



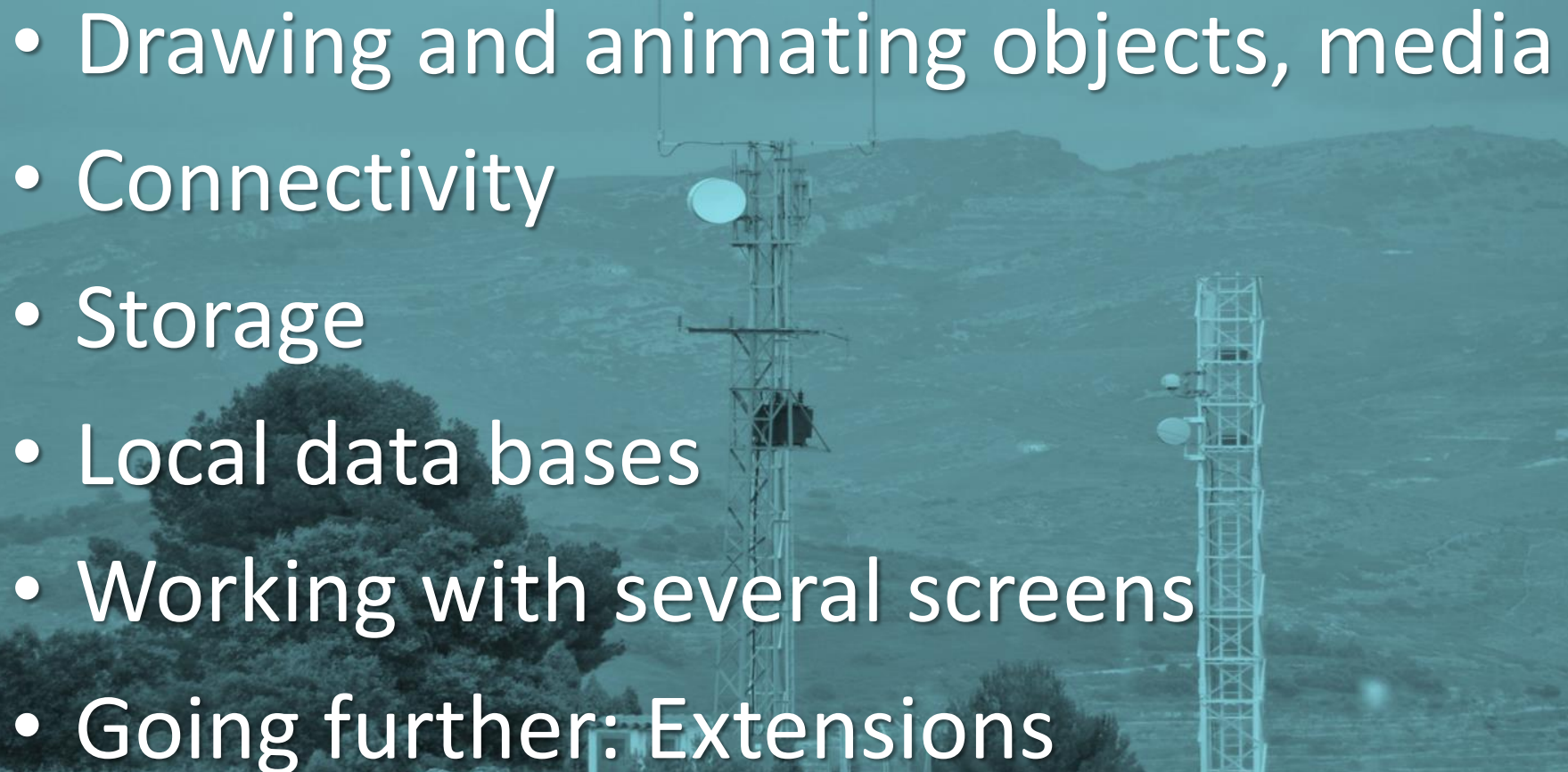
UNIVERSITAT
POLITÈCNICA
DE VALÈNCIA

International ICT Week
July 3-7, 2023

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
- 
- The background of the slide is a photograph of two tall, lattice-structured communication towers situated on a hillside. The towers are equipped with various antennas and satellite dishes. The scene is set against a backdrop of rolling hills and sparse vegetation, all under a clear sky. The entire image is overlaid with a semi-transparent teal color.

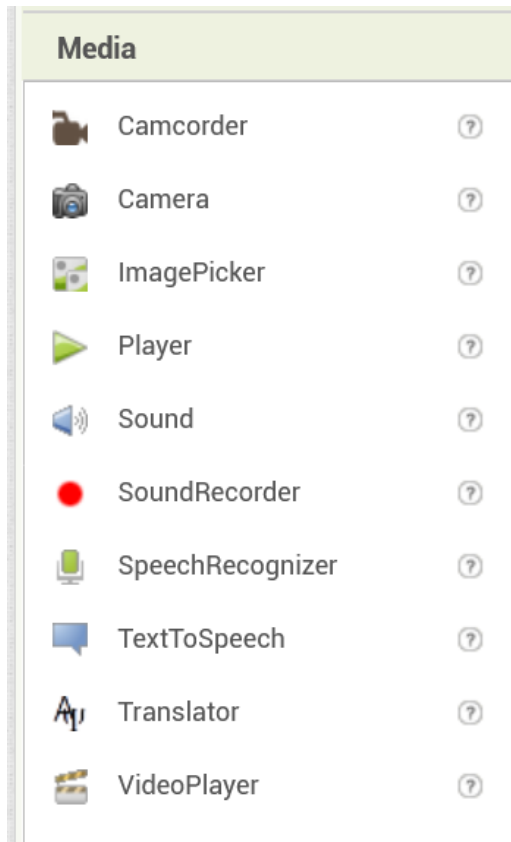
Drawing and animation objects

Dibujo y animación		
	Pelota	
	Lienzo	
	Spritemapagen	

Practices: Session 1 suggestions,

- Ball Bounce
- Digital Doodle

Media Objects

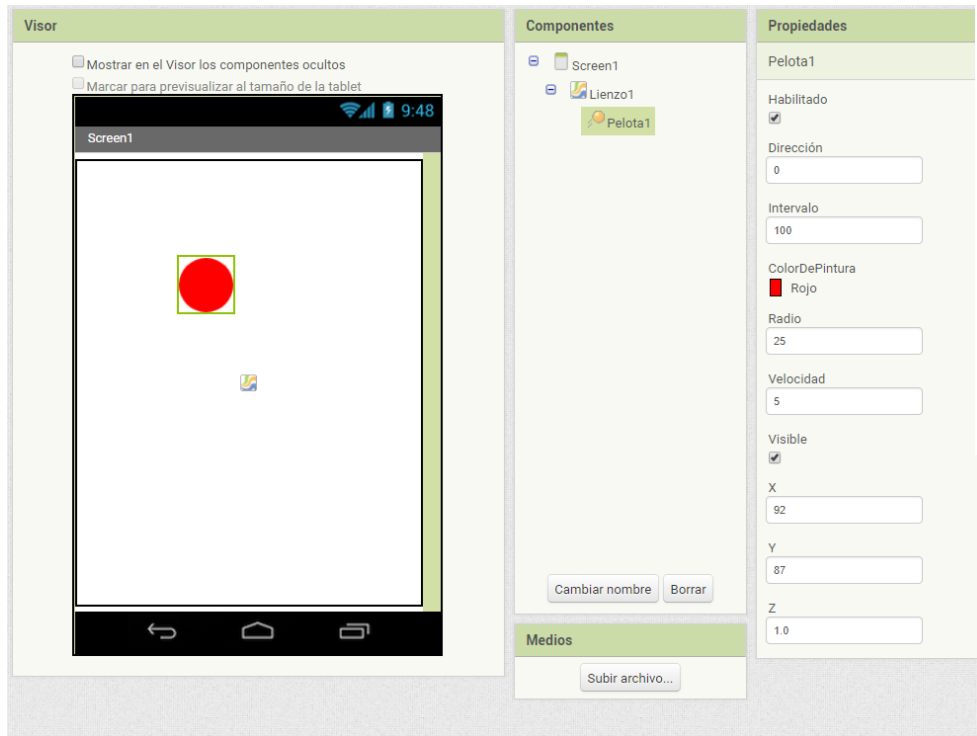


Practices:

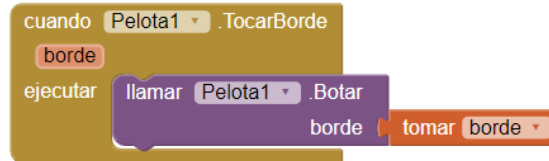
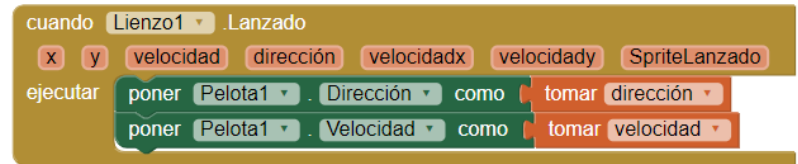
- Countdown with a bomb about to explode, at the end of the countdown, exploding bomb image and explosion sound.

“BallBounce”

Designer:

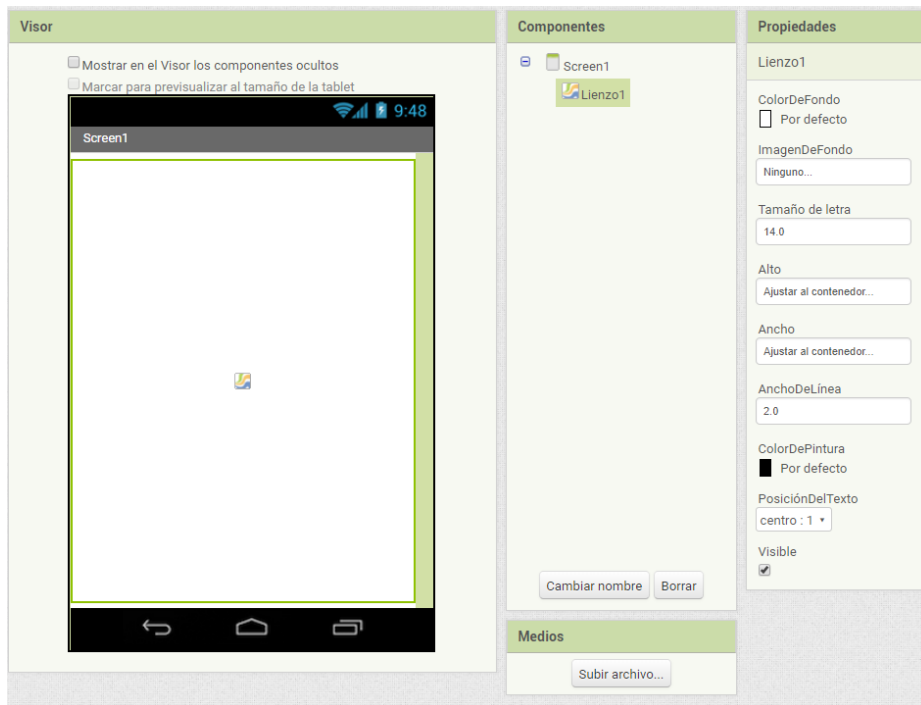


Blocks:

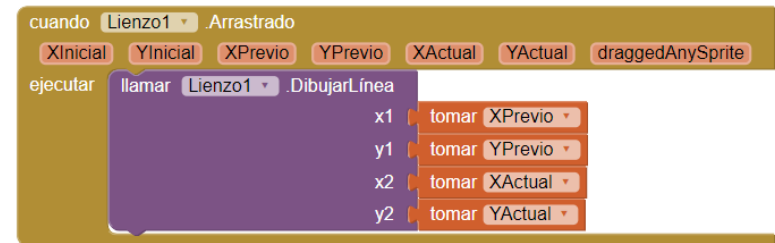


“Digital Doodle (scribbling)”

Designer:

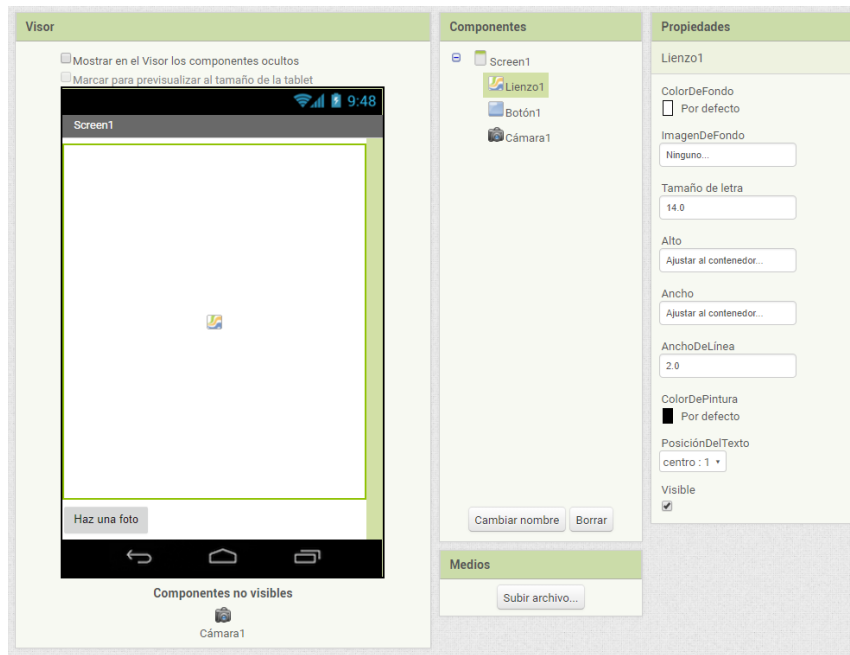


Blocks:

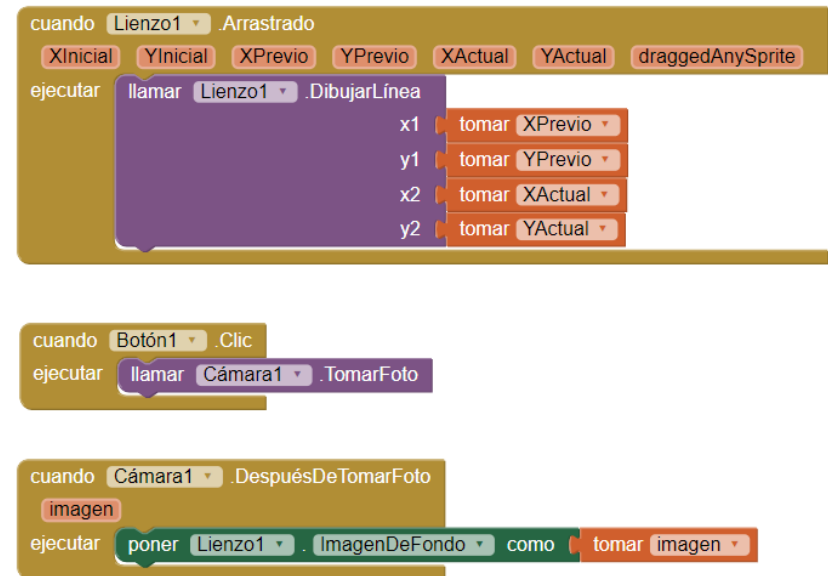


“Digital Doodle with Selfie”

Designer:



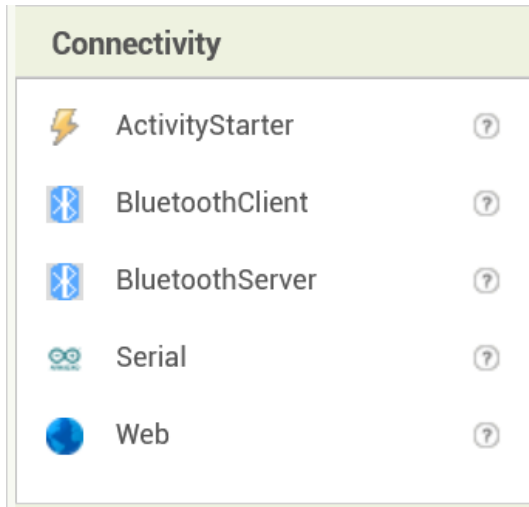
Blocks:



Extra practice:

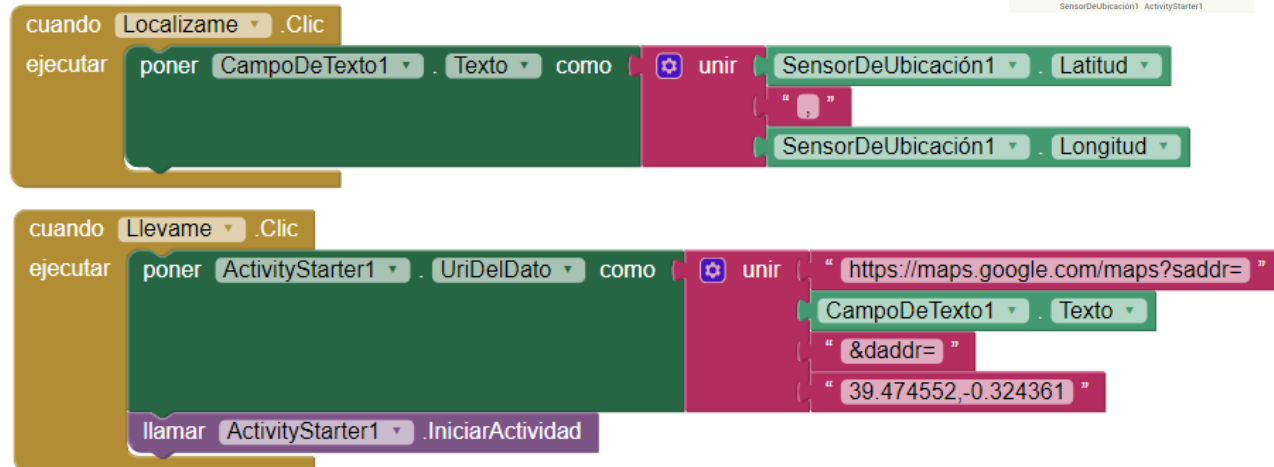
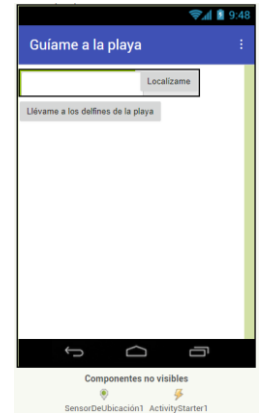
- Upgrade “Digital Doodle ” by changing the thickness and color of the pencil
- [App Inventor Maker Cards](#)

Connectivity 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.MapActivity
- **ActivityPackage:** com.google.android.apps.maps



Extra practice:

- AEMET OpenData

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

Storage Objects and local DB

Storage

- CloudDB
- DataFile
- File
- Spreadsheet
- TinyDB
- TinyWebDB

Practice:

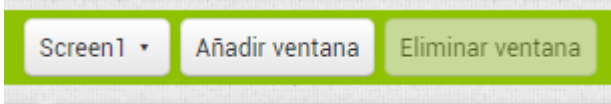
- Read a web content, write it into a file in your mobile device, and show the contents in the app. Example at <https://pastebin.com/raw/gZswkD1k> and here some clues:

```
initialize global URL_completa to ""

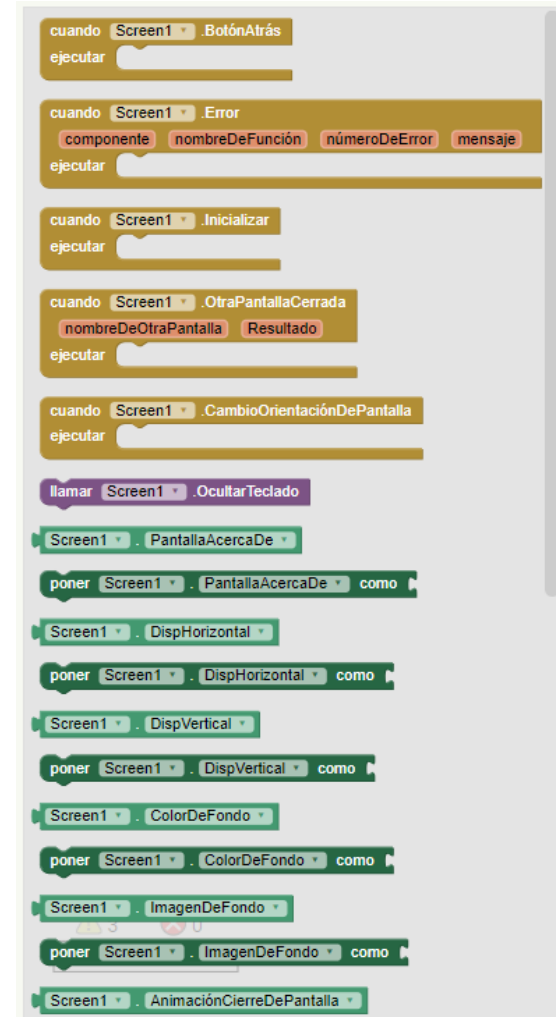
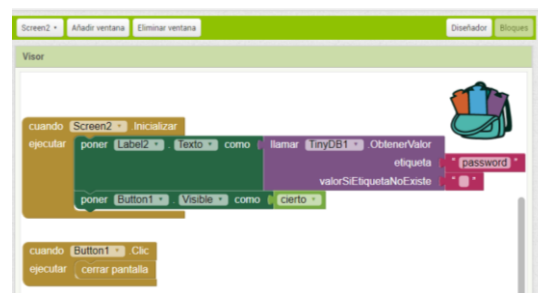
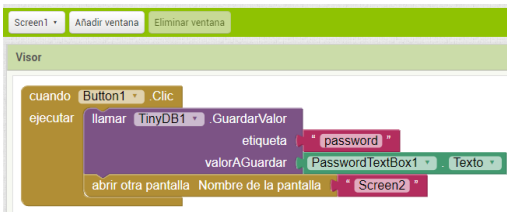
when Button1 .Click
do
  set global URL_completa to join (" https://pastebin.com/raw/ "
    TextBox1 . Text
  )
  set Web1 . Url to get global URL_completa
  call Web1 .Get
  set Label1 . Text to join (" Descargando fichero desde "
    get global URL_completa
  )
  set Label2 . Text to ""

when Web1 .GotText
  url responseCode responseType responseContent
do
  set Label1 . Text to "...contenido leído, grabando el fichero "fichero..."
  call File1 .SaveFile
  text get responseContent
  fileName join (
    TextBox1 . Text
    ".txt"
  )
  set Label1 . Text to join (" ...grabación finalizada del fichero: "
    TextBox1 . Text
    ".txt"
  )
  set Label2 . Text to get responseContent
```

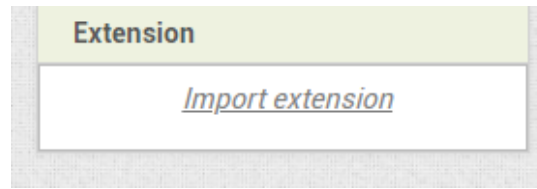
Working with several Screens and TinyDB



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 ...



Extensions



To work with extensions we will focus on:

- [App Inventor web site](http://appinventor.mit.edu/extensions/) (<http://appinventor.mit.edu/extensions/>),
- But, above all, [Pura Vida Apps](https://puravidaapps.com/extensions.php) (<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



i **Account Manager Extension** to get some information about the user



i **Alarm Extension** to set an alarm programmatically



i **Barometer Sensor Extension** to get the current pressure and altitude




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



i **Camera Extension** to take pictures programmatically without user interaction.



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



i **Flashlight Extension** to turn on/off the flashlight.



i **Headset Plug Status Extension** to get the headset plug status.



i **Image Extension** to do some basic image manipulation.



i **Light Sensor Extension** to get the illuminance



i **AES Encryption Extension** to encrypt/decrypt strings



i **Enhanced Audio Player Extension**



i **Battery Manager Extension** to provide battery information



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



i **Clipboard Extension** to copy/paste text to/from the clipboard



i **File Extension** is an extension related to the File component



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



i **Hotspot Extension** to toggle wifi hotspot on or off.



i **Image Metadata Extension** to read the metadata of an image file



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

Extensions



i **Mail Extension** to send emails via SMTP



i **Math Extension** to parse a mathematical expression



i **Simple Notification Extension** to send a notification



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



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



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



i **Take Screenshot Extension** to take a screenshot



i **Sharing Extension** offers the functionality of the Sharing component with some modifications



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



i **SQLite Extension** to access the local SQLite database



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



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



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



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



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



i **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)]**