

# International ICT Week July 8-12, 2024

# Mobile Apps for Android with MIT App Inventor 2

Fast visual development with media, GPS and databases

# **Session 2**

- Drawing and animating objects, media
- Connectivity
- Storage
- Local data bases
- Working with several screens
- Going further: Extensions

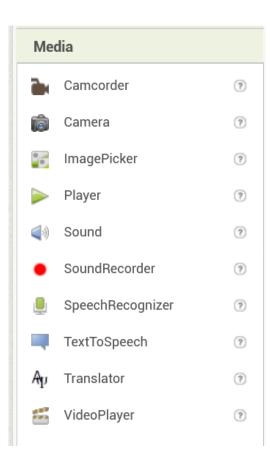
# Drawing and animation objects



Practices: Session 1 suggestions,

- Ball Bounce
- Digital Doodle

# Media Objects

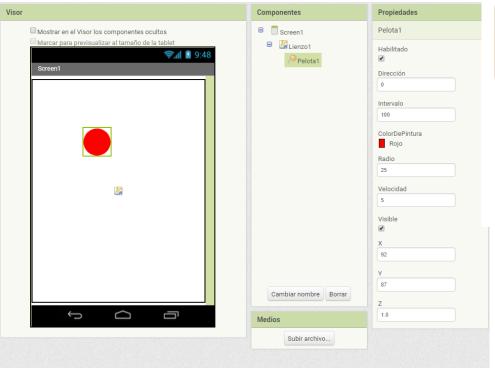


#### **Practices:**

 Countdown with a bomb about to explode, at the end of the countdown, exploding bomb image and explosion sound.

# "BallBounce"

#### Designer:

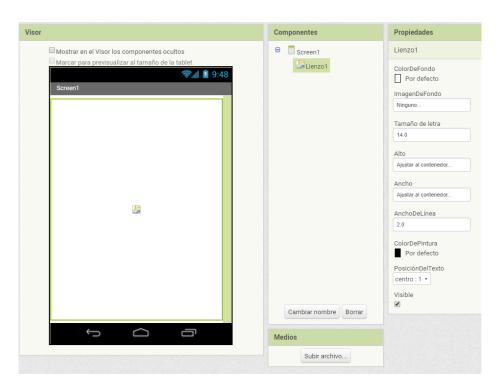


#### Blocks:

```
cuando Lienzo1 .Lanzado
         velocidad dirección
                              velocidadx
                                          velocidady
                                                      SpriteLanzado
         poner Pelota1 *
                          Dirección v como
                                               tomar dirección v
         poner Pelota1 •
                          Velocidad ▼ como
                                               tomar velocidad ·
cuando Pelota1 . TocarBorde
  borde
          llamar Pelota1 ▼ .Botar
ejecutar
                           borde
                                   tomar borde *
```

# "Digital Doodle (scribbling)"

#### Designer:



#### **Blocks:**

```
cuando Lienzo1 v Arrastrado

XInicial YInicial XPrevio YPrevio XActual YActual draggedAnySprite

ejecutar Ilamar Lienzo1 v .DibujarLínea

x1 tomar XPrevio v

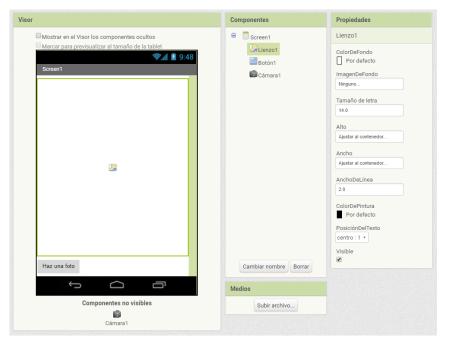
y1 tomar YPrevio v

x2 tomar XActual v

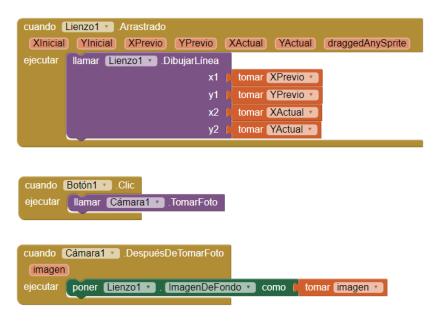
y2 tomar YActual v
```

# "Digital Doodle with Selfie"

#### Designer:



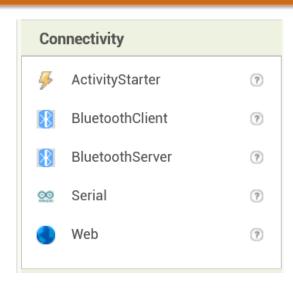
#### **Blocks:**



#### Extra practice:

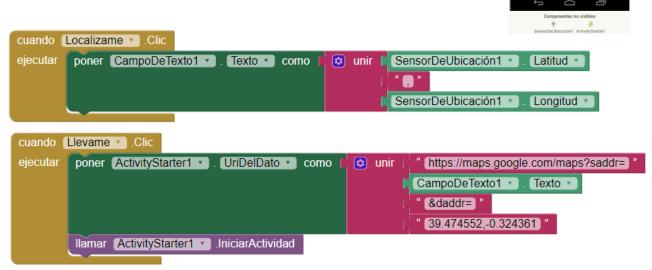
- Upgrade "Digital Doodle" by changing the thickness and color of the pencil
- App Inventor Maker Cards

# **Conectivity** Objects



#### Practice:

- Open Google Maps showing the directions to go from our position to the dolphins on the beach. Here are some clues, and take note for the ActivityStarter:
- Action: android.intent.action.VIEW
- ActivityClass: com.google.android.maps.MapsActivity
- ActivityPackage: com.google.android.apps.maps



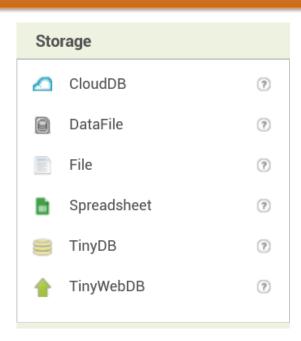
Guíame a la playa

#### Extra practice:

AEMET OpenData

https://opendata.aemet.es/centrodedescargas/inicio

# Storage Objects and local DB

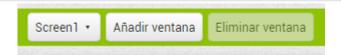


#### Practice:

 Read a web content, write it into a file in your mobile device, and show the contents in the app. Example at <a href="https://pastebin.com/raw/gZswkD1k">https://pastebin.com/raw/gZswkD1k</a> and here some clues:

```
initialize global (URL_completa) to [ " ] "
when Button1 .Click
do set global URL completa to
                                       " https://pastebin.com/raw/
                              ioin
                                      TextBox1 •
                                                  Text •
   set Web1 . Url to get global URL completa
   call Web1 .Get
    set Label1 . Text to poin
                                      Descargando fichero desde
                                     get global URL_completa
    when Web1 .GotText
 url responseCode responseType responseContent
  set Label1 . Text to
                             ...contenido leído, grabando el fichero "fichero...
    call File1 .SaveFile
                        get responseContent *
                        join TextBox1 Text
    set Label1 . Text to to join
                                     ...grabación finalizada del fichero:
                                    TextBox1 Text
    set Label2 . Text to get responseContent
```

# Working with several **Screens** and **TinyDB**



Practice: Create an app that saves a value in TinyDB. This value must be able to be read from another screen and also after closing and reopening the app. Here some clues ...





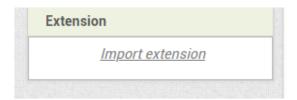


```
Cuando Scroon2 - Inicializar

ejecular poner [15002 - 1600 - 1600 - 1600 - 1600 - 1600 - 1600 - 1600 - 1600 - 1600 - 1600 - 1600 - 1600 - 1600 - 1600 - 1600 - 1600 - 1600 - 1600 - 1600 - 1600 - 1600 - 1600 - 1600 - 1600 - 1600 - 1600 - 1600 - 1600 - 1600 - 1600 - 1600 - 1600 - 1600 - 1600 - 1600 - 1600 - 1600 - 1600 - 1600 - 1600 - 1600 - 1600 - 1600 - 1600 - 1600 - 1600 - 1600 - 1600 - 1600 - 1600 - 1600 - 1600 - 1600 - 1600 - 1600 - 1600 - 1600 - 1600 - 1600 - 1600 - 1600 - 1600 - 1600 - 1600 - 1600 - 1600 - 1600 - 1600 - 1600 - 1600 - 1600 - 1600 - 1600 - 1600 - 1600 - 1600 - 1600 - 1600 - 1600 - 1600 - 1600 - 1600 - 1600 - 1600 - 1600 - 1600 - 1600 - 1600 - 1600 - 1600 - 1600 - 1600 - 1600 - 1600 - 1600 - 1600 - 1600 - 1600 - 1600 - 1600 - 1600 - 1600 - 1600 - 1600 - 1600 - 1600 - 1600 - 1600 - 1600 - 1600 - 1600 - 1600 - 1600 - 1600 - 1600 - 1600 - 1600 - 1600 - 1600 - 1600 - 1600 - 1600 - 1600 - 1600 - 1600 - 1600 - 1600 - 1600 - 1600 - 1600 - 1600 - 1600 - 1600 - 1600 - 1600 - 1600 - 1600 - 1600 - 1600 - 1600 - 1600 - 1600 - 1600 - 1600 - 1600 - 1600 - 1600 - 1600 - 1600 - 1600 - 1600 - 1600 - 1600 - 1600 - 1600 - 1600 - 1600 - 1600 - 1600 - 1600 - 1600 - 1600 - 1600 - 1600 - 1600 - 1600 - 1600 - 1600 - 1600 - 1600 - 1600 - 1600 - 1600 - 1600 - 1600 - 1600 - 1600 - 1600 - 1600 - 1600 - 1600 - 1600 - 1600 - 1600 - 1600 - 1600 - 1600 - 1600 - 1600 - 1600 - 1600 - 1600 - 1600 - 1600 - 1600 - 1600 - 1600 - 1600 - 1600 - 1600 - 1600 - 1600 - 1600 - 1600 - 1600 - 1600 - 1600 - 1600 - 1600 - 1600 - 1600 - 1600 - 1600 - 1600 - 1600 - 1600 - 1600 - 1600 - 1600 - 1600 - 1600 - 1600 - 1600 - 1600 - 1600 - 1600 - 1600 - 1600 - 1600 - 1600 - 1600 - 1600 - 1600 - 1600 - 1600 - 1600 - 1600 - 1600 - 1600 - 1600 - 1600 - 1600 - 1600 - 1600 - 1600 - 1600 - 1600 - 1600 - 1600 - 1600 - 1600 - 1600 - 1600 - 1600 - 1600 - 1600 - 1600 - 1600 - 1600 - 1600 - 1600 - 1600 - 1600 - 1600 - 1600 - 1600 - 1600 - 1600 - 1600 - 1600 - 1600 - 1600 - 1600 - 1600 - 1600 - 1600 - 1600 - 1600 - 1600 - 1600 - 1600 - 1600 - 1600 - 1600 - 1600
```

```
cuando Screen1 .BotónAtrás
cuando Screen1 .Error
  componente nombreDeFunción númeroDeError mensaje
 cuando Screen1 Inicializar
 cuando Screen1 .OtraPantallaCerrada
  nombreDeOtraPantalla Resultado
cuando Screen1 . CambioOrientaciónDePantalla
llamar Screen1 .OcultarTeclado
Screen1 . PantallaAcercaDe .
poner Screen1 . PantallaAcercaDe como
Screen1 . DispHorizontal .
poner Screen1 . DispHorizontal como
Screen1 DispVertical
poner Screen1 v . DispVertical v como
Screen1 . ColorDeFondo .
poner Screen1 . ColorDeFondo como
Screen1 | ImagenDeFondo |
poner Screen1 . ImagenDeFondo como
Screen1 . AnimaciónCierreDePantalla .
```

# Extensions



To work with extensions we will focus on:

- App Inventor web site (http://appinventor.mit.edu/extensions/),
- But, above all, <u>Pura Vida Apps</u> (https://puravidaapps.com/extensions.php),
   which are very useful and numerous (for some of them, paying a fee is needed)
- Take a look to the list of more than 46 different extensions developers at the end of that page

## Extensions

#### Available Extensions at Pura Vida Apps



■ Account Manager Extension to get some information about the user



■ AES Encryption Extension to encrypt/decrypt strings



Alarm Extension to set an alarm programmatically



i Enhanced Audio Player Extension



■ Barometer Sensor Extension to get the current pressure and altitude



■ Battery Manager Extension to provide battery information



Billing Extension to use Google In-App Billing in your App Inventor app for Products (both nonconsumable and consumable) and Subscriptions.



Classic Bluetooth Extension to enable/disable bluetooth without user interaction, scan, pair/unpair devices



Camera Extension to take pictures programmatically without user interaction.



■ Clipboard Extension to copy/paste text to/from the clipboard



2019-03 Exif Extension to read and write Exif tags in a JPEG file or a RAW image file.



File Extension is an extension related to the File component



Flashlight Extension to turn on/off the flashlight.



**IFTP** Extension to upload or download files to/from your server via FTP



• Headset Plug Status Extension to get the headset plug status.



Hotspot Extension to toggle wifi hotspot on or off.



Image Extension to do some basic image manipulation.



■ Image Metadata Extension to read the metadata of an image file



Light Sensor Extension to get the illuminance



■ Magnetic Sensor Extension to get magnetic X, Y, Z and absolute field strength

# Extensions



Mail Extension to send emails via SMTP



Math Extension to parse a mathematical expression



■ Simple Notification Extension to send a notification



■ Package manager Extension to get information about installed apps and to be able to launch an installed app using a package name.



■ Pdf Extension to open pdf files and render a specific page (without using an external app).



■ Settings Extension to get/set the brightness of the display and get/set/play a ringtone



I Take Screenshot Extension to take a screenshot



■ Sharing Extension offers the functionality of the Sharing component with some modifications



■ Speech Recognizer Extension offers the functionality of the Speech Recognizer component and some additional blocks



■ SQlite Extension to access the local SQlite database



**■ Telephony Manager Extension** to get some information from the telephony manager.



2019-03 Ambient Temperature Sensor Extension to get the ambient temperature in Celcius.



■ Textbox Extension to get/set cursor position, to highlight text, to have an event, which fires after text changed



**Texting Extension**, read all SMS from the inbox, draft and sent folders.



■ Tools Extension, a collection of several tools, which do not need additional permissions.



WiFi Extension offers some useful blocks to use in a wireless lan



**I**Zip Extension to zip/unzip files.

# Credits: Pura Vida Apps website (https://puravidaapps.com/) Web MIT App Inventor [Attribution-ShareAlike 3.0 Unported (CC BY-SA 3.0)]