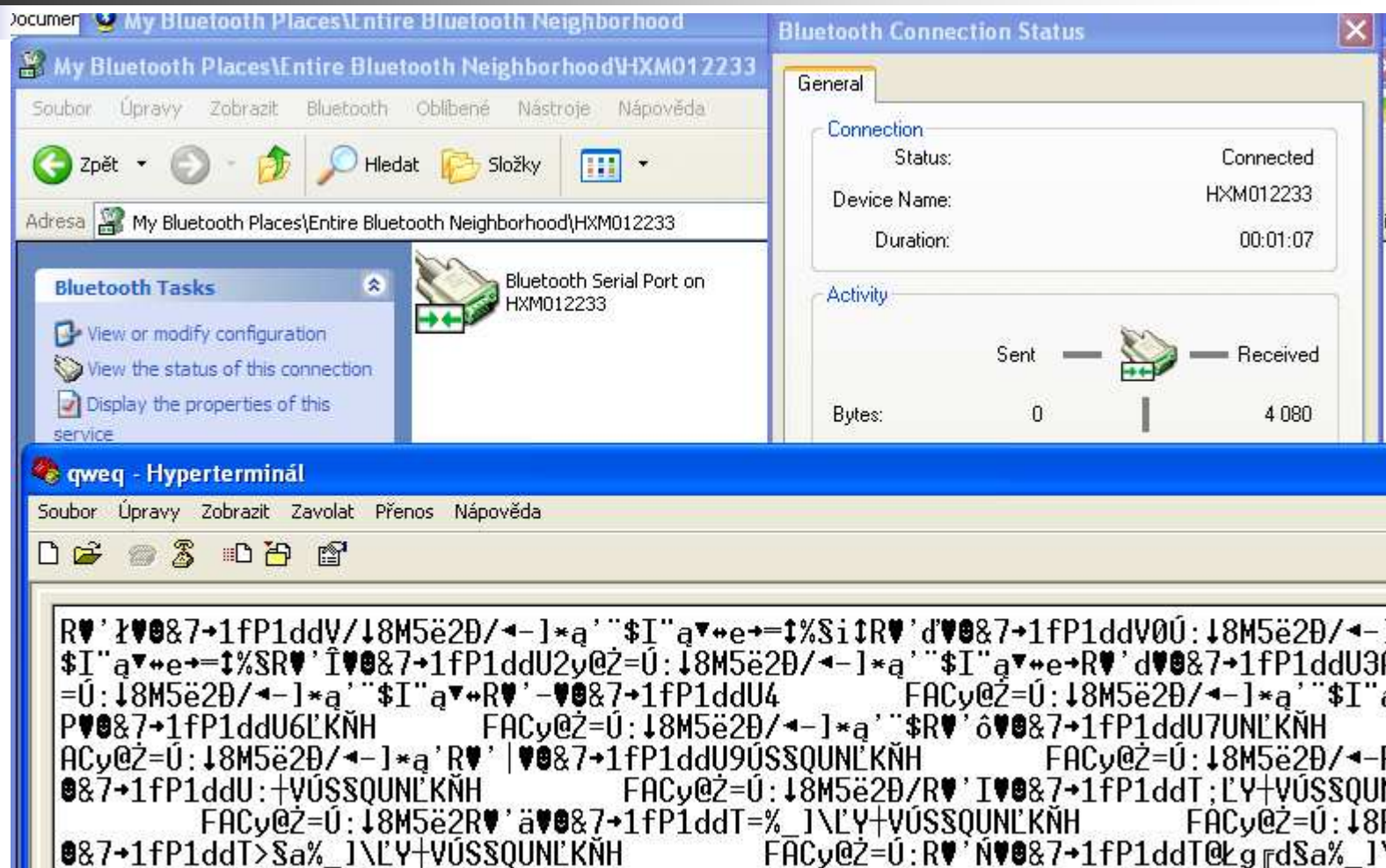Unknown: Major(31), Minor(0)

Nokia 5530 XpressMusic
Smart Phone

Transformer Prime TF201
Personal Digital Assistant

My Bluetooth Places\Entire Bluetooth Neighborhood\HXM012233

Soubor   Úpravy   Zobrazit   Bluetooth   Oblíbené   Nástroje   Nápověda

Zpět   ·   Hledat   Složky

Adresa   My Bluetooth Places\Entire Bluetooth Neighborhood\HXM012233

Složky

Bluetooth Serial Port on
HXM012233

008
NaMape

Bluetooth Serial Port

The Bluetooth serial port COM5 is now configured to connect to the device
HXM012233.

The Application that will use this connection must be configured to use COM5.
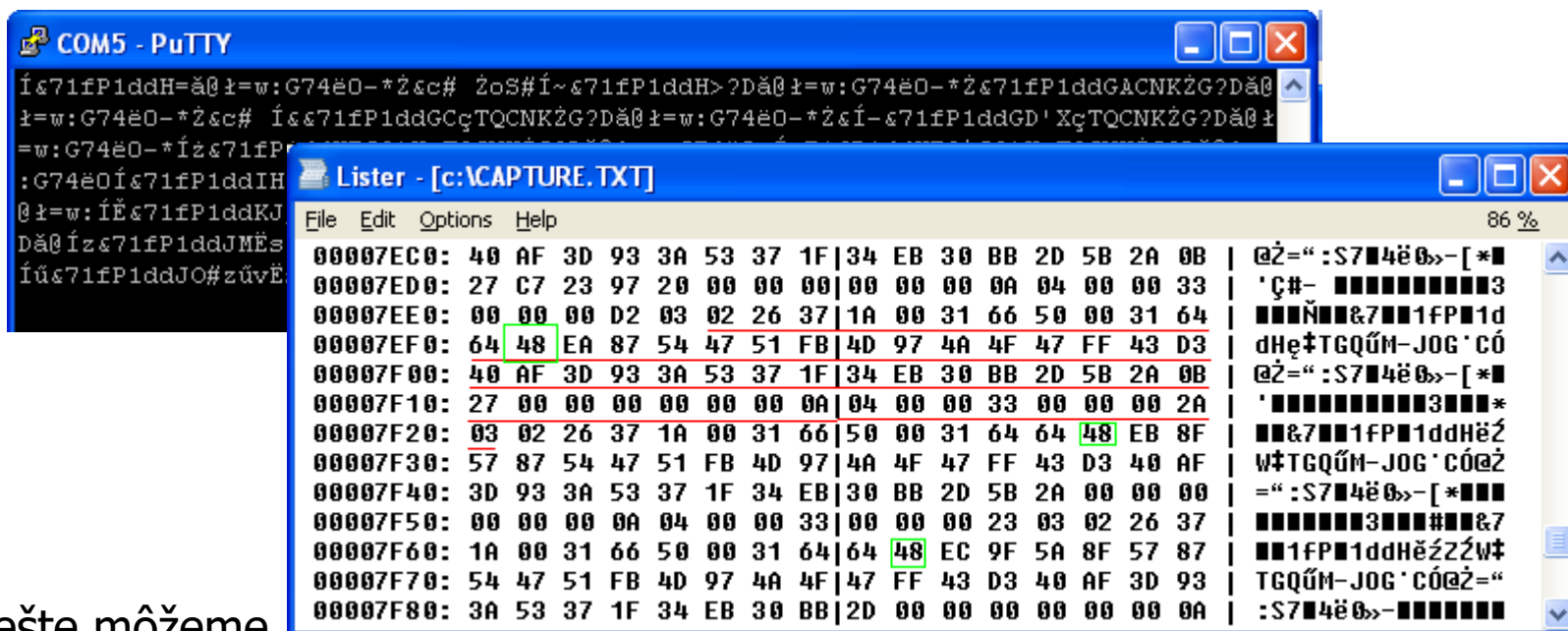
The application may be started at any time.

Radosť z párovania

Spárované 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.

Vždy ešte môžeme čítať manuál, resp. použiť hotové API

HRM (HxM Zephyr)

```
c:\borovan\HxM SDK 9700.0124.v1d\*.*
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
```
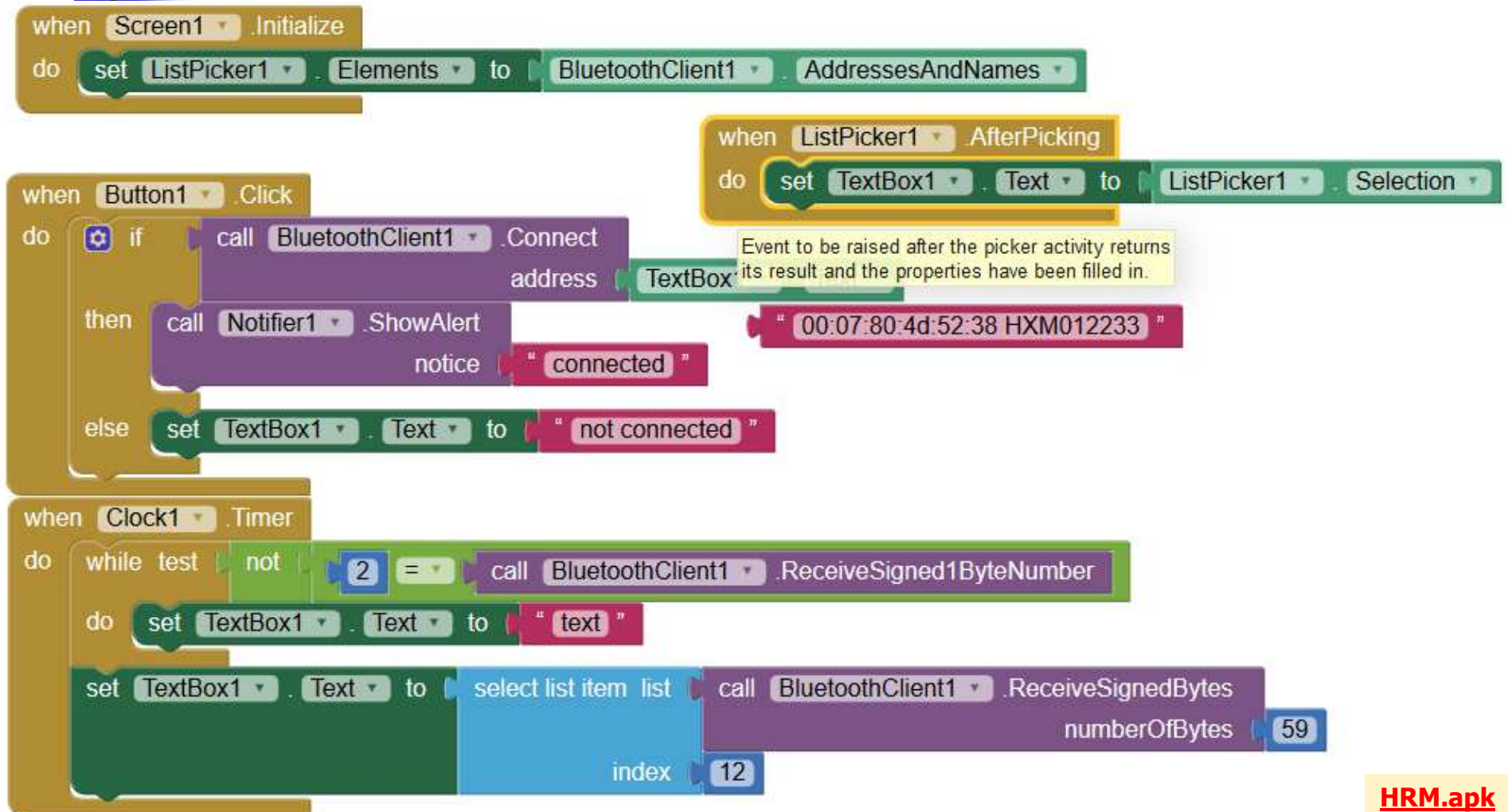
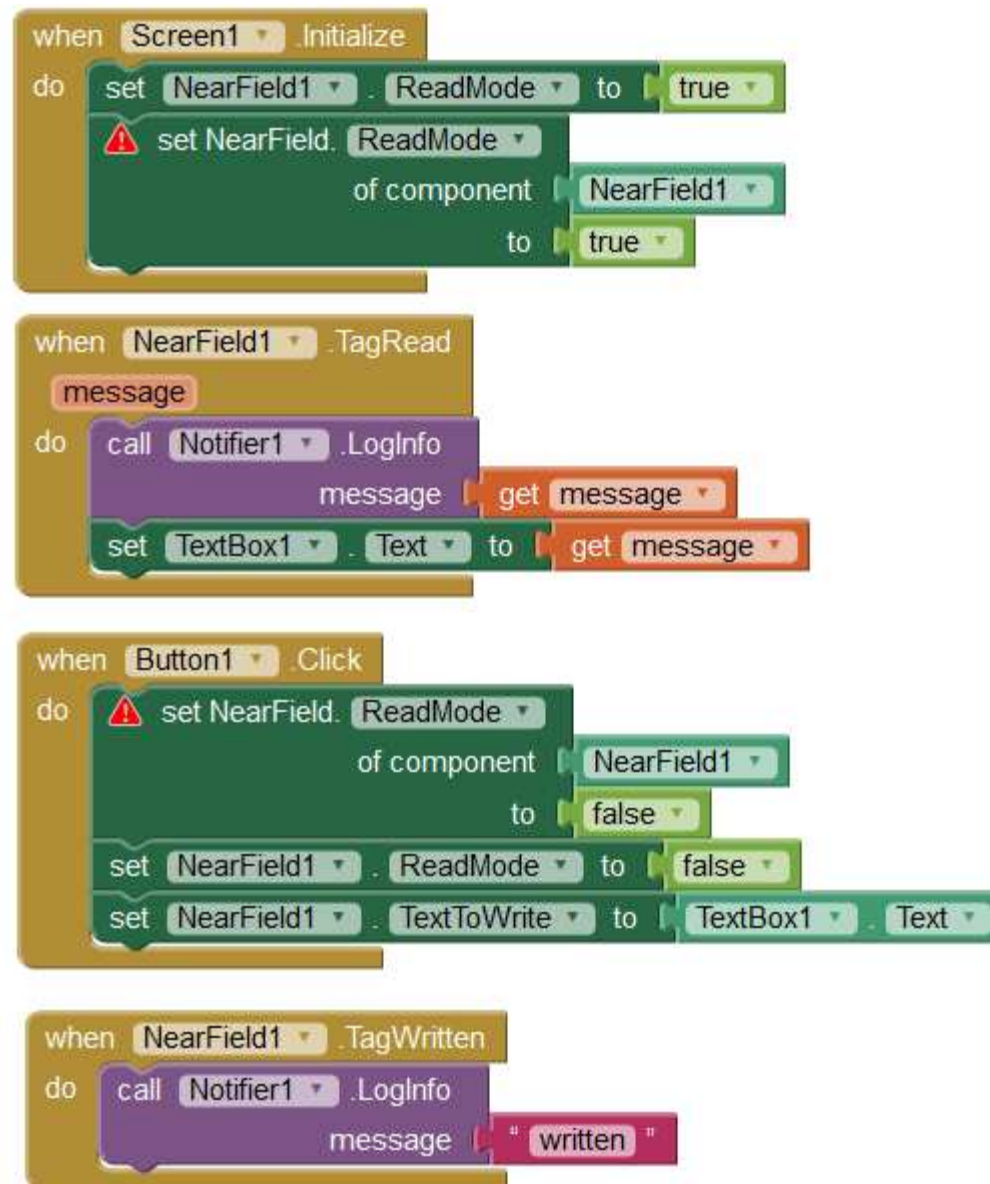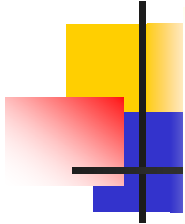## 7.1. MSG:0x26 – Heart Rate, Speed & Distance packet

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

```
when  Screen1 ▾  .Initialize
do    set  ListPicker1 ▾ . Elements ▾  to  BluetoothClient1 ▾ . AddressesAndNames ▾
```

```
when  ListPicker1 ▾  .AfterPicking
do    set  TextBox1 ▾ . Text ▾  to  ListPicker1 ▾ . Selection ▾
```

```
when  Button1 ▾  .Click
do    if   call  BluetoothClient1 ▾ .Connect
                                   address  TextBox
      then  call  Notifier1 ▾ .ShowAlert
                                   notice  " connected "
      else  set  TextBox1 ▾ . Text ▾  to  " not connected "
```

Event to be raised after the picker activity returns its result and the properties have been filled in.

" 00:07:80:4d:52:38 HXM012233 "

```
when  Clock1 ▾  .Timer
do    while test  not  2 = ▾ call BluetoothClient1 ▾ .ReceiveSigned1ByteNumber
      do    set  TextBox1 ▾ . Text ▾  to  " text "
      set  TextBox1 ▾ . Text ▾  to  select list item  list  call BluetoothClient1 ▾ .ReceiveSignedBytes
                                                                              numberOfBytes  59
                                                      index  12
```

NFC

```
when  Screen1 ▾ .Initialize
do    set  NearField1 ▾ . ReadMode ▾  to   true ▾
      ⚠ set NearField. ReadMode ▾
                    of component   NearField1 ▾
                              to   true ▾
```

```
when  NearField1 ▾ .TagRead
      message
do    call  Notifier1 ▾ .LogInfo
                    message   get message ▾
      set  TextBox1 ▾ . Text ▾  to   get message ▾
```

```
when  Button1 ▾ .Click
do    ⚠ set NearField. ReadMode ▾
                    of component   NearField1 ▾
                              to   false ▾
      set  NearField1 ▾ . ReadMode ▾  to   false ▾
      set  NearField1 ▾ . TextToWrite ▾  to   TextBox1 ▾ . Text ▾
```

```
when  NearField1 ▾ .TagWritten
do    call  Notifier1 ▾ .LogInfo
                    message   " written "
```

📶📶 🔋 9:48

rite

Near.apk

Prešporské pivočiary
ilustrácia ActivityStarter

Malý turistický sprievodca pamiatkami Bratislavy
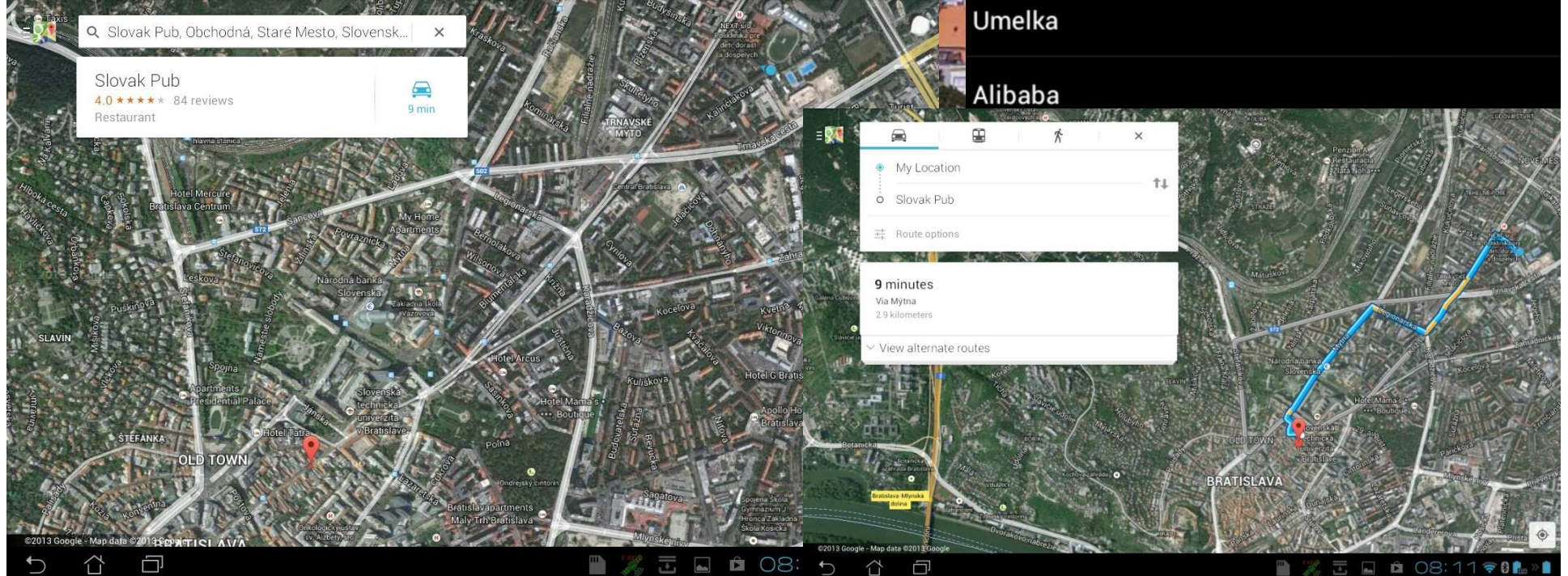
ActivityStarter
(google.maps)
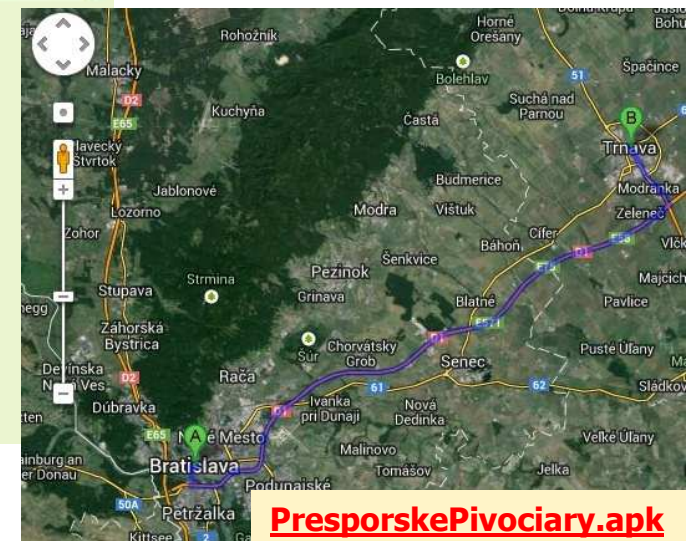
Action: android.intent.action.VI

ActivityClass: com.google.android.m

ActivityPackage: com.google.android.ap

DataType

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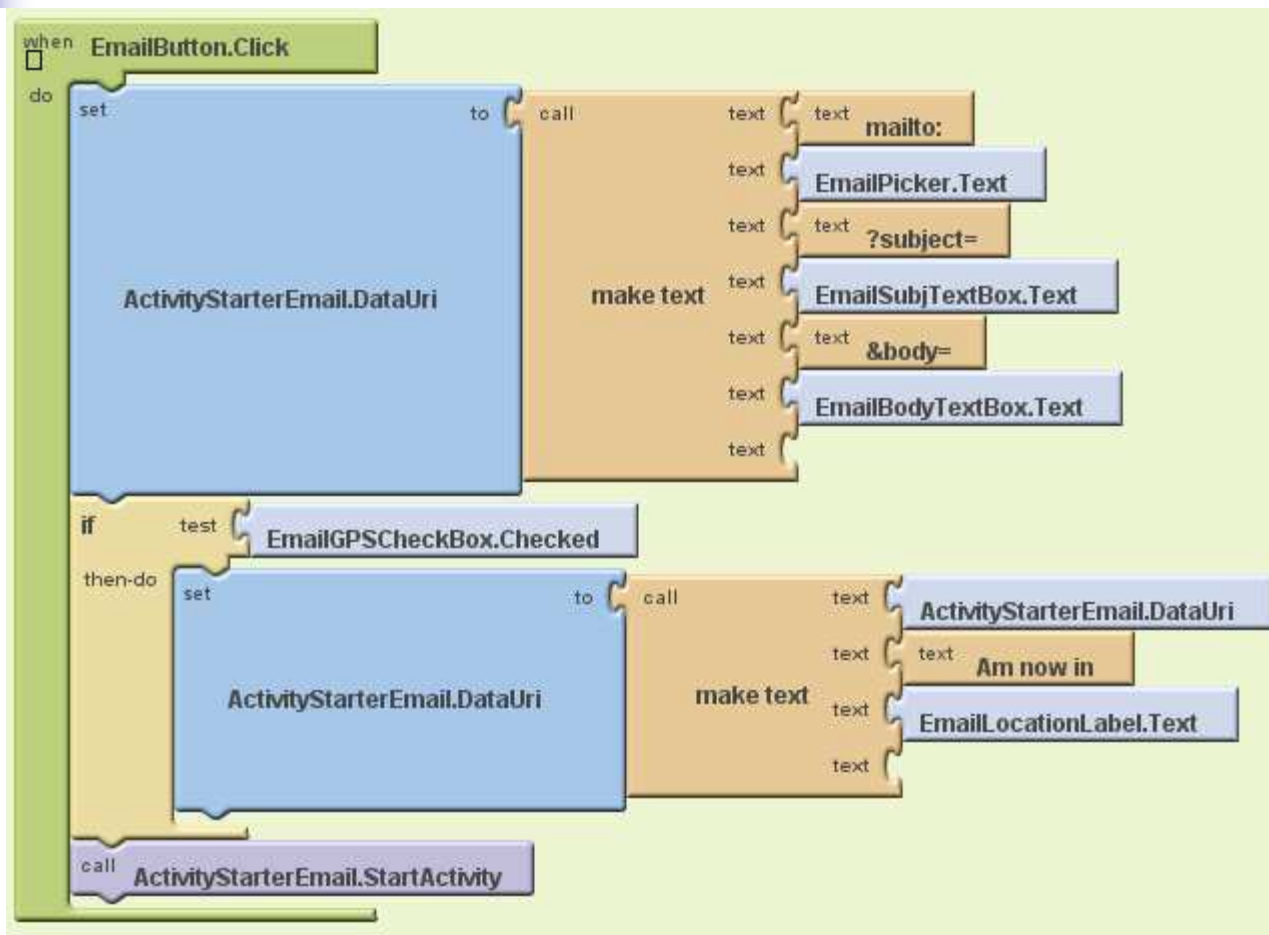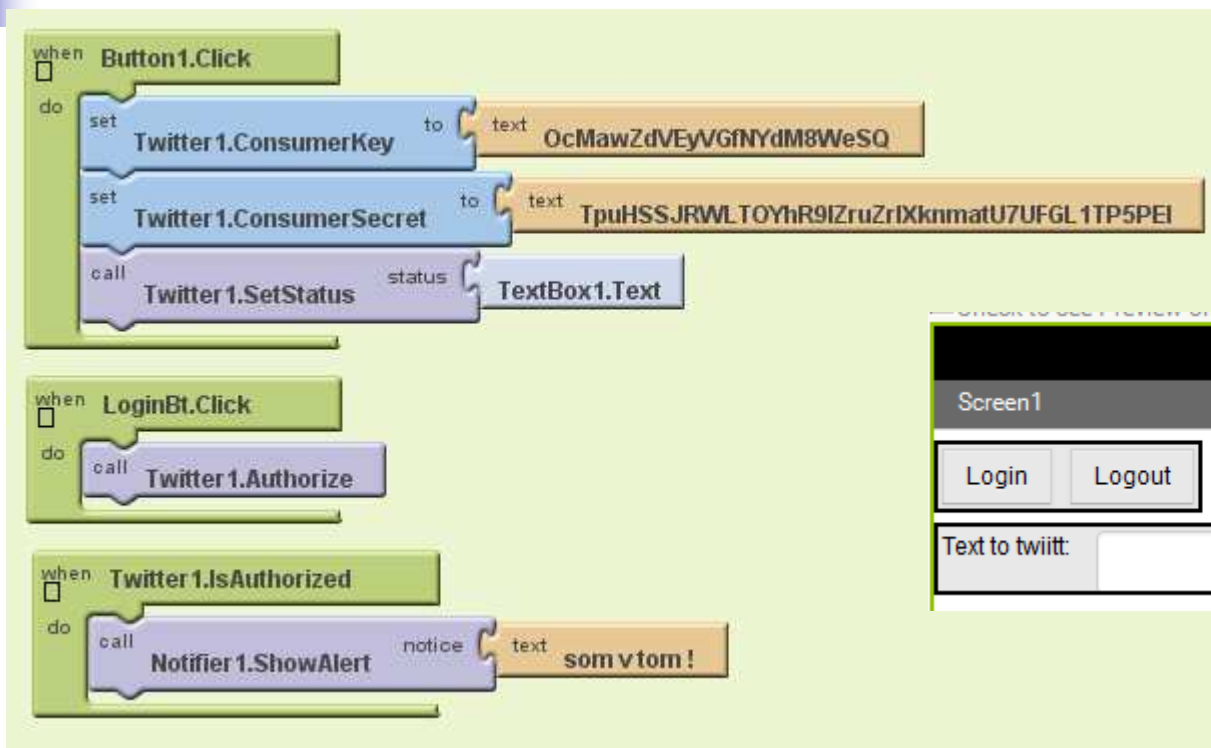- ActivityPackage: com.google.android.apps.maps
- DataUri: http://maps.google.com///?saddr=…&daddr=…
  napr.: https://maps.google.com/?saddr=bratislava&daddr=trnava

PresporskePivociary.apk

ActivityStarter: mailto
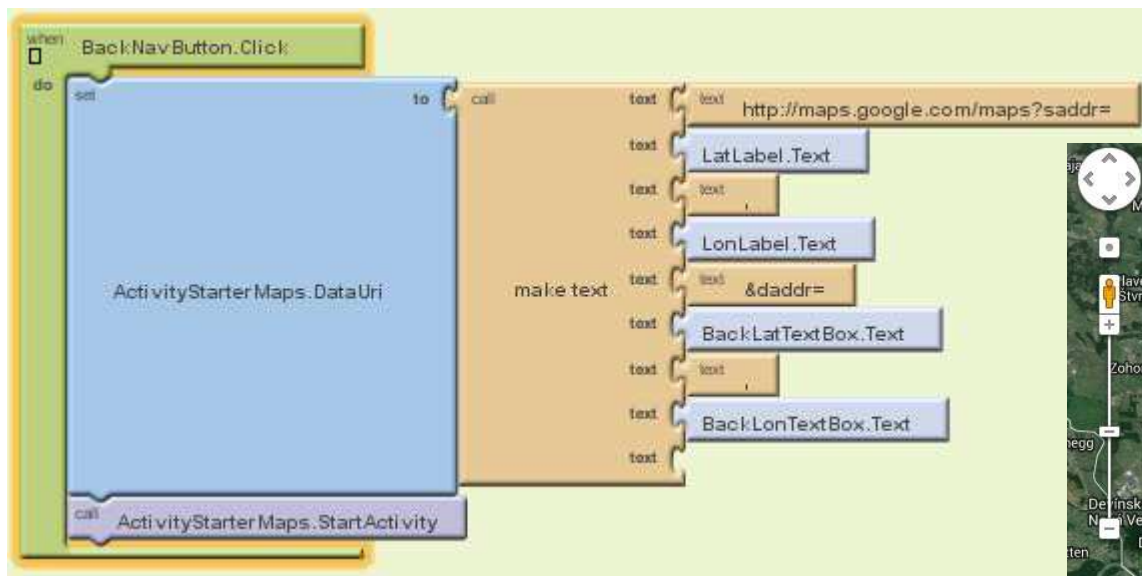
Twitter

Aplikáciu treba zaregistrovať na
https://dev.twitter.com/
http://twitter.com/oauth_clients/new

Twiitingo.apk

My subscriptions

My applications

Sign out

app.twitter.com

Application Details

https://apps.twitter.com/

Name: *

Twiitingo

Your application name. This is used to attribute the s

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.

Description: *

prvy 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

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 applicatio

OAuth Settings

Consumer key: *

OcMawZdVEyVGfNYdM8WeSQ

☑ Allow this application to be used to Sign in with Twitter

Consumer secret: *

TpuHSSJRWLTOYhR9IZruZrlXknmatU7UFGL1TP5PEI

Remember this should not be shared.
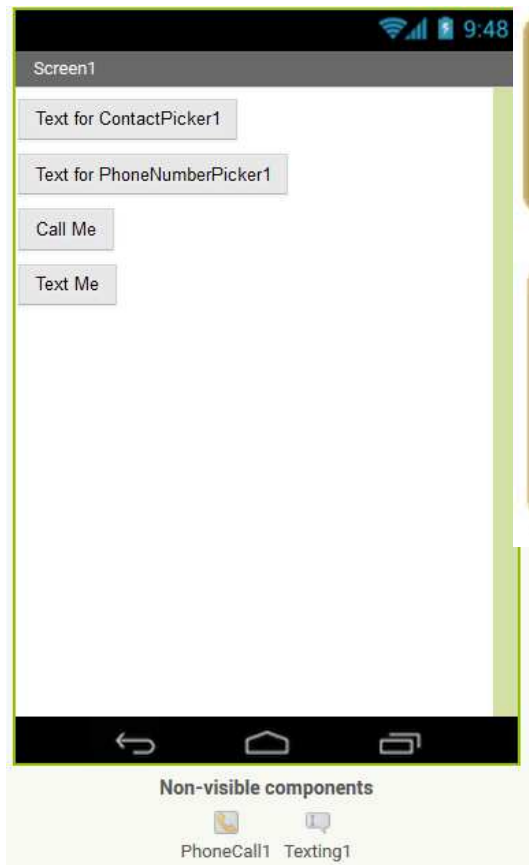
Twiitingo.aia, Twiitingo.apk

Social Sharing

Social.aia, Social.apk

Phone

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

FireBaseConsole

FireBase

☑ Display hidden components in Viewer

☐ Check to see Preview on Tablet size.

Screen1
Store Value	Restore Value
Kluc	
Hodnota	

FirebaseDB1

FirebaseToken

eyJhbGciOiJIUzI1NiIsInR5cC

FirebaseURL

DEFAULT

☑ Use Default

Persist

☐

ProjectBucket

Xxxx

Non-visible components

⚠ Notifier1   📄 File1   🛢 FirebaseDB1

```
when Button1 .Click
do  call Notifier1 .ShowAlert
              notice  " going to store a value to fireba
    call FirebaseDB1 .StoreValue
                 tag  Keytxt . Text
         valueToStore  ValueTxt . Text
    call FirebaseDB1 .GetValue
                 tag  Keytxt . Text
    valueIfTagNotThere  " nic tam nie je "
```

```
when FirebaseDB1 .DataChanged
    tag  value
do  call Notifier1 .ShowAlert
              notice  get value
```

```
when FirebaseDB1 .GotValue
    tag  value
do  call Notifier1 .ShowAlert
              notice  get value
    set ValueTxt . Text to  get value
```
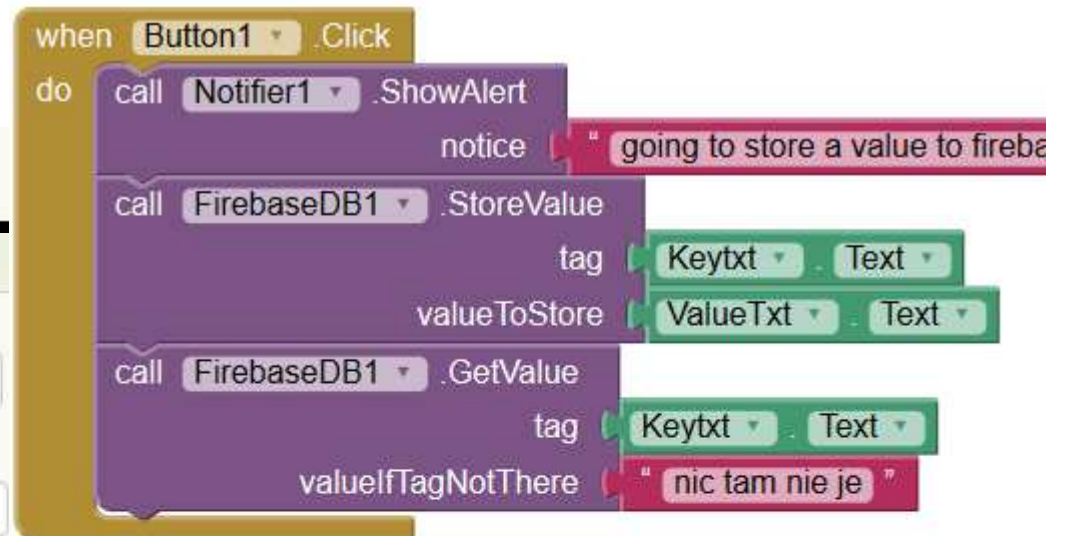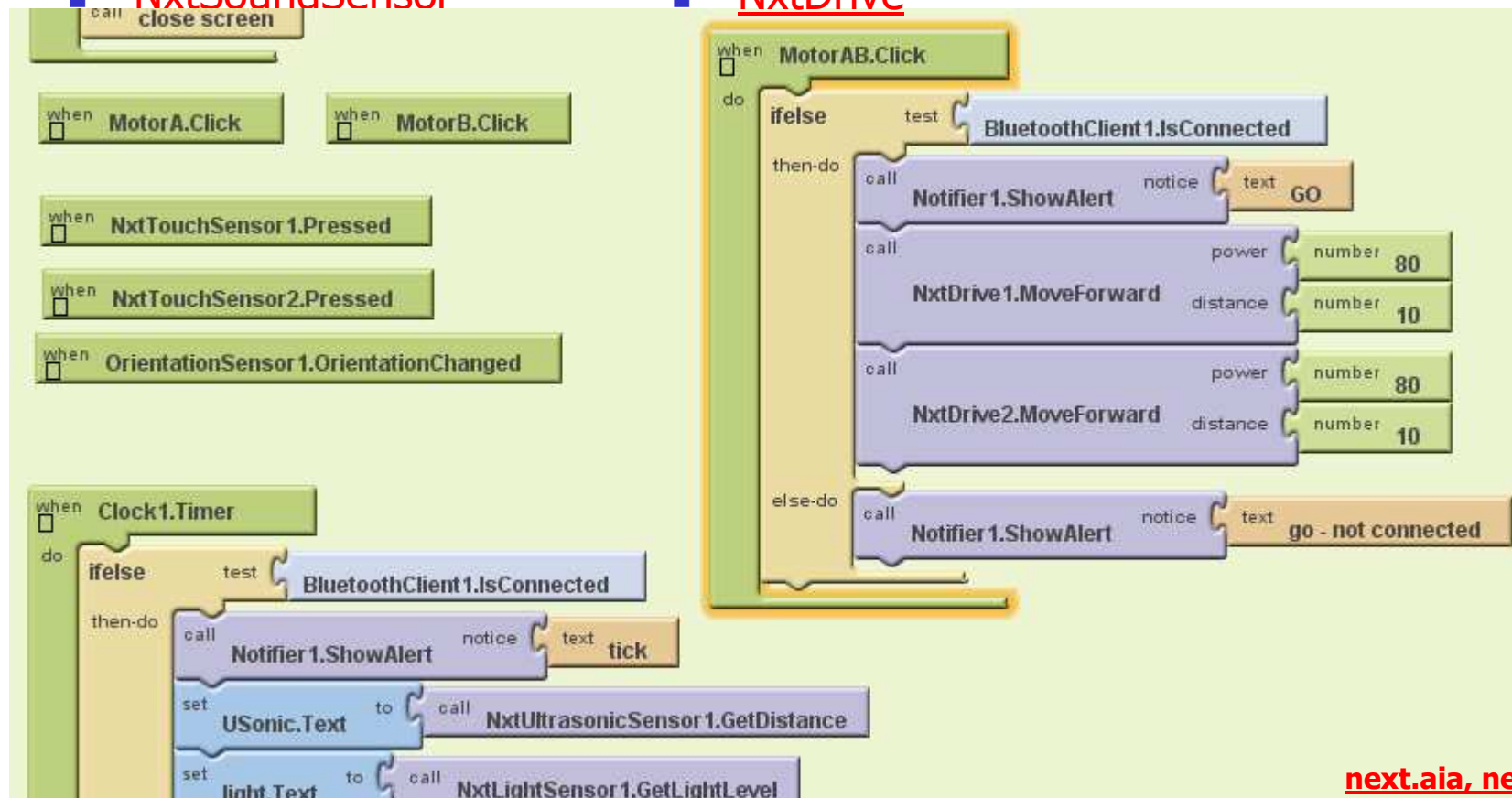
Lego NXT-EV3

- NxtColorSensor
- NxtLightSensor
- NxtSoundSensor
- NxtTouchSensor
- NxtUltrasonicSensor
- NxtDrive

next.aia, next.apk

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 :-)