

# MIT Inventor

prvý dotyk aplikácie

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Peter Borovanský  
KAI, I-18

MS-Teams: [2sf3ph4](#), [List](#), [github](#)

borovan 'at' ii.fmph.uniba.sk

# Android Apps with App Inventor: The Fast and Easy Way to Build Android Apps

J.H.Kloss, Amazon: 4.4/5

1. Installing and configuring App Inventor
2. Building modern, attractive mobile user interfaces
3. Controlling Android media hardware, including the camera
4. Saving data locally with TinyDB, or in the cloud with Tiny
5. Streamlining and automating phone, text, and email com
6. Tracking orientation, acceleration, and geoposition
7. Integrating text-to-speech and speech-to-text in your apps
8. Controlling other apps and Web services with ActivityStarter
9. Building mobile mashups by exchanging data with Web APIs
10. Testing your apps for diverse hardware with the Android Emulator
11. Example apps

<http://books.google.sk/books?id=rfKyt6TRLloC&pg=SA4-PA7&lpg=SA4-PA7&dq=laughter+android+kloss&source=bl&ots=Kht9zKTIyK&sig=YqHJbc8v77VtR28RmpZccyV2ScY&hl=sk&sa=X&ei=bGOZUMmgDMbesgbA64HIBg&ved=0CCKQ6AEwAQ#v=onepage&q&f=true>

[http://www.amazon.com/Android-Apps-App-Inventor-Build/dp/0321812700/ref=sr\\_1\\_7?s=books&ie=UTF8&qid=1322522259&sr=1-7](http://www.amazon.com/Android-Apps-App-Inventor-Build/dp/0321812700/ref=sr_1_7?s=books&ie=UTF8&qid=1322522259&sr=1-7)





# Iné zdroje

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- AppInventor at MIT (<http://appinventor.mit.edu/>)
- Kurz edX: Mobile Computing with App Inventor - CS Principles (english)  
(<https://courses.edx.org/courses/course-v1:TrinityX+T007x+1T2017/course/>)
- Kurz Learn2Code: MIT Inventor (slovensky)  
(<https://www.learn2code.sk/kurzy/mit-app-inventor>)
- príklady hotových projektov, ak radšej čítate hotové projekty:  
App Inventor Snippets (<http://puravidaapps.com/snippets.php>)
- App Inventor Teach – pre učiteľov (<http://appinventor.mit.edu/explore/teach.html>)
- MIT Inventor Tutorials – Hour of Code (<http://appinventor.mit.edu/explore/hour-of-code.html>)
- MIT Inventor Public Open Source (<http://appinventor.mit.edu/appinventor-sources/>)
- Dlho očakávané MIT Inventor for iOS (<http://doesappinventorrunonios.com/>)



# Alternatívne nástroje k MIT

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- AppGyver <https://www.appgyver.com/>
  - no code platform
  - nie je ohraničený len pre platformu Android



- Thunkable <https://thunkable.com/>
  - drag and drop no coding
  - cross platform



- Kodular <https://creator.kodular.io/>
  - Android only



# Ako začať s App Inventor

<http://appinventor.mit.edu/explore/ai2/setup-emulator.html>

- potrebujete google-mail účet
- <http://ai2.appinventor.mit.edu/>

Počítač:

- platformy: MS-Windows, Mac OS X, Ubuntu, Debian
- browser: FF, Safari, Chrome, ~~IE~~
- setup page: <http://appinventor.mit.edu/explore/ai2/setup.html>
- pre MS-Windows treba pustiť **MIT Appinventor Tools 2.3.0 (~80 MB)**



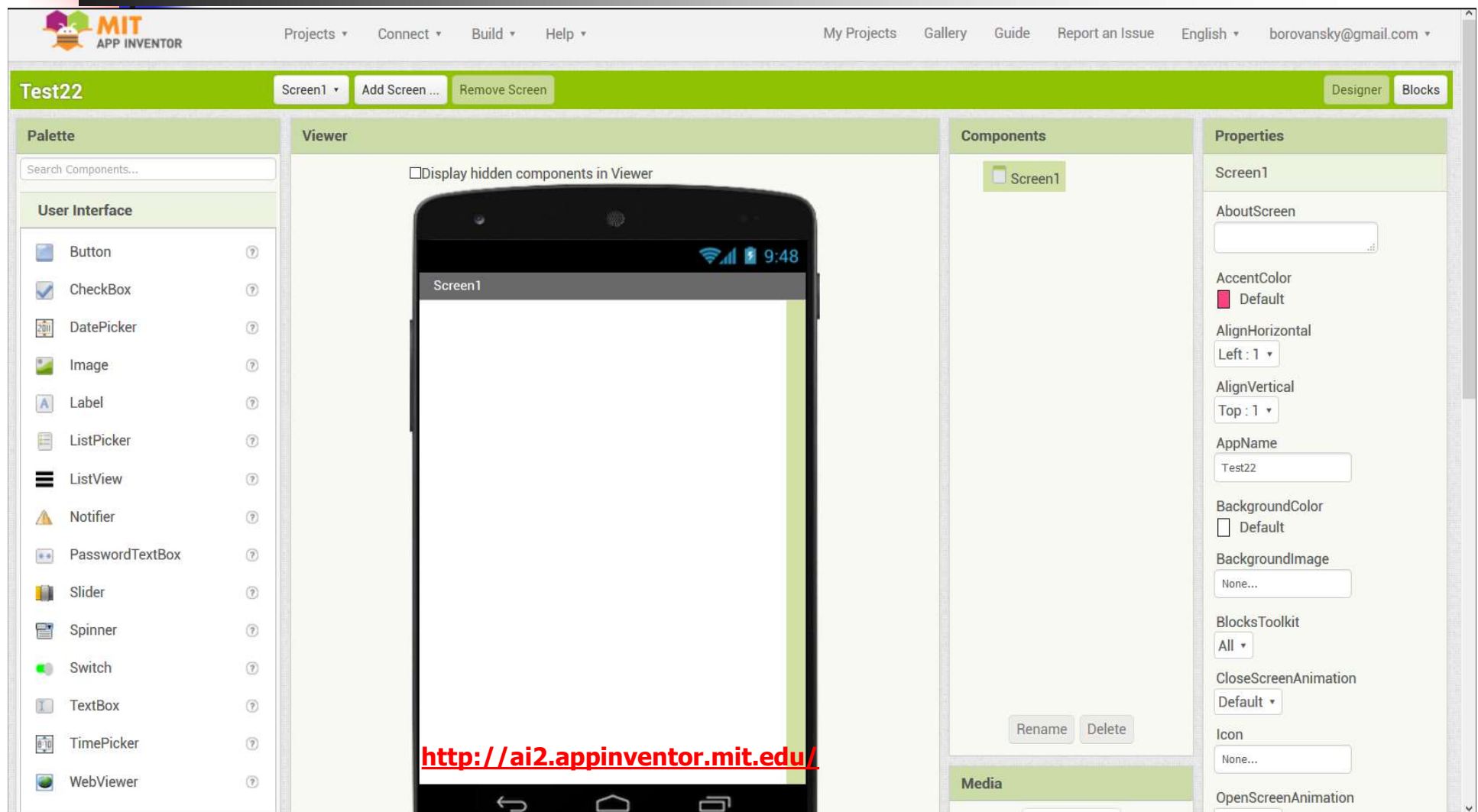
Na zariadení:

<https://play.google.com/store/apps/details?id=edu.mit.appinventor.aicompanion3>

Android Mobil (ale prežijete aj s emulátorom):

- v mobile: Setting/Application/Development/, 7xklik na Build Number  
USB Debugging = ON (môžete uploadovať vlastné aplikácie .apk)  
Stay awake = ON (nebude vám usávať, kým ho máte na kábli)  
Allow mock location = ON (ak chcete používať nejaké fake GPS – neskôr)  
Sound & Display/Orientation = OFF

# MIT Inventor – hlavní panel



# My projects

zoznam  
mojich  
projektov

import  
export

Connect

login

Build

The screenshot shows the MIT App Inventor web interface. The browser address bar displays `ai2.appinventor.mit.edu/?locale=en#568460635170`. The top navigation bar includes links for Projects, Connect, Build, Help, My Projects, Gallery, Guide, Report an Issue, English, and a user profile for borovansky@gmail.com. The main content area is divided into a left sidebar and a central workspace. The sidebar contains a 'My Projects' section with a list of projects, each with a checkbox and a 'Name' column. The central workspace shows a 'My projects' dropdown menu with options like 'Start new project', 'Import project (.aia) from my computer ...', 'Import project (.aia) from a repository ...', 'Delete Project', 'Save project', 'Save project as ...', 'Checkpoint', 'Export selected project (.aia) to my computer', 'Export all projects', 'Import keystore', 'Export keystore', and 'Delete keystore'. Below this, there is a table with columns 'Date Modified' and 'Published'. The table lists several projects with their modification dates and whether they are published. The 'Build' button is highlighted in green, and a dropdown menu is open, showing options like 'Connect', 'Build', 'Emulator', 'USB', 'Reset Connection', and 'Hard Reset'. The 'Build' dropdown menu also shows options for 'App (provide QR code for .apk)' and 'App (save .apk to my computer)'.

Name	Date Modified	Published
<input type="checkbox"/> ShockMe	Sep 18, 2017, 12:36:56 PM	No
<input type="checkbox"/> PresporksePivociary	Sep 18, 2017, 12:35:24 PM	No
<input type="checkbox"/> demo_Media	Sep 18, 2017, 12:33:33 PM	No
<input type="checkbox"/> Prvy	Sep 18, 2017, 12:33:33 PM	No
<input type="checkbox"/> Labilo	Sep 18, 2017, 12:33:33 PM	No
<input type="checkbox"/> MazeLabyrinth	Sep 18, 2017, 12:33:33 PM	No
<input type="checkbox"/> Dynamic	Sep 18, 2017, 12:33:33 PM	No
<input type="checkbox"/> SpiritLevel	Sep 18, 2017, 12:33:33 PM	No
<input type="checkbox"/> Xxxx	Sep 18, 2017, 12:33:33 PM	No
<input type="checkbox"/> Twiitingo	Sep 18, 2017, 12:33:33 PM	No
<input type="checkbox"/> FireBaseDemo	Sep 18, 2017, 12:33:33 PM	No
<input type="checkbox"/> EV3Robot	Sep 18, 2017, 12:33:33 PM	No
<input type="checkbox"/> Social	Sep 18, 2017, 12:33:33 PM	No
<input type="checkbox"/> next	Sep 18, 2017, 12:33:33 PM	No
<input type="checkbox"/> EV3	Sep 18, 2017, 12:33:33 PM	No
<input type="checkbox"/> BaseEV3Project	Sep 18, 2017, 12:33:33 PM	No
<input type="checkbox"/> Hallooooo	Sep 18, 2017, 12:33:33 PM	No
<input type="checkbox"/> PokusPrednaska	Sep 18, 2017, 12:33:33 PM	No



# Prvý projekt

The screenshot displays the MIT App Inventor web interface. At the top, the MIT App Inventor logo is on the left, and navigation links (Projects, Connect, Build, Help, My Projects, Gallery, Guide, Report an Issue) and user information (English, borovansky@gmail.com) are on the right. Below the navigation bar, the project name 'Prvy2017' is shown in a green header bar, along with buttons for 'Screen1', 'Add Screen ...', and 'Remove Screen'. On the far right of this bar are 'Designer' and 'Blocks' tabs. The main workspace is divided into four panels: 'Palette' on the left, 'Viewer' in the center, 'Components' on the right, and 'Properties' on the far right. The 'Palette' panel lists various categories: User Interface, Layout, Media, Drawing and Animation, Sensors, Social, Storage, Connectivity (highlighted), LEGO MINDSTORMS, Experimental, and Extension. Under 'Connectivity', there are four components: ActivityStarter, BluetoothClient, BluetoothServer, and Web. The 'Viewer' panel shows a preview of the app on a mobile device screen, with a status bar at the top displaying signal strength, Wi-Fi, and the time 9:48. The 'Components' panel shows a single component, 'Screen1'. The 'Properties' panel lists various properties for 'Screen1', including 'AboutScreen', 'AlignHorizontal' (set to 'Left : 1'), 'AlignVertical' (set to 'Top : 1'), 'AppName' (set to 'Prvy2017'), 'BackgroundColor' (set to 'White'), 'BackgroundImage' (set to 'None...'), 'CloseScreenAnimation' (set to 'Default'), 'Icon' (set to 'None...'), and 'OpenScreenAnimation' (set to 'Default').



# Connect WiFi

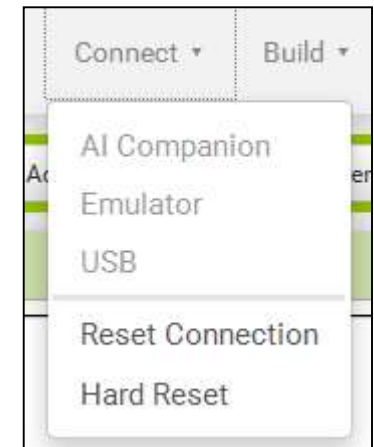
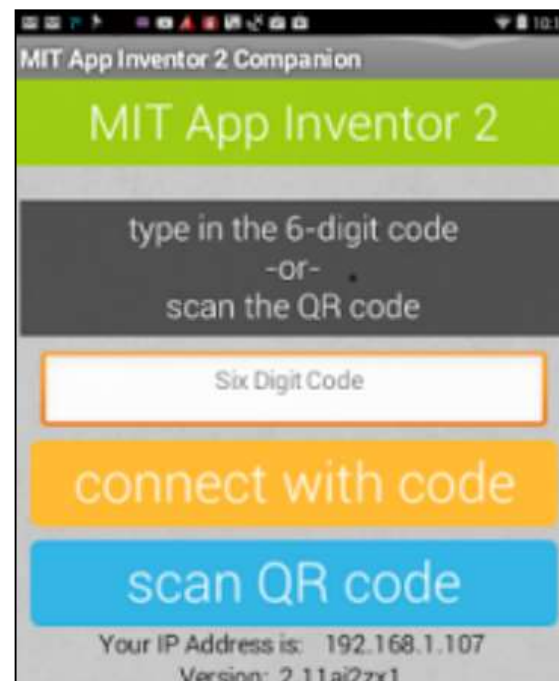
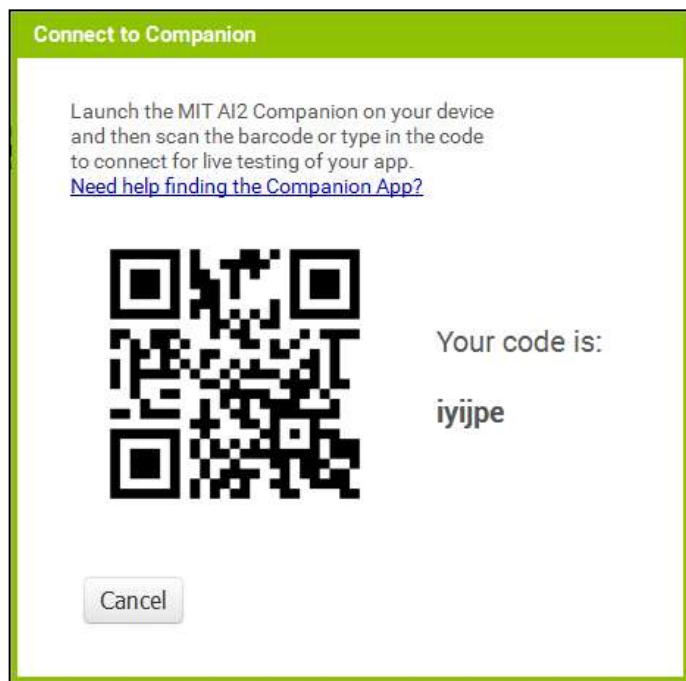


- Nainštalujte MIT AI2 Companion App cez Google Play Store

<https://play.google.com/store/apps/details?id=edu.mit.appinventor.aicompanion3>

Connect to Device

- spusti MIT AI2 Companion App





# Palety komponentov

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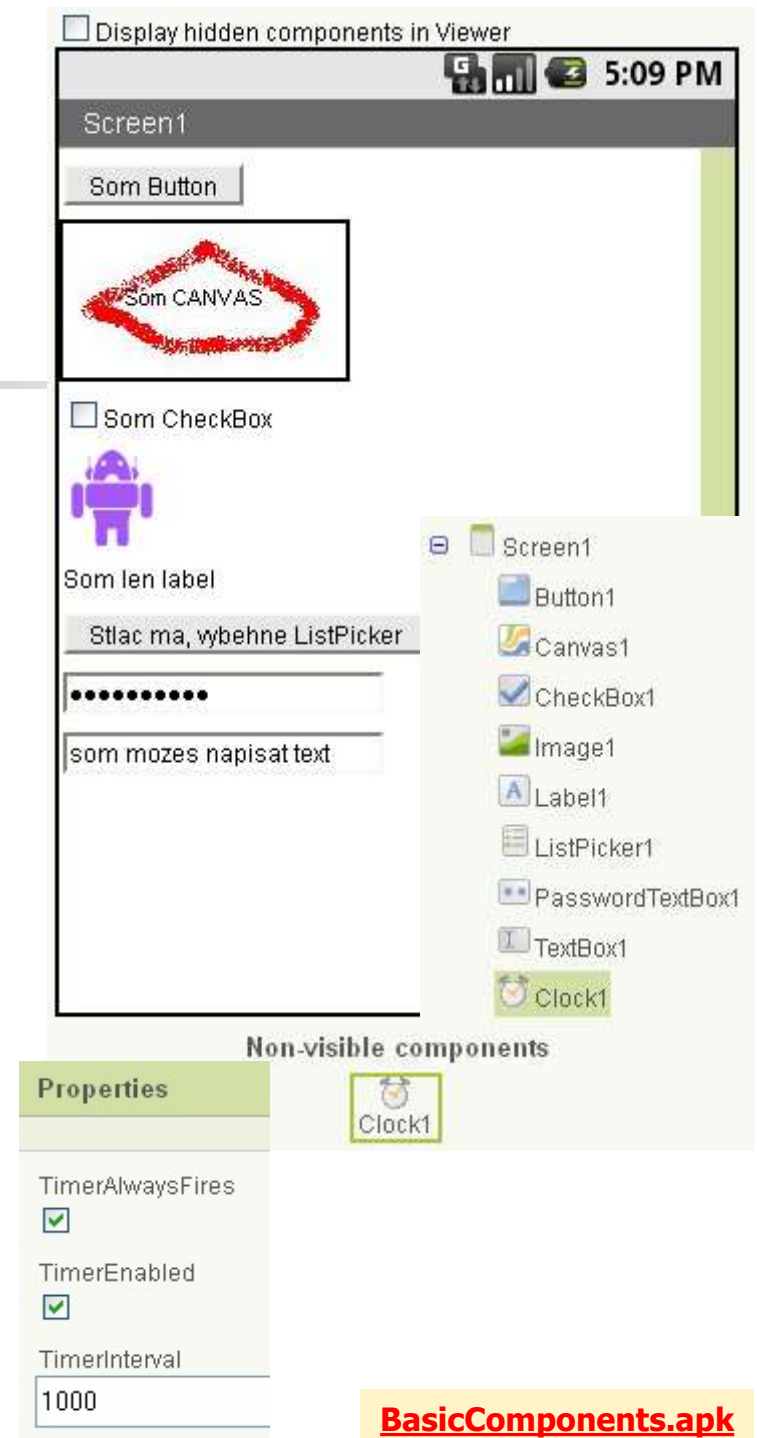
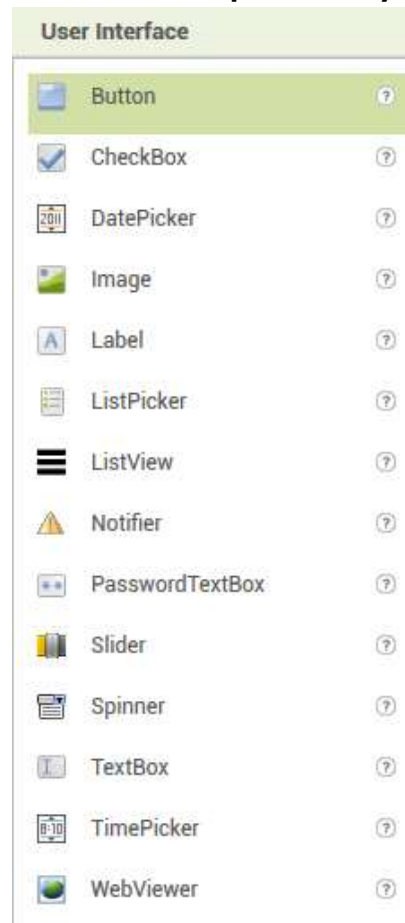
- User Interface
  - Button, CheckBox, Clock, Image, Label, List/Time/Date-Picker, Password, Slider, TextBox
- Layout
  - Horizontal/Vertical/Table Arrangement [Scrollable]
- Media
  - Camcoder, Camera, ImagePicked, Player, Sound, VideoPlayer, TextToSpeech, SpeechRecognizer
- Drawing and Animation
  - Ball, Canvas, ImageSprite
- Social
  - ContactPicker, EmailPicker, PhoneNumberPicker, PhoneCall, Texting, Twitter, Sharing
- Sensor
  - Accelerometer, Location, Orientation, Gyro, Pedometer, Proximity, Bar Code Scanner
- Storage
  - File, TinyDB, FireBaseDB
- Connectivity
  - BluetoothClient-Server, ActivityStarter
- Lego MINDSTORMS



# User Interface

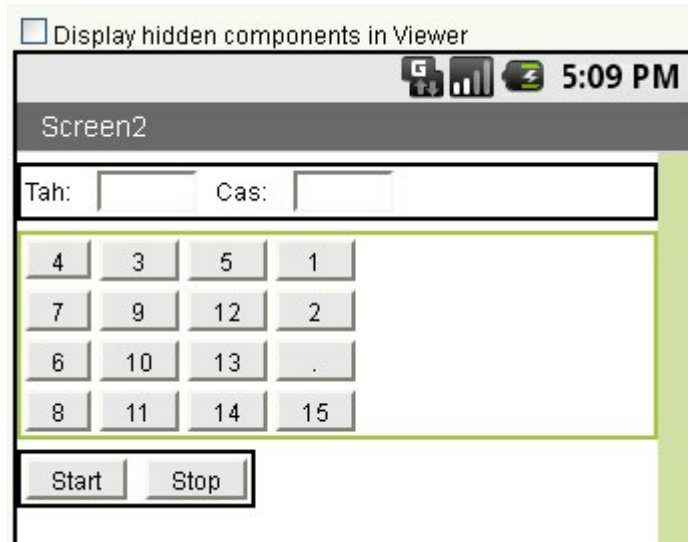
Ilustrujeme si základné vizuálne komponenty:

- Button
- CheckBox
- Clock
- Image
- Label
- List/Time/Date-Picker
- PasswordTextBox
- TextBox
- Notifier
- WebViewer



# Layouts (Arrangement)

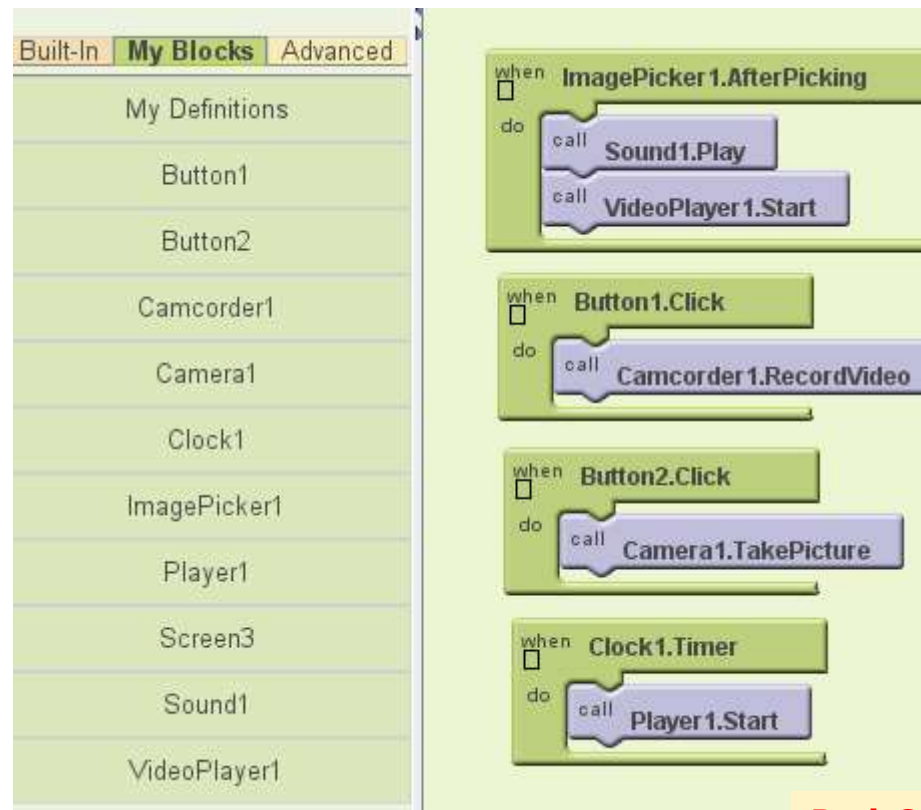
- HorizontalArrangement
- TableArrangement
- VerticalArrangement



# Media

- [Camera](#)
- [ImagePicker](#)
- [Player](#)
- [Sound](#)
- [VideoPlayer](#)

- Spustiť: block editor
- Uložiť (strýčko Google si to ukladá sám v MyProjects:-)



[BasicComponents.apk](#)

# Stopky

(clock – timer)

Stopwatch

00:36

Start

Reset

The image displays the Scratch code for a stopwatch application. The code is organized into several event-driven blocks:

- Initialize global millis to 0**: A block to set the initial time.
- when Clock1 .Timer**: A loop that increments the global millis by 1000 and calls the `displayTime` function.
- when btnStart .Click**: A block that sets `Clock1 .TimerEnabled` to true, hides the `btnStart` button, and shows the `btnStop` button.
- when btnReset .Click**: A block that sets `Clock1 .TimerEnabled` to false, resets the global millis to 0, and calls the `displayTime` function.
- when btnStop .Click**: A block that sets `Clock1 .TimerEnabled` to false, hides the `btnStop` button, and shows the `btnStart` button.
- to displayTime**: A function that sets the text of the `display` label to the formatted time using `Clock1 .FormatDateTime` with the `instant` parameter set to `call Clock1 .MakeInstantFromMillis` and the `pattern` set to `"mm:ss"`.

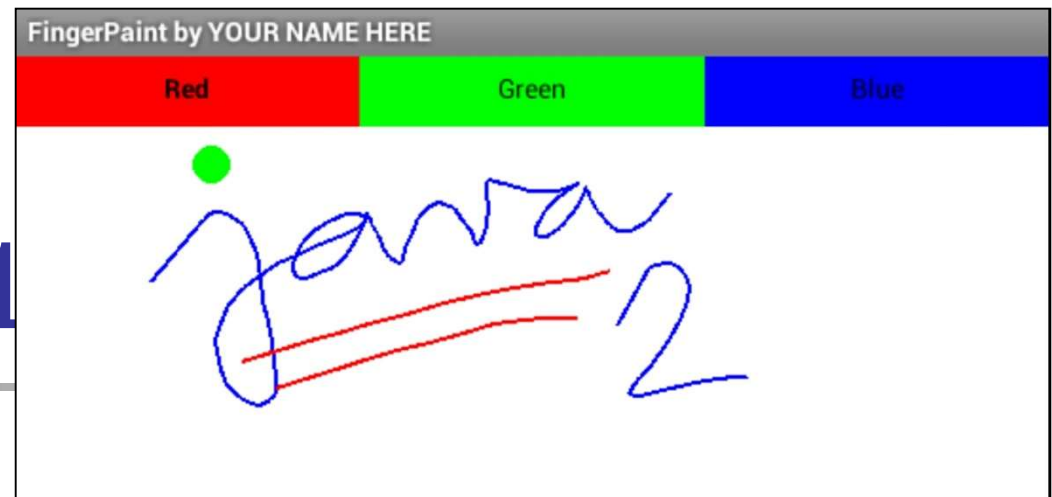
The `display` label is a green box with the text "mm:ss".

[L2CStopky.apk](#)



# FingerPaint1

jednoduché malovátko prstom



when BtnBlue .Click  
do set Canvas1 . PaintColor to [Blue]

when BtnGreen .Click  
do set Canvas1 . PaintColor to [Green]

when BtnRed .Click  
do set Canvas1 . PaintColor to [Red]

when ButtonClear .Click  
do call Canvas1 .Clear

when ButtonSmall .Click  
do set Canvas1 . LineWidth to 5

when ButtonBig .Click  
do set Canvas1 . LineWidth to 15

when Canvas1 .Touched  
x y touchedAnySprite  
do call Canvas1 .DrawCircle  
centerX get x  
centerY get y  
radius 10  
fill true

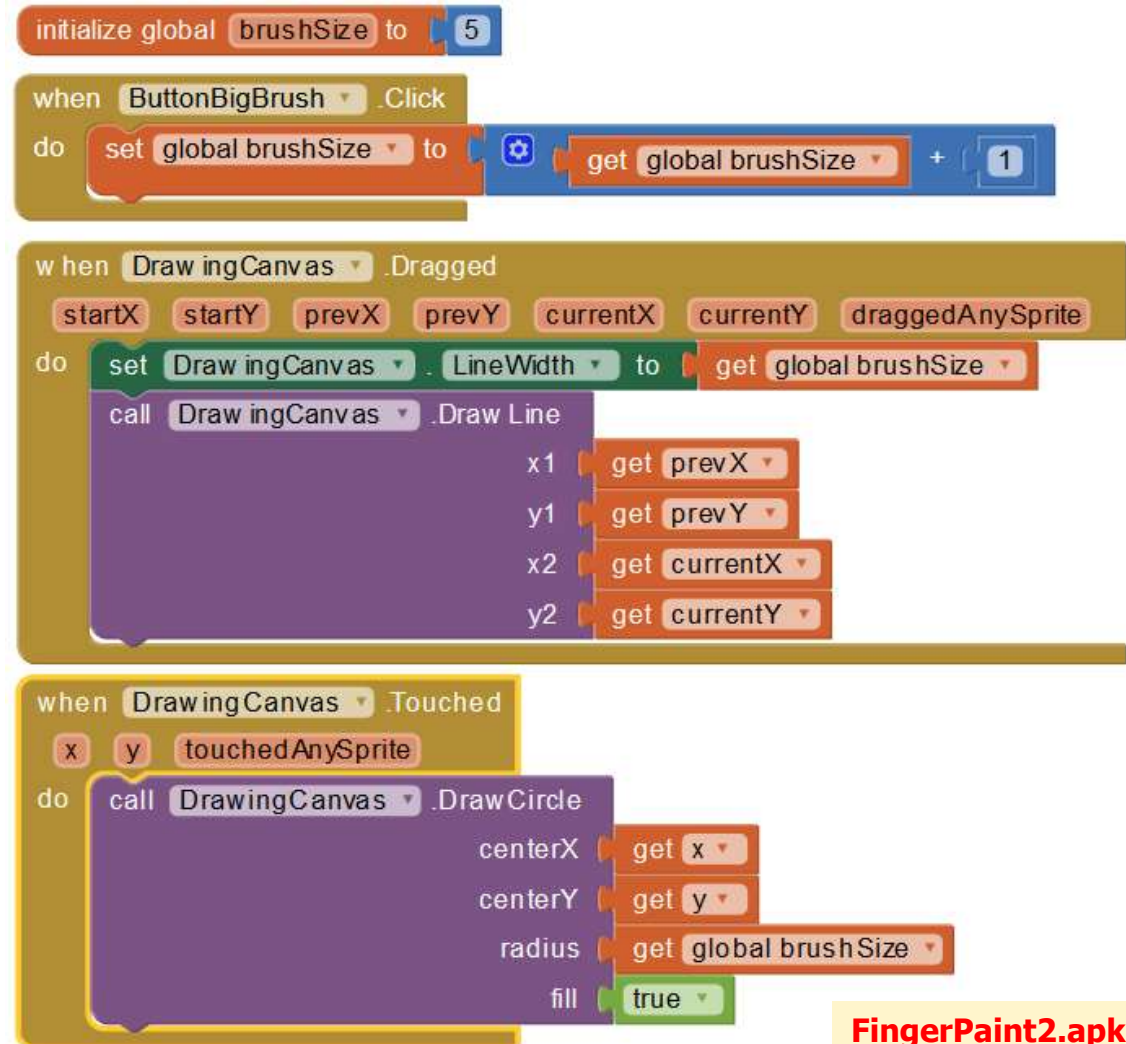
when Canvas1 .Dragged  
startX startY prevX prevY currentX currentY draggedAnySprite  
do call Canvas1 .DrawLine  
x1 get prevX  
y1 get prevY  
x2 get currentX  
y2 get currentY  
Draw a line on the screen.



# FingerPaint2

Pokročilejšia verzia

- Hrúbka pera
  - globálna premenná brushSize
- Kreslenie čiar
  - drawingCanvas.Dragged



```
initialize global brushSize to 5

when ButtonBigBrush Click
do
  set global brushSize to (get global brushSize + 1)

when DrawingCanvas Dragged
  startX startY prevX prevY currentX currentY draggedAnySprite
do
  set DrawingCanvas LineWidth to (get global brushSize)
  call DrawingCanvas Draw Line
    x1 (get prevX)
    y1 (get prevY)
    x2 (get currentX)
    y2 (get currentY)

when DrawingCanvas Touched
  x y touchedAnySprite
do
  call DrawingCanvas DrawCircle
    centerX (get x)
    centerY (get y)
    radius (get global brushSize)
    fill true
```

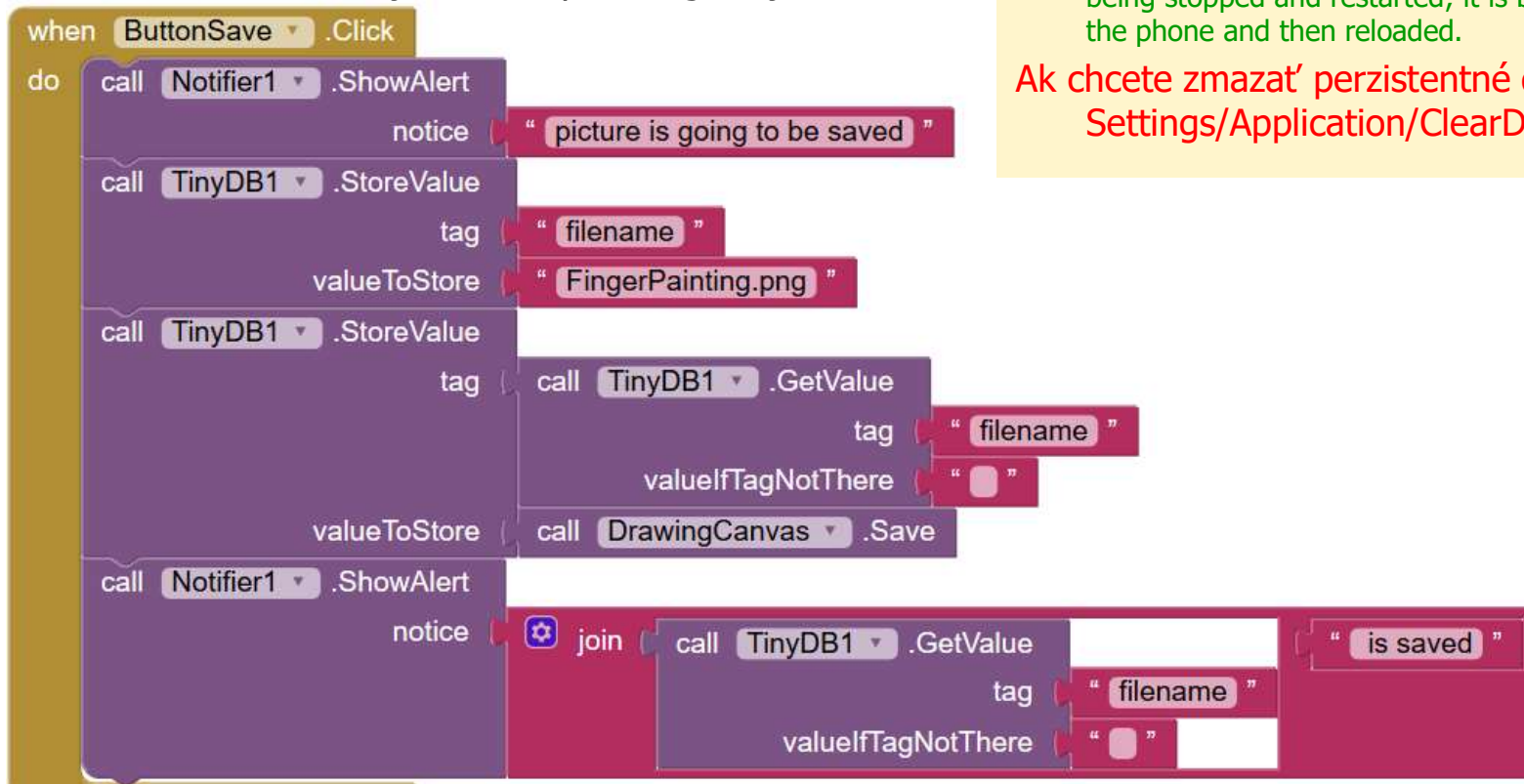
[FingerPaint2.apk](#)

# FingerPaint2

- Ukladanie obrázku
  - Persistencia
- Práca s TinyDB
  - čo je HashMap<String, Object>

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.

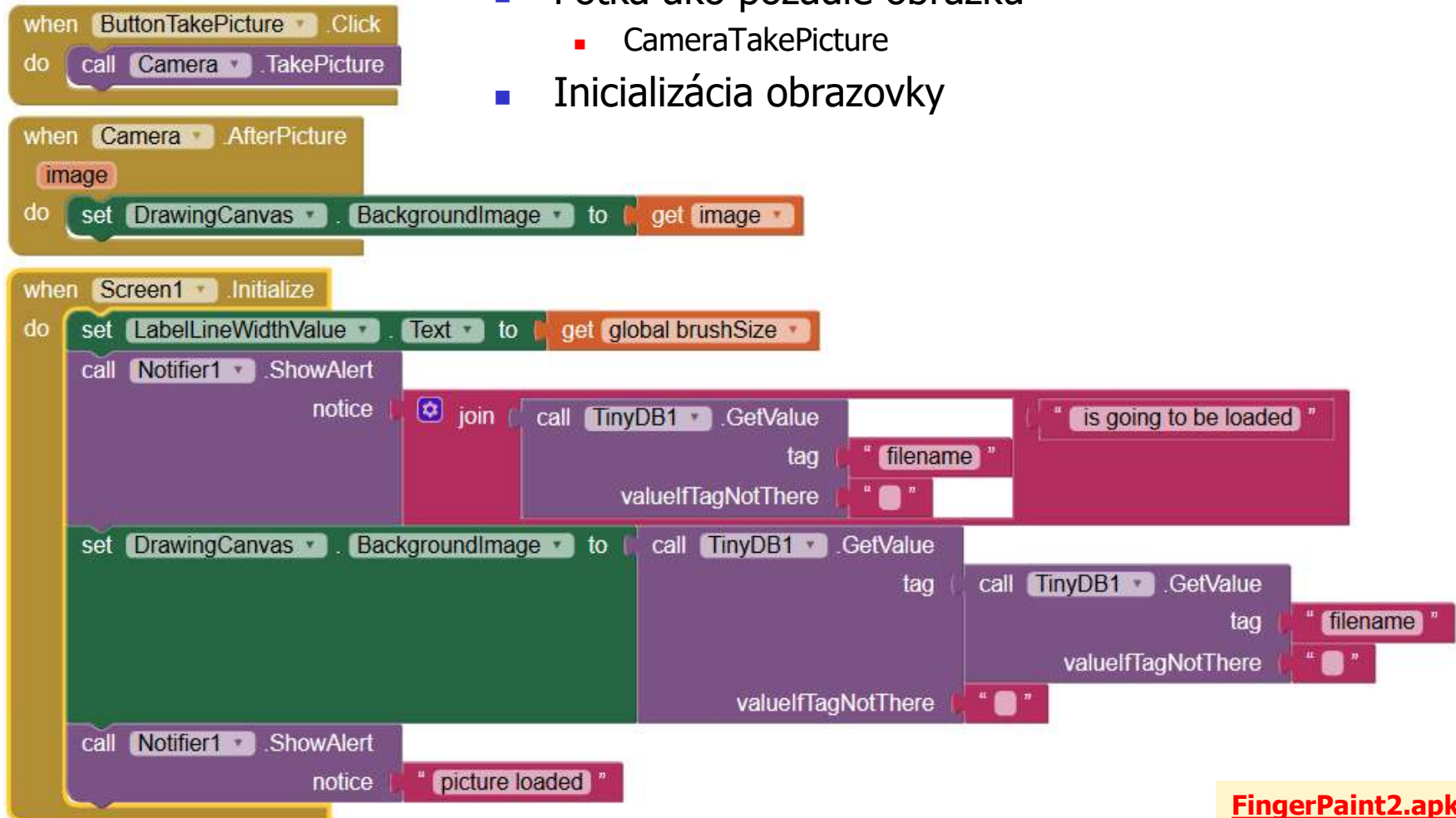
Ak chcete zmazať perzistentné dáta,  
Settings/Application/ClearData



**FingerPaint2.apk**

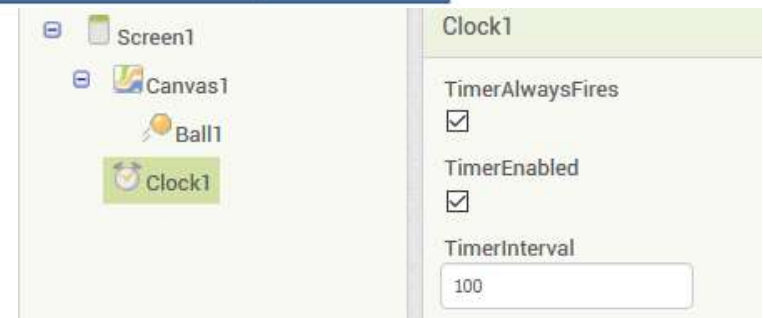
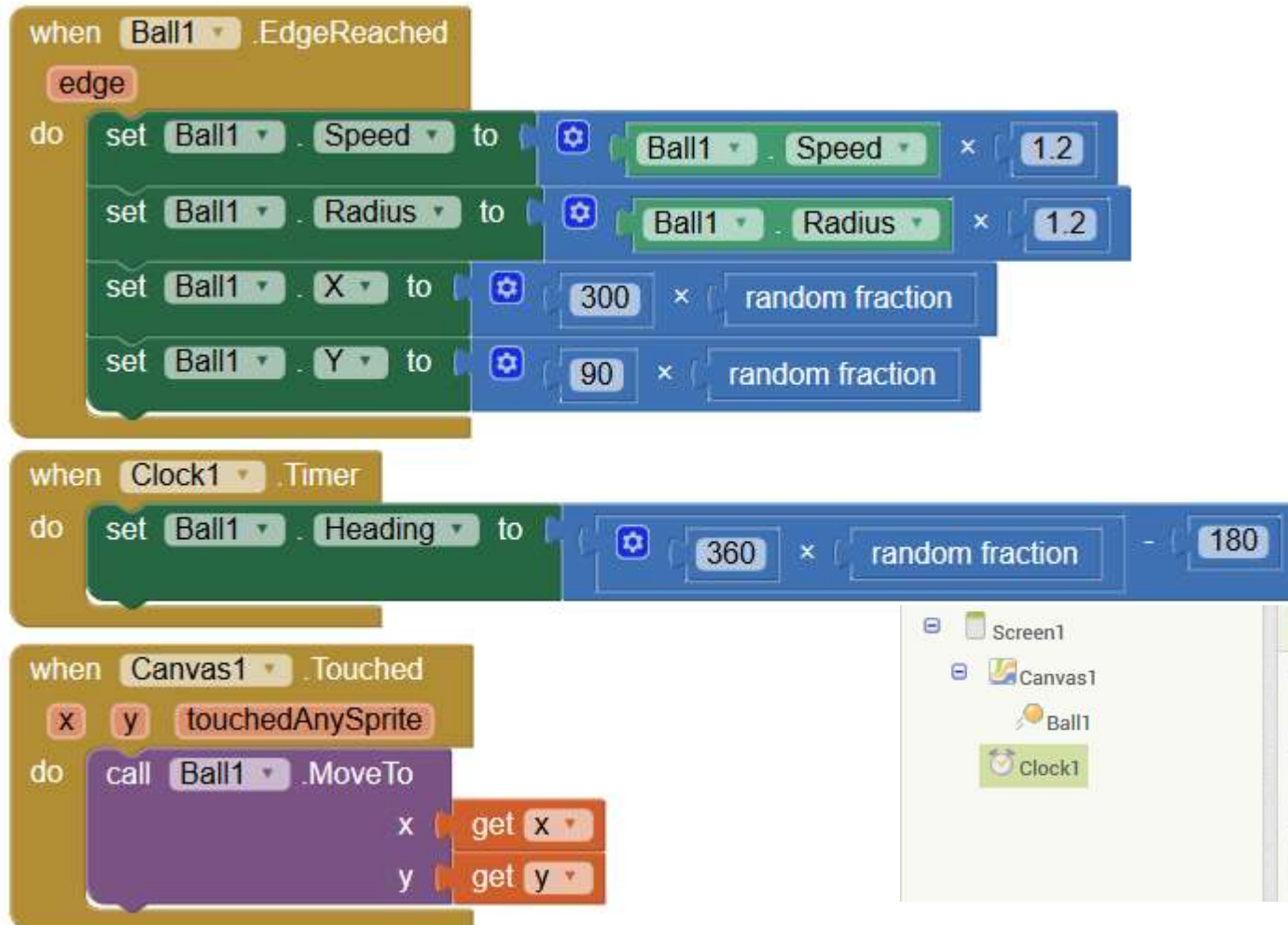
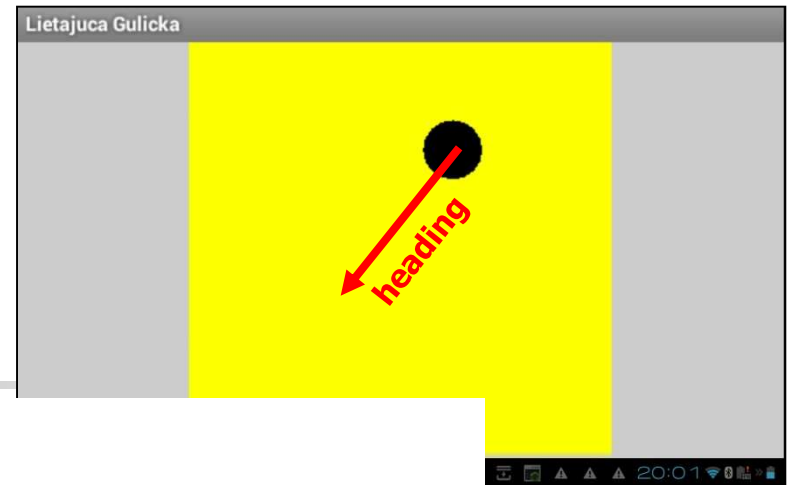
# FingerPaint2

- Fotka ako pozadie obrázku
  - CameraTakePicture
- Inicializácia obrazovky



# Dynamic

(random)

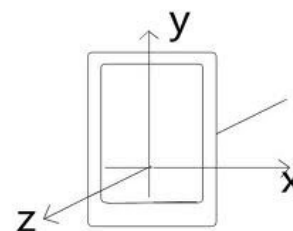
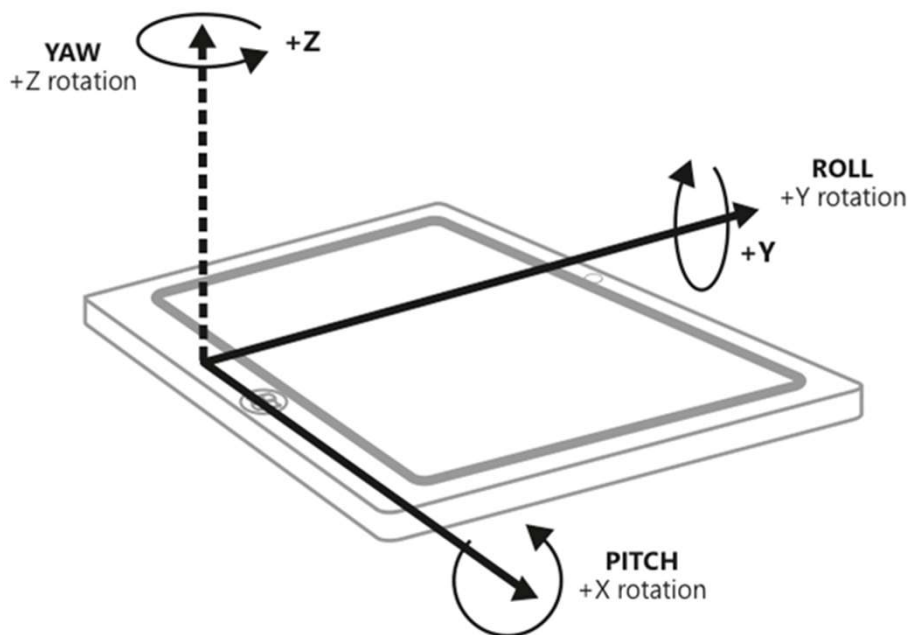


# Orientácia



Orientáčny senzor nájdete v každom mobile

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





# Labilo (atan2)

when AccelerometerSensor1 AccelerationChanged

xAccel yAccel zAccel

do

set X Text to round get xAccel

set Y Text to round get yAccel

set Z Text to round get zAccel

set Uhol Text to round atan2

set Ball1 Heading to round atan2

set Ball1 Speed to square root AccelerometerSensor1 XAccel × AccelerometerSensor1 XAccel

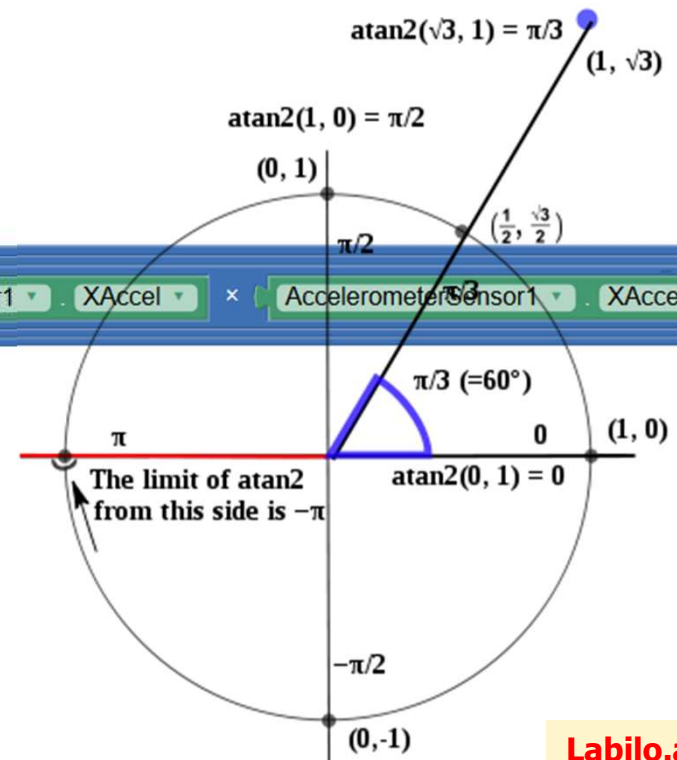
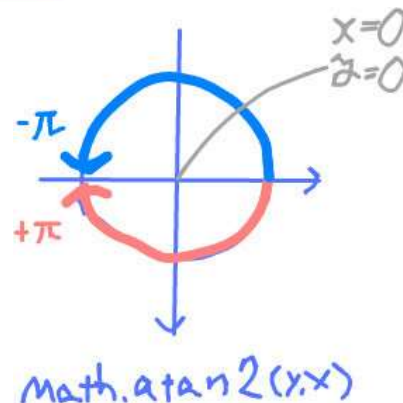
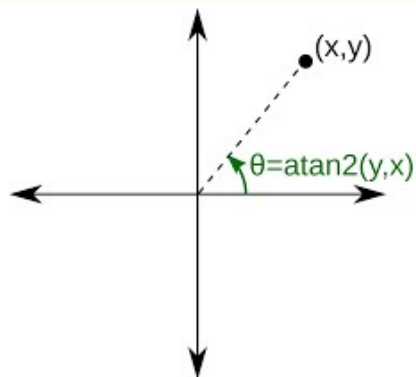
atan2(y, x)

atan2(1, 0) =  $\pi/2$

atan2( $\sqrt{3}$ , 1) =  $\pi/3$

atan2(0, 1) = 0

The limit of atan2 from this side is  $-\pi$



# Senzory

(accel, barcode, gyro, NFC, GPS, kompas, pedo, proximity)

Telekom SK 100 % 18

Senzory

Vyzvánací tón

Pedo: 0

Proxi: 5

Bar Code: Hint for TextBox1 Scan Barcode

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

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



# Zoznam

(zoznam)



```

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"

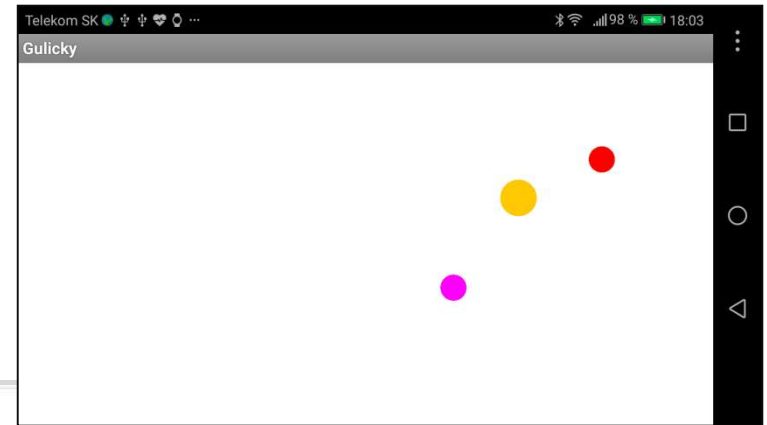
initialize global index to 0

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
            index
            get global zoznam
            get global index + 1
    in
        set Canvas1.BackgroundImage to
            get subor
        set TextBox1.Text to
            get subor
  
```

# Zoznam objektov (for each)



**foreach object in a list**

```
to init
do
  add items to list list
  item Ball1
  item Ball2
  item Ball3

  for each item in list
  do
    set Ball. X
    of component get item
    to random integer from 1 to 400

    set Ball. Y
    of component get item
    to random integer from 1 to 400

    set Ball. Speed
    of component get item
    to random integer from 3 to 15

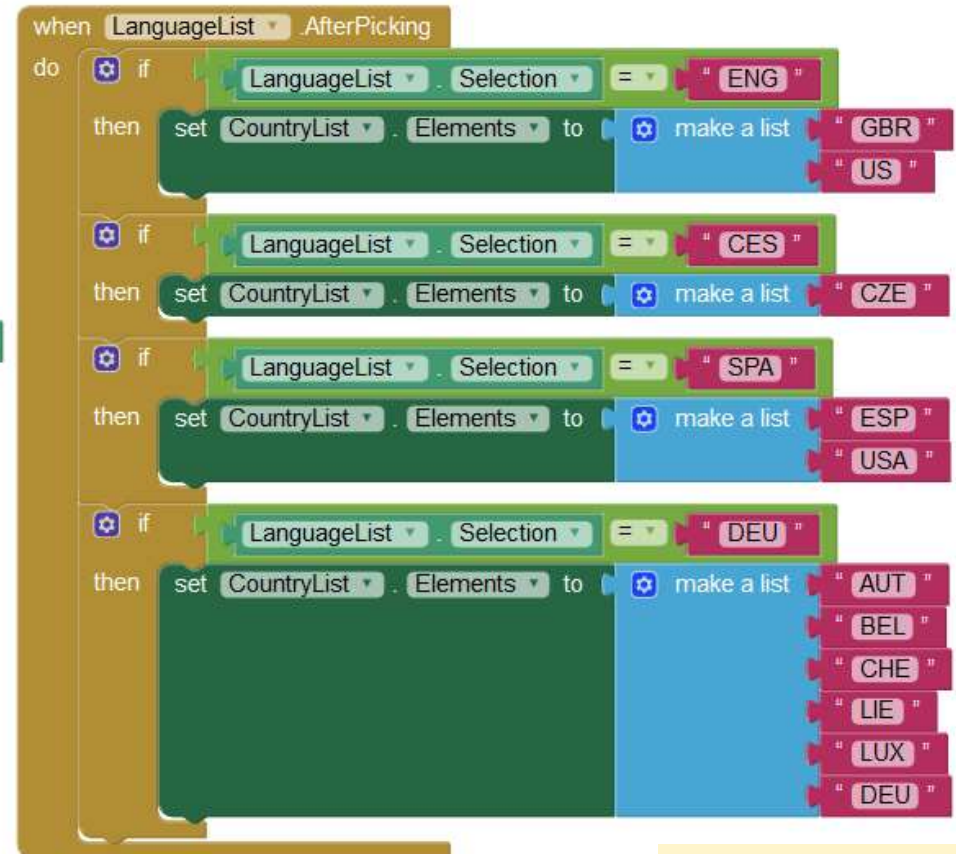
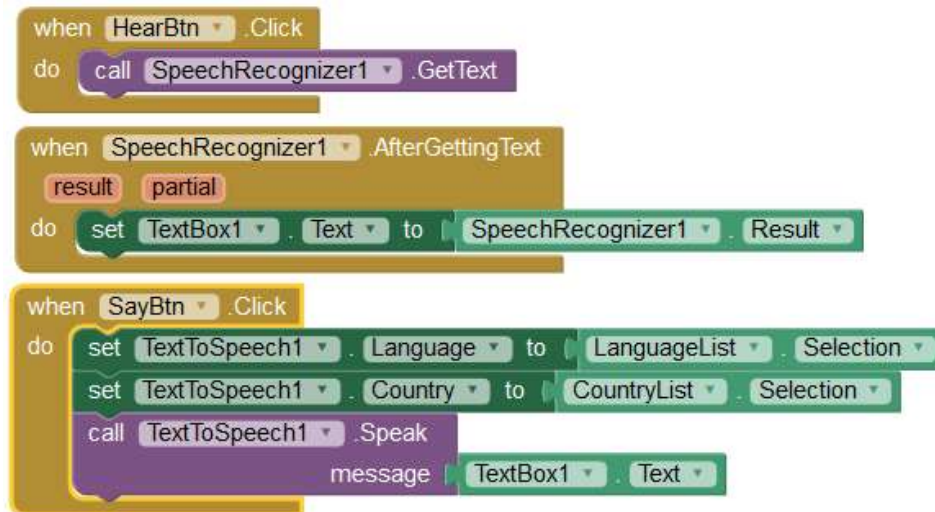
    set Ball. Radius
    of component get item
    to random integer from 5 to 15

    set Ball. PaintColor
    of component get item
    to pick a random item list
    make a list
    red
    green
    purple
    yellow

    set Ball. Heading
    of component get item
    to Ball. Heading
    of component get item
    + random integer from -30 to 30
```

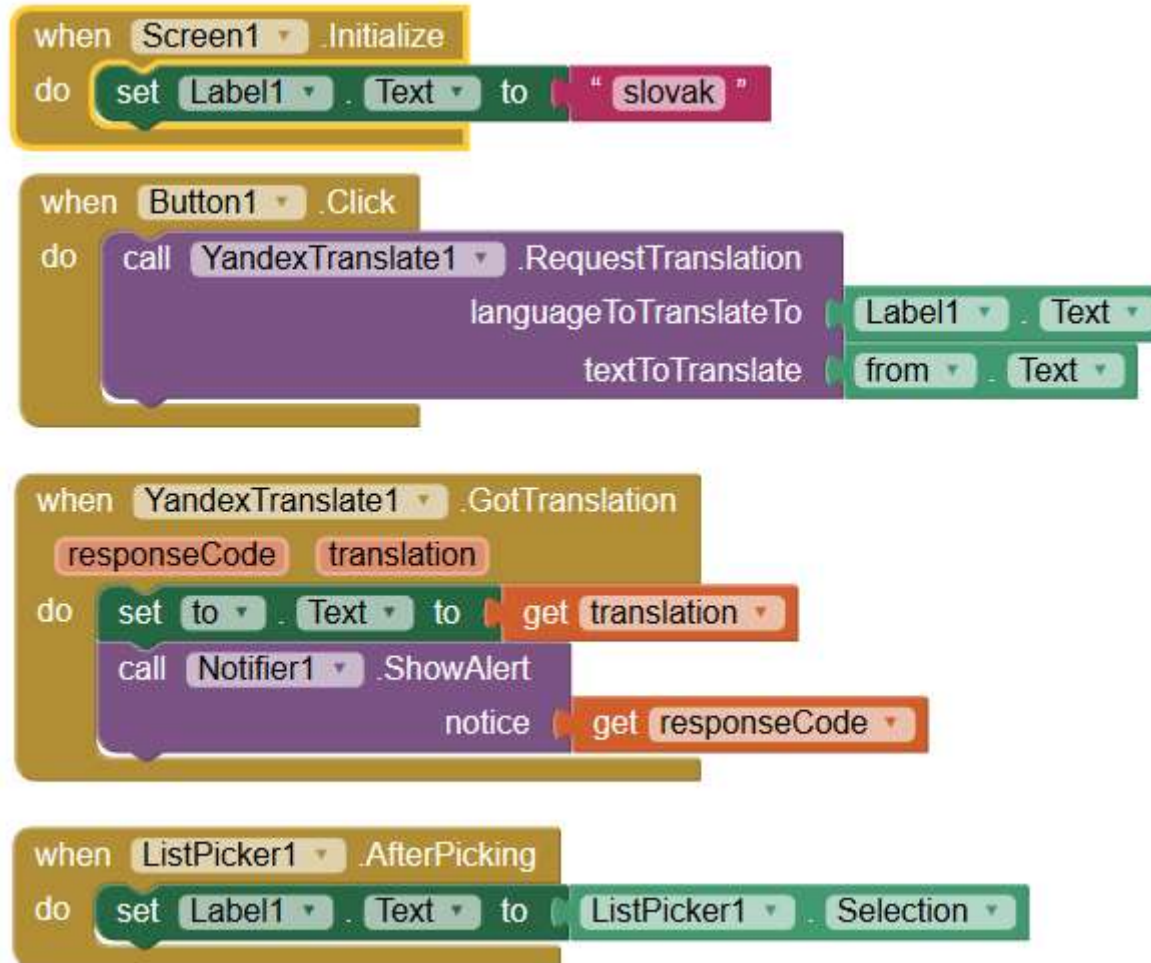
# TextToSpeech

- Nainštaluj eSpeak
- <https://play.google.com/store/apps/details?id=com.googlecode.eyesfree.espeak&hl=sk>

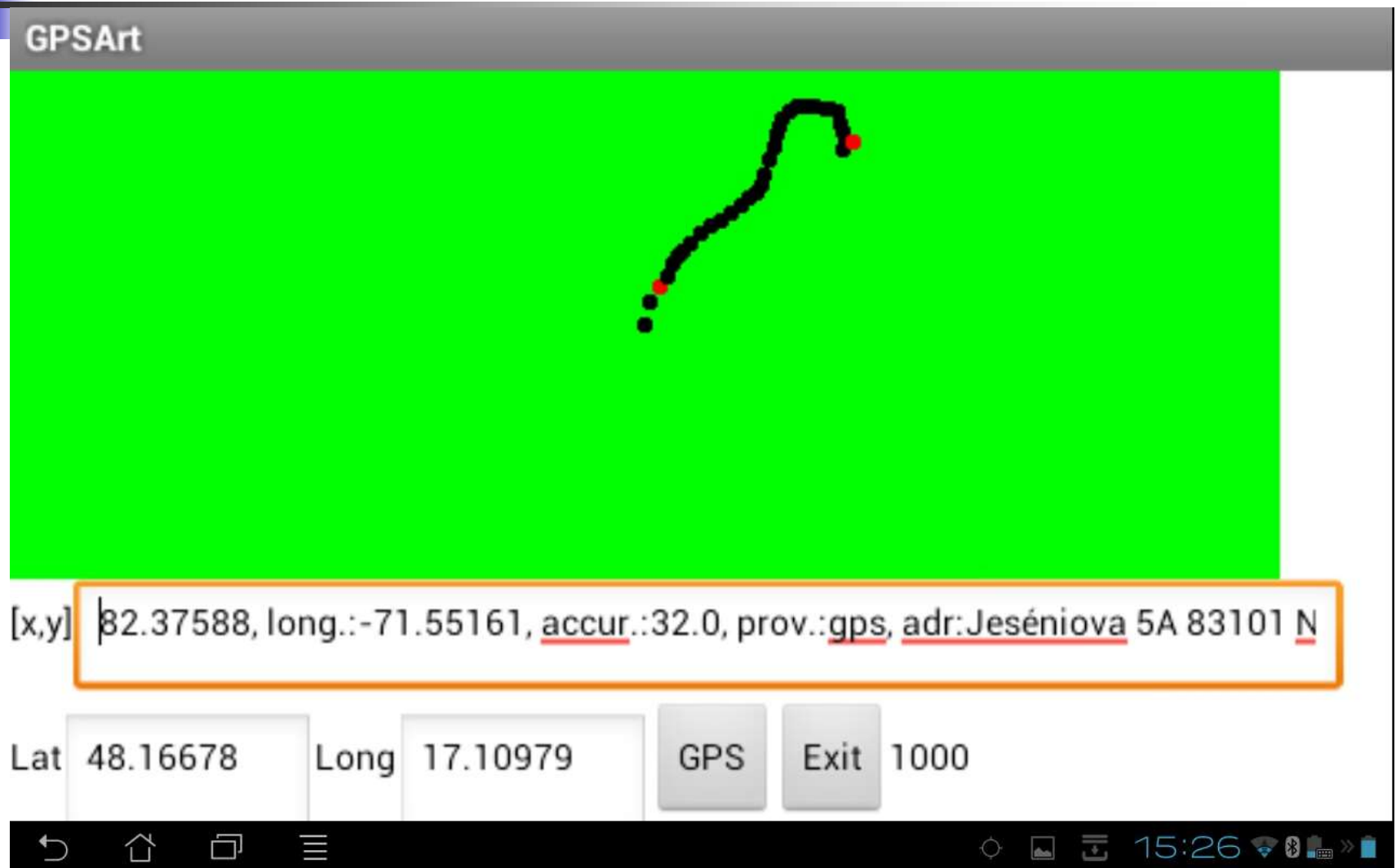


**Text2Speech.apk**

# Translator



# GPS Art





# GPS Art



```
when Screen1.Initialize
do
  set LocationSensor1.ProviderName to "gps"
  set LblConnected.Text to "Initialized"
  set LocationSensor1.TimeInterval to 1000

initialize global initLat to 0
initialize global initLong to 0

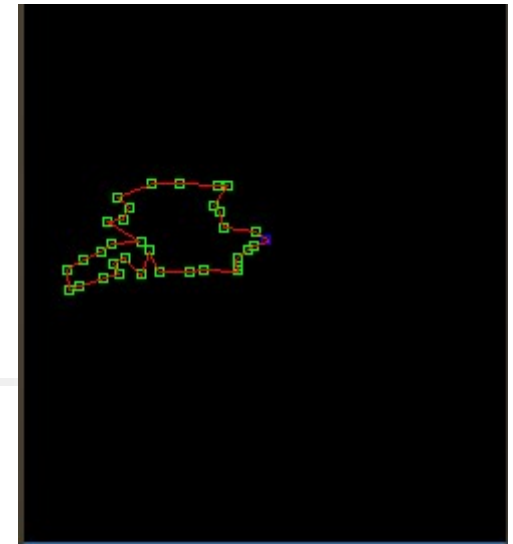
when BtnExit.Click
do
  close screen

when Clock1.Timer
do
  set LocationSensor1.ProviderName to "gps"
  set Canvas1.PaintColor to red
  call ShowPostion
    lat LocationSensor1.Latitude
    long LocationSensor1.Longitude
```

```
when LocationSensor1.LocationChanged
  latitude longitude altitude speed
do
  set Canvas1.PaintColor to black
  call ShowPostion
    lat get latitude
    long get longitude

when BtnGPS.Click
do
  set Canvas1.PaintColor to blue
  call ShowPostion
    lat LocationSensor1.Latitude
    long LocationSensor1.Longitude
```

# GPS Art



to ShowPosition lat long

do

- set TxtLong . Text to get lat
- set TxtLat . Text to get long
- set LblConnected . Text to LocationSensor1 . TimeInterval
- if  $\text{get global initLong} \times \text{get global initLat} = 0$ 
  - then
    - set global initLat to get lat
    - set global initLong to get long
- set TxtLat . Text to get lat
- set TxtLong . Text to get long
- call Canvas1 . DrawCircle
  - centerX  $\text{get global initLat} - \text{get lat} \times 50000 + 250$
  - centerY  $\text{get global initLong} - \text{get long} \times 50000 + 100$
  - radius 3
  - fill true



# GPS Art





# Android MIT Inventor

(pokračovanie)

---

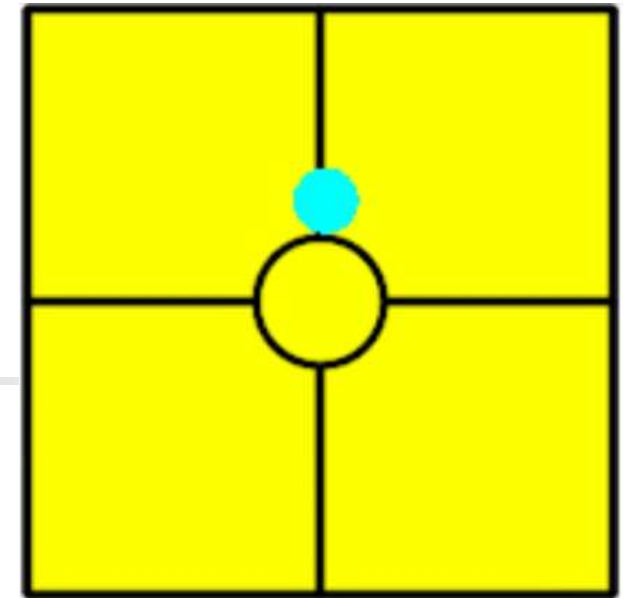


Peter Borovanský  
KAI, I-18

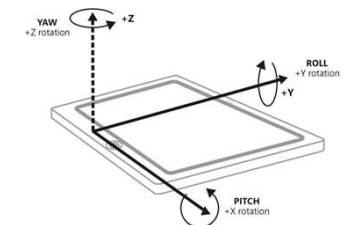
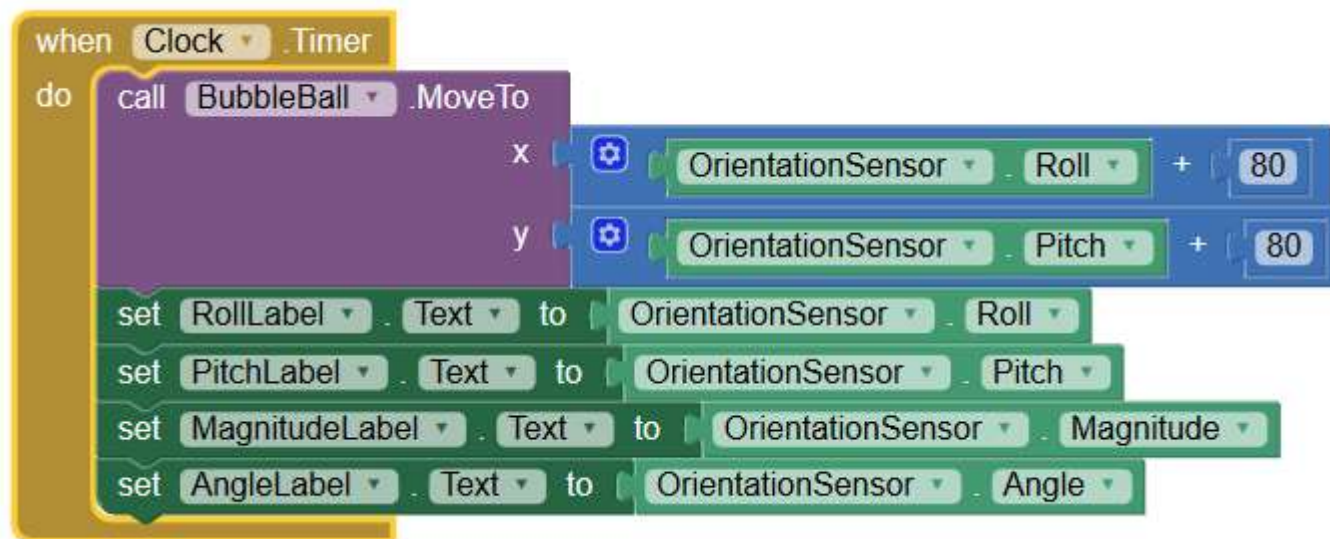
borovan 'at' ii.fmph.uniba.sk

# Vodovážka

Akcelerometer meria zrýchlenie ( $\text{m/s}^2$ )  
v troch osiach (x,y,z)



Roll: 1.83868  
Pitch: -30.22783



**SpiritLevel.apk**

21.99883



Akcelerometer meria zrýchlenie ( $\text{m/s}^2$ ) v troch osiach (x,y,z)

The Scratch script consists of the following blocks:

- when AccelerometerSensor1 .AccelerationChanged** (yellow block)
- do** (brown block) containing:
  - set global actualAcc to** (orange block) connected to **square root** (blue block).
  - The **square root** block is connected to a mathematical expression:  $\sqrt{\text{get xAccel} \times \text{get xAccel} + \text{get yAccel} \times \text{get yAccel} + (\text{get zAccel} - 9.81) \times (\text{get zAccel} - 9.81)}$ .
  - if** (blue block) with condition **get global actualAcc > get global maxAcc** (orange blocks).
  - then** (brown block) containing:
    - set Label1 .Text to** (green block) connected to **get global actualAcc** (orange block).
    - set global maxAcc to** (orange block) connected to **get global actualAcc** (orange block).
- initialize global maxAcc to** (orange block) connected to **0** (blue block).
- initialize global actualAcc to** (orange block) connected to **0** (blue block).

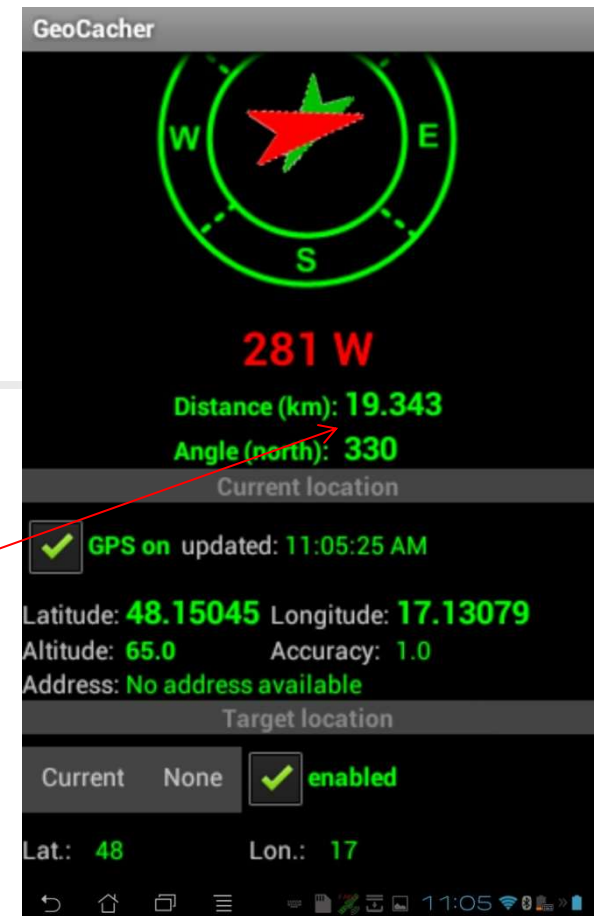
To the right of the script, the formula is displayed in a yellow box:

$$\text{sqrt}(x*x+y*y+(z-9.81)*(z-9.81))$$

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

# 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](#),

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



# 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



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



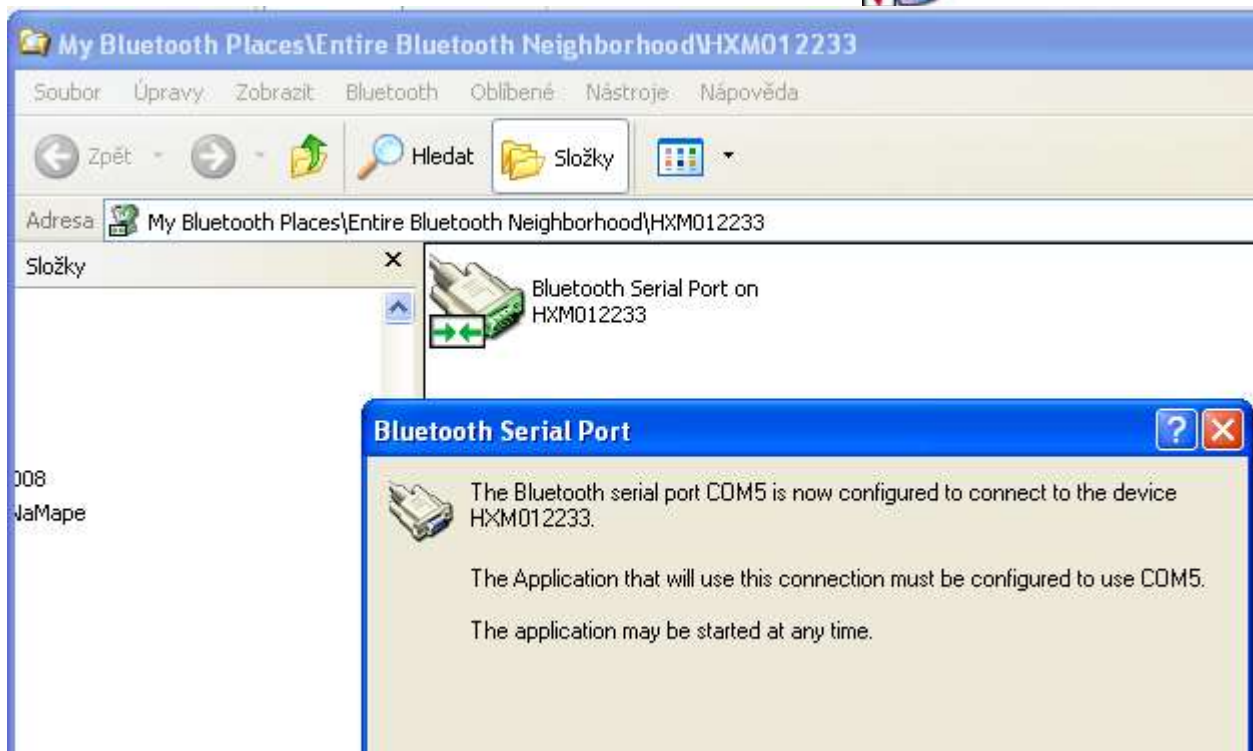
HXM012233  
Unknown: Major(31), Minor(0)

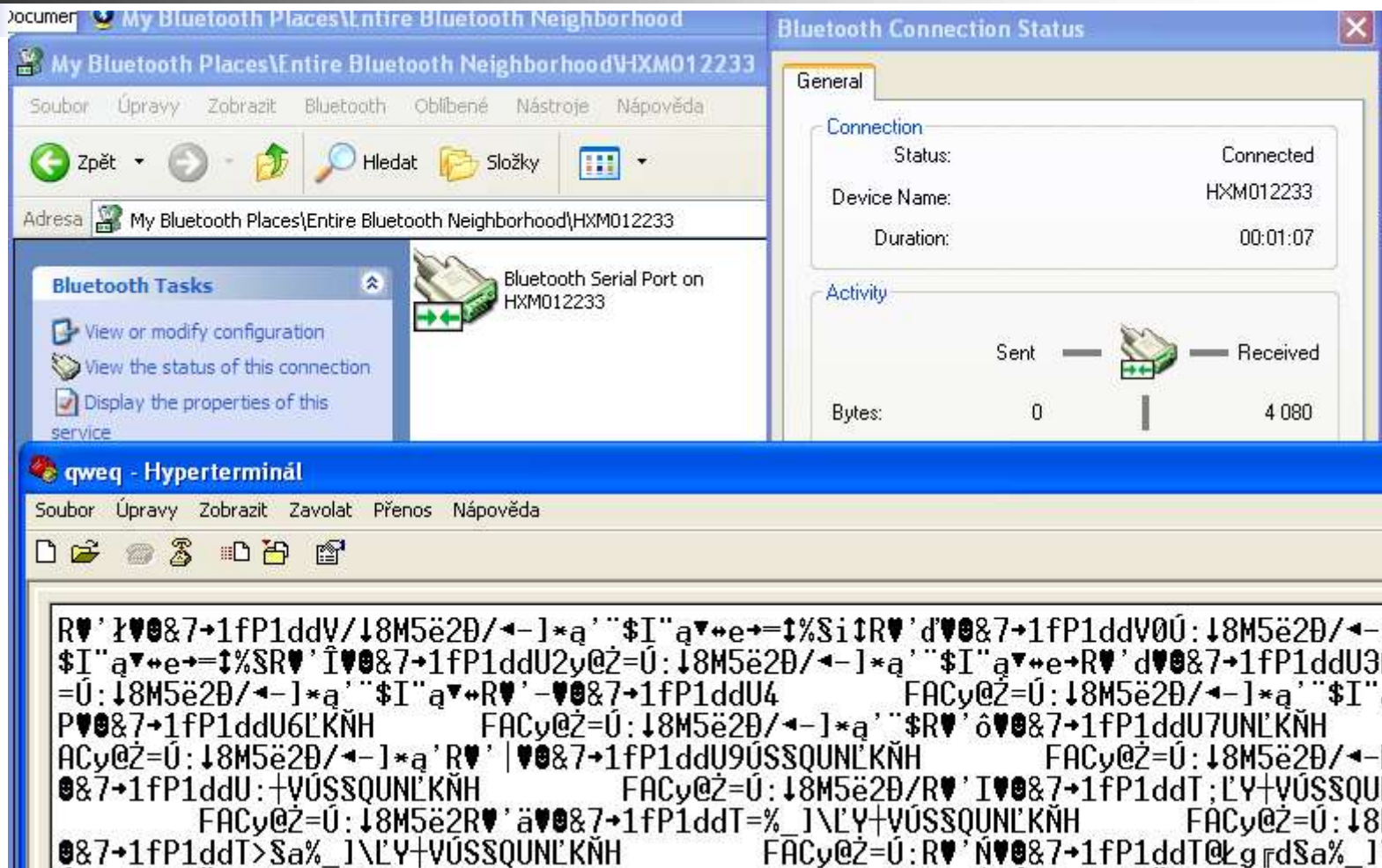


Nokia 5530 XpressMusic  
Smart Phone



Transformer Prime TF201  
Personal Digital Assistant







# Spárované a rozpráva sám

Najpríjemnejšie, ak spárované zariadenie vysielá 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&71fP
:G74ëOÍ&71fP1ddIH
@ł=w:Í&71fP1ddKJ
Dä@Í&71fP1ddJMËs
Í&71fP1ddJO#zúvË

Lister - [c:\VCAPTURE.TXT]
File Edit Options Help
86 %
00007EC0: 40 AF 3D 93 3A 53 37 1F|34 EB 30 BB 2D 5B 2A 0B | @Ž=":S7■4ëb>-[*■
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 | ■■■■Ň■■&7■■1fP■1d
00007EF0: 64 48 EA 87 54 47 51 FB|4D 97 4A 4F 47 FF 43 D3 | dHe$TGQŮM-JOG' CŮ
00007F00: 40 AF 3D 93 3A 53 37 1F|34 EB 30 BB 2D 5B 2A 0B | @Ž=":S7■4ëb>-[*■
00007F10: 27 00 00 00 00 00 00 0A|04 00 00 33 00 00 00 2A | '■■■■■■■■■■3■■■*
00007F20: 03 02 26 37 1A 00 31 66|50 00 31 64 64 48 EB 8F | ■■&7■■1fP■1ddHëŽ
00007F30: 57 87 54 47 51 FB 4D 97|4A 4F 47 FF 43 D3 40 AF | w$TGQŮM-JOG' CŮ@Ž
00007F40: 3D 93 3A 53 37 1F 34 EB|30 BB 2D 5B 2A 00 00 00 | =":S7■4ëb>-[*■■■
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■1ddHëŽŽw$
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 0A | :S7■4ëb>■■■■■■■
```

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 \(185 MB\)](#)

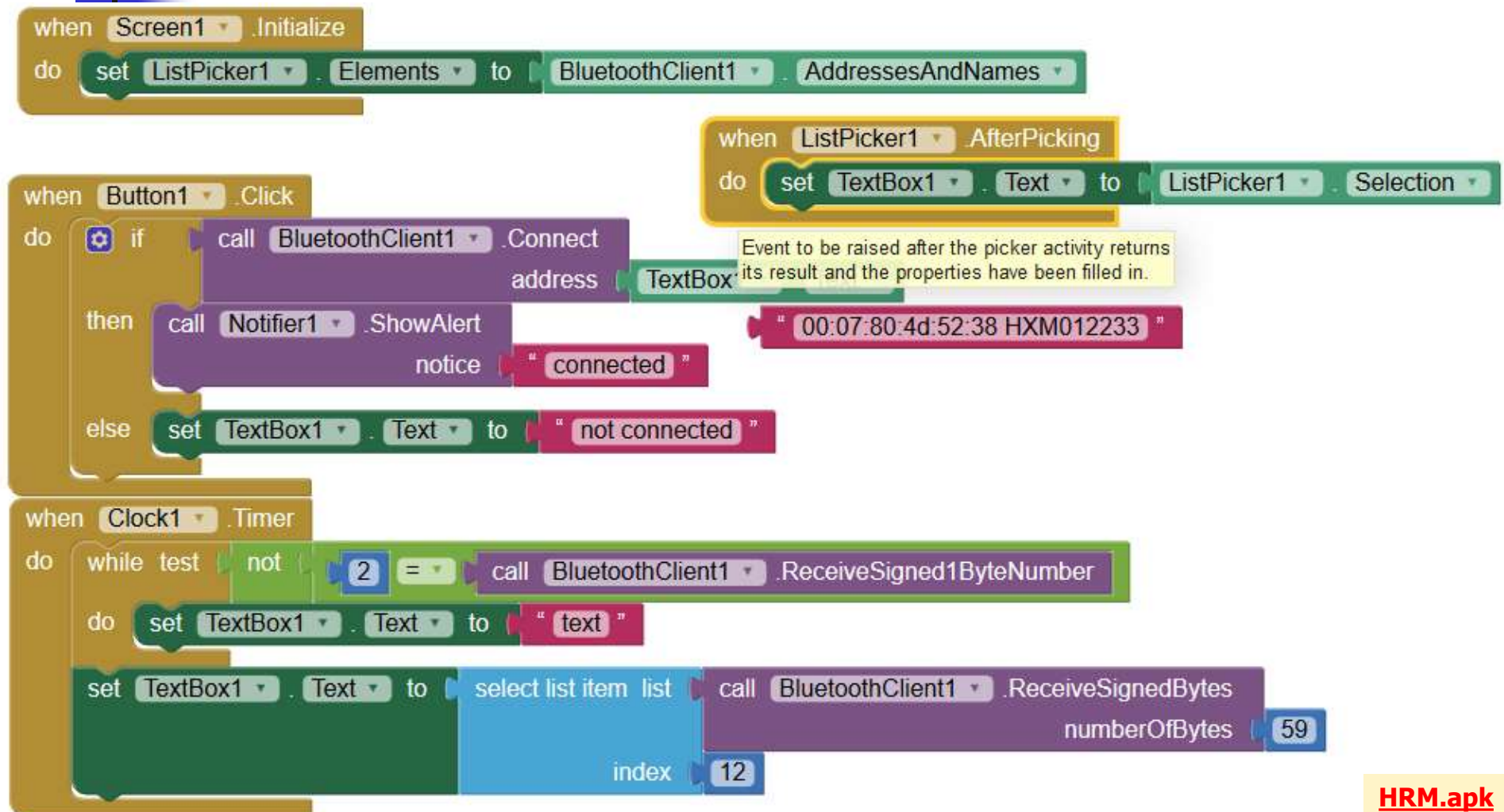
Name	Ext	Size	Date
[-.]	<DIR>		17.11.2012 23:09
[DotNetFX35SP1]		200 608 888	17.11.2012 23:09
[HxM Example Android Project]		293 223	17.11.2012 23:09
[HxM Packet Logger 9500.0030.v1f]		584 465	17.11.2012 23:09
HxM Android API User Guide 2011-06-24	pdf	268 525	17.11.2012 23:09
Bluetooth HXM API Guide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

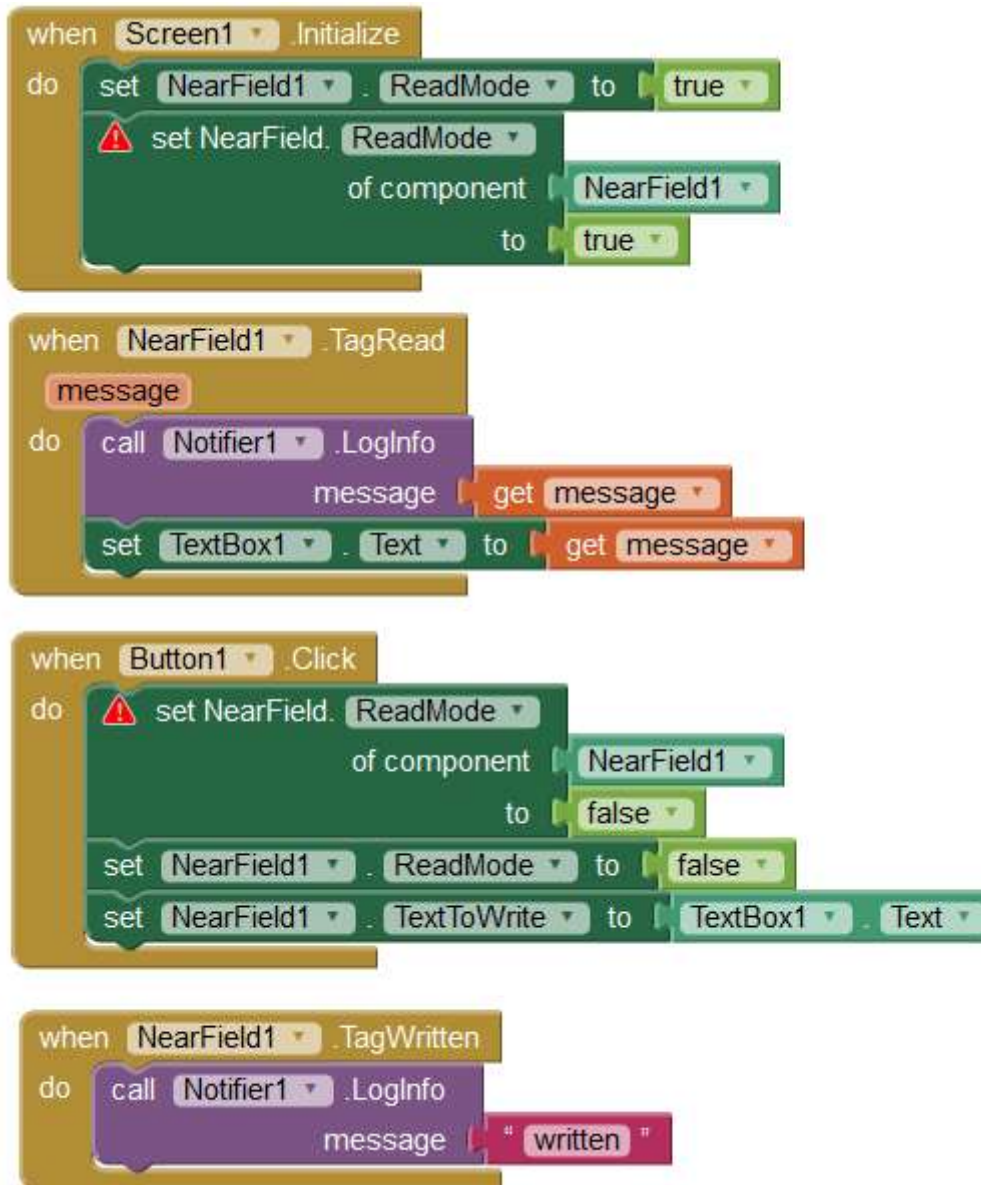
### 7.1. MSG:0x26 – Heart Rate, Speed & Distance packet

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

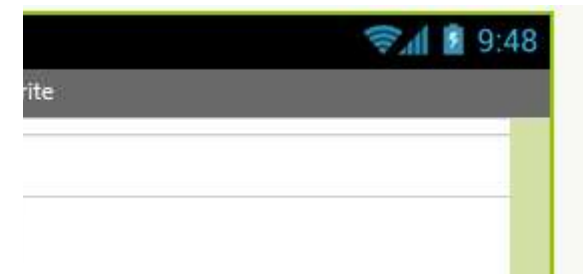
Byte/Bit	7	6	5	4	3	2	1	0	Field
0	STX								STX
1	0x26								Msg ID
2	55								DLC
3	Firmware ID								
5	Firmware Version								
7	Hardware ID								
9	Hardware Version								
11	Battery Charge Indicator								
12	Heart Rate								
13	Heart Beat Number								
14	Heart Beat Timestamp #1 (Newest)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

# HRM





# NFC






# Prešporské pivočiary

## ilustrácia ActivityStarter

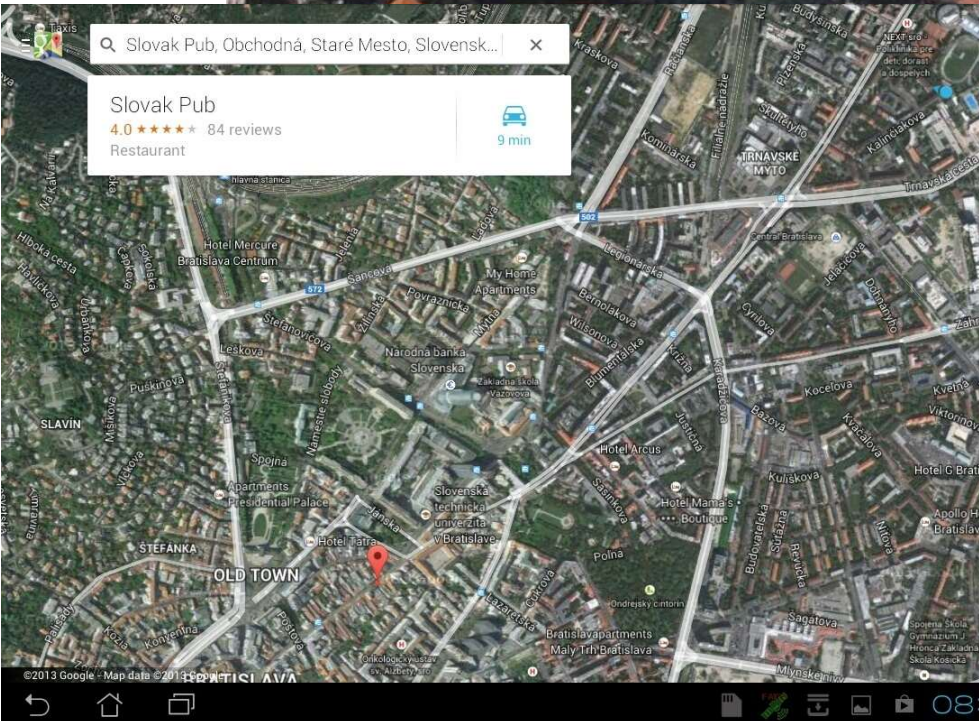
Malý turistický sprievodca pamiatkami Bratislavy

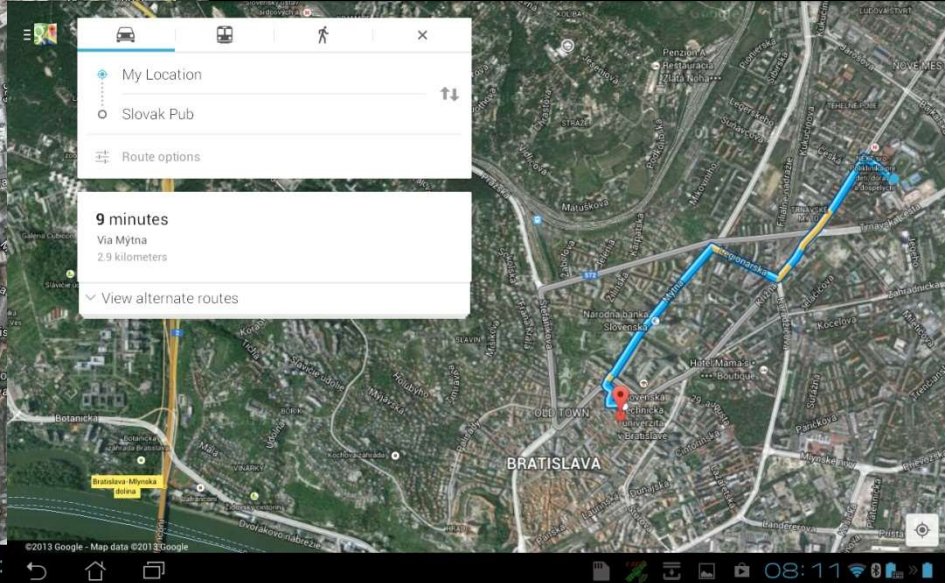
Prešporské pivočiary



PresporksePivociary

- Verne
- Slovak Pub
- Umelka
- Alibaba



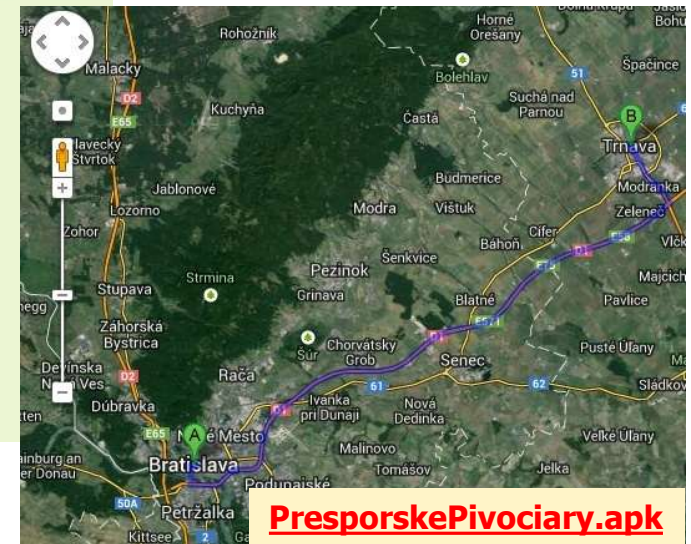


- 
- ```

onClick() {
    do {
        BackNavButton.Click
    } do {
        set {
            to {
                call {
                    text {
                        text http://maps.google.com/maps?saddr=
                    }
                    text {
                        LatLabel.Text
                    }
                    text {
                        LonLabel.Text
                    }
                    text {
                        &saddr=
                    }
                    text {
                        BackLatTextBox.Text
                    }
                    text {
                        BackLonTextBox.Text
                    }
                }
            }
        }
        call {
            ActivityStarter Maps.StartActivity
        }
    }
}

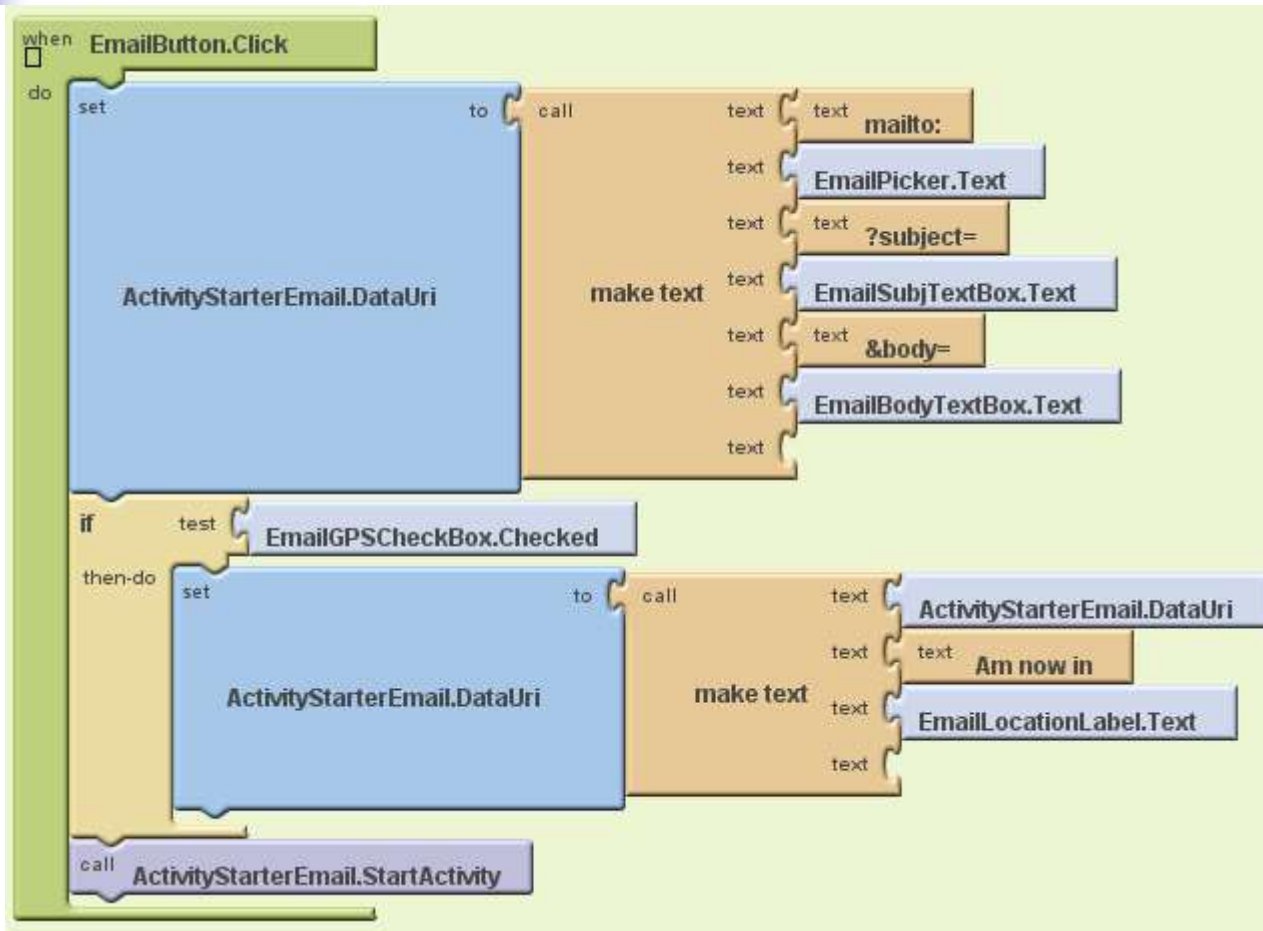
```

|                 |                                       |
|-----------------|---------------------------------------|
| Action          | <code>android.intent.action.VI</code> |
| ActivityClass   | <code>com.google.android.m</code>     |
| ActivityPackage | <code>com.google.android.ap</code>    |
| DataType        |                                       |

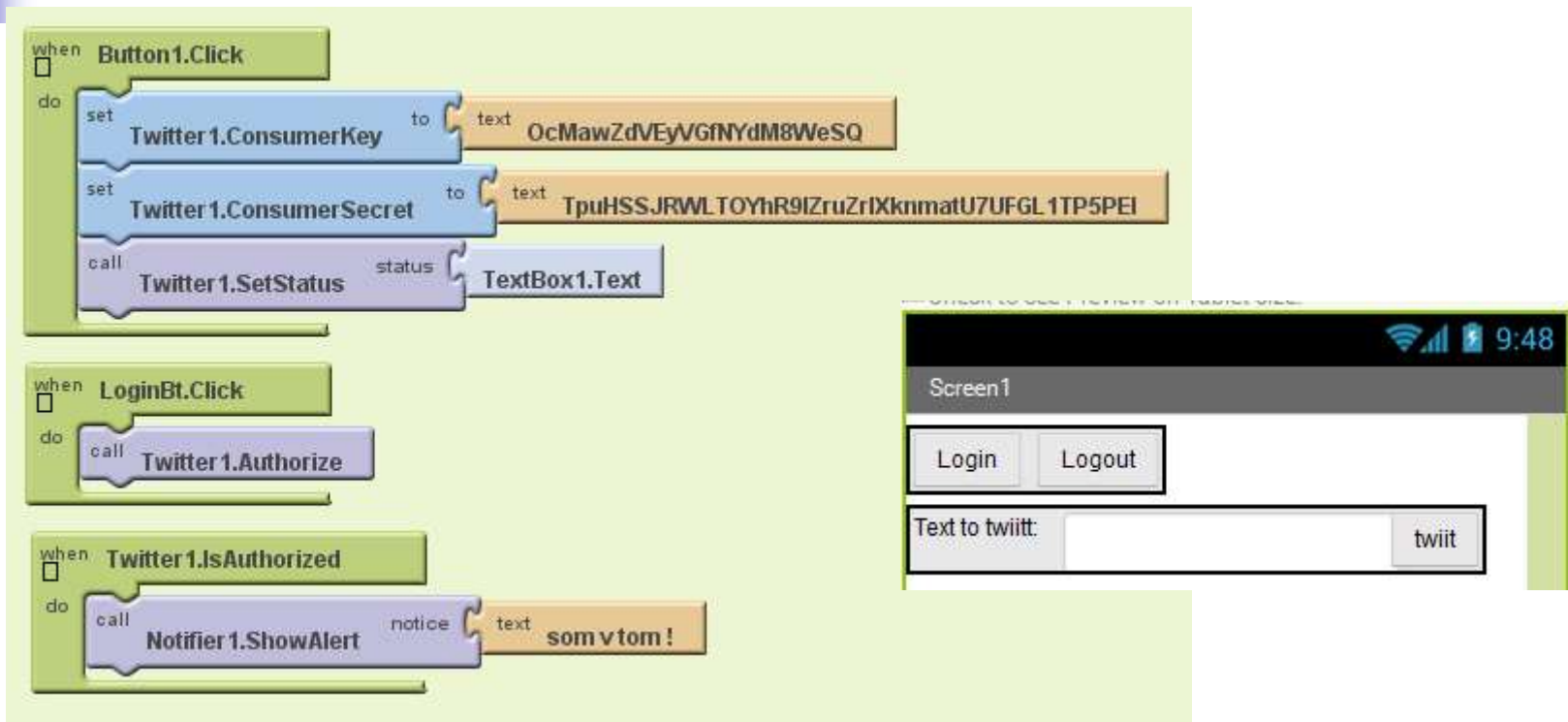




# ActivityStarter: mailto



# Twitter



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

# 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

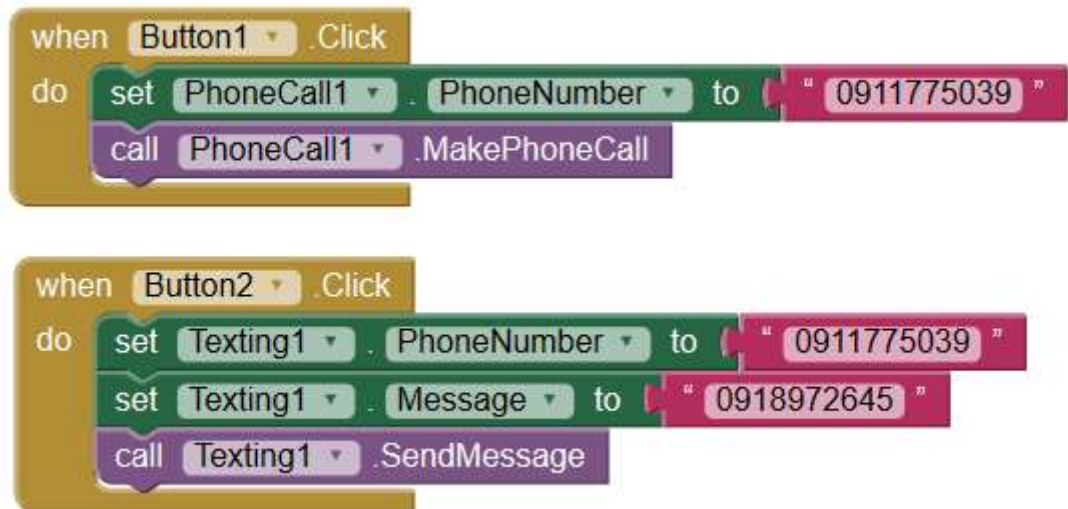
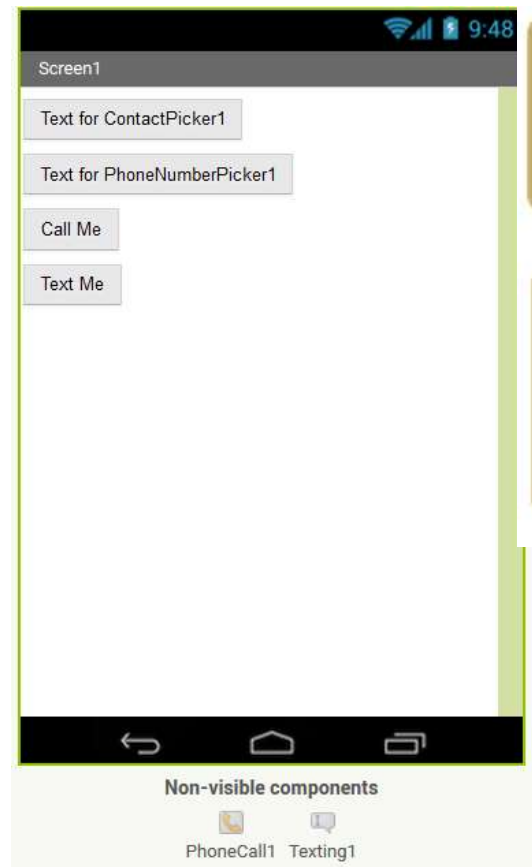
```
when Button1 .Click
do
  set Texting1 . PhoneNumber to cislottb . Text
  set Texting1 . Message to msgtb . Text
  call Texting1 .SendMessage
```

```
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







# 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**


 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 | DtA3TCLl |

# FireBase



```
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
```

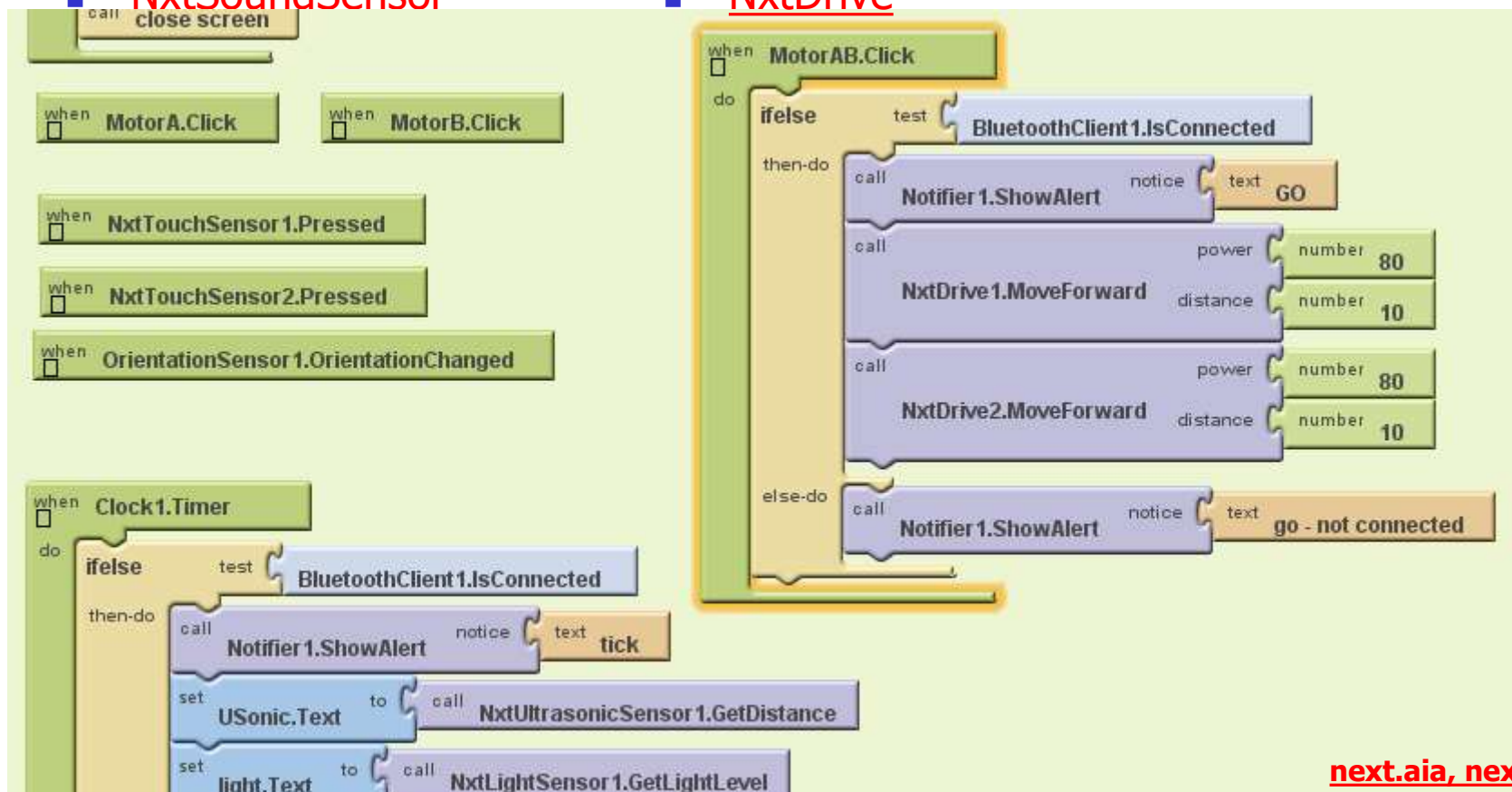
```
when FirebaseDB1 .GotValue
tag value
do
  call Notifier1 .ShowAlert
  notice get value
  set ValueTxt .Text to get value
```

[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 :-)

