



DIGITAL LEADERSHIP INSTITUTE

Translate It

- Why MIT App Inventor?
 - Open Source
 - Computational thinking, powerful, REAL coding in Android
 - Android: 80% of smartphone users
 - Google Store
- Resources:
 - MIT App Inventor: <http://appinventor.mit.edu/explore>
 - Coding: <http://hourofcode.org>
 - Us: <http://digitalmuse.org>
 - GOOGLE!!!!

DIGITAL LEADERSHIP INSTITUTE
INTERNATIONAL



DIGITAL LEADERSHIP INSTITUTE

Let's get started!

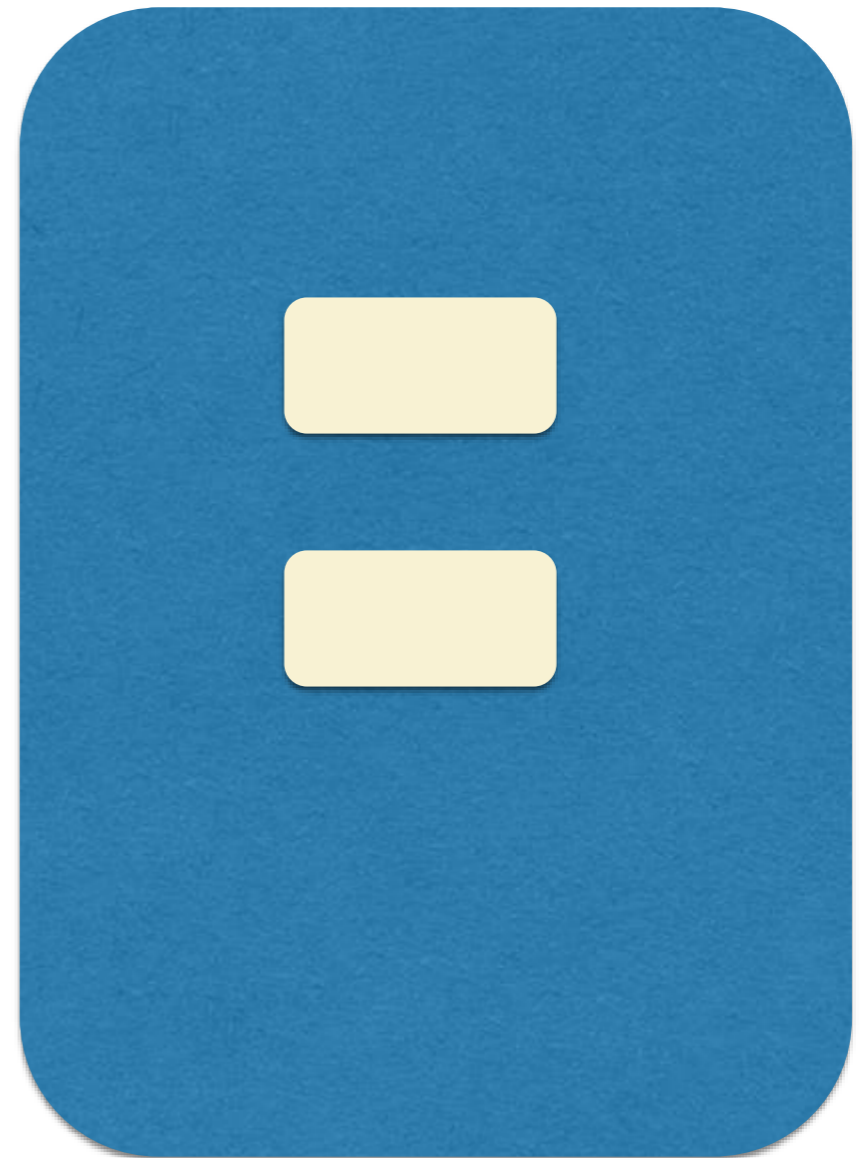
- Basic Necessities
 - Gmail Account
 - Login: <http://ai2.appinventor.mit.edu/>
 - Same WiFi for Both Devices
 - Computer
 - Device with "MIT App Inventor Companion App" from Google Play Store!
- Navigating MIT App Inventor
 - Design: User Interface
 - ◆ Elements, Properties, etc.
 - Blocks / Code: Behavior
- Start New Project
 - Give it a Name using CamelBackCase
 - "Translatelt"

DIGITAL LEADERSHIP INSTITUTE
INTERNATIONAL

Translate It: Translation app

First prototype

1. Once activated
2. It recognizes the words you speak
3. Translates them
4. To the language you selected
5. And speaks back the translated text





DIGITAL LEADERSHIP INSTITUTE

Design Editor

- Buttons, Images, Labels
- Non visible Components
- Properties of Components
- Image of Screen

Translatelt2019 Screen1 Add Screen ... Remove Screen Designer Blocks

Palette

Search Components...

User Interface

- Button
- CheckBox
- DatePicker
- Image
- Label
- ListPicker
- ListView
- Notifier
- PasswordTextBox
- Slider
- Spinner
- Switch
- TextBox
- TimePicker
- WebView

Layout

Media

Viewer

Display hidden components in Viewer

Screen1

About

Translate it

Components

- Screen1
 - AboutButton
 - TranslationButton
 - Notifier1
 - SpeechRecognizer1
 - TextToSpeech1
 - YandexTranslate1

Rename Delete

Media

Upload File ...

Properties

Screen1

AboutScreen

My first App

AccentColor

Default

AlignHorizontal

Center : 3

AlignVertical

Center : 2

AppName

Translatelt2019

BackgroundColor

Default

BackgroundImage

None...

BlocksToolkit

All

CloseScreenAnimation

Default

Icon

None...

OpenScreenAnimation

Zoom

PrimaryColor

Default

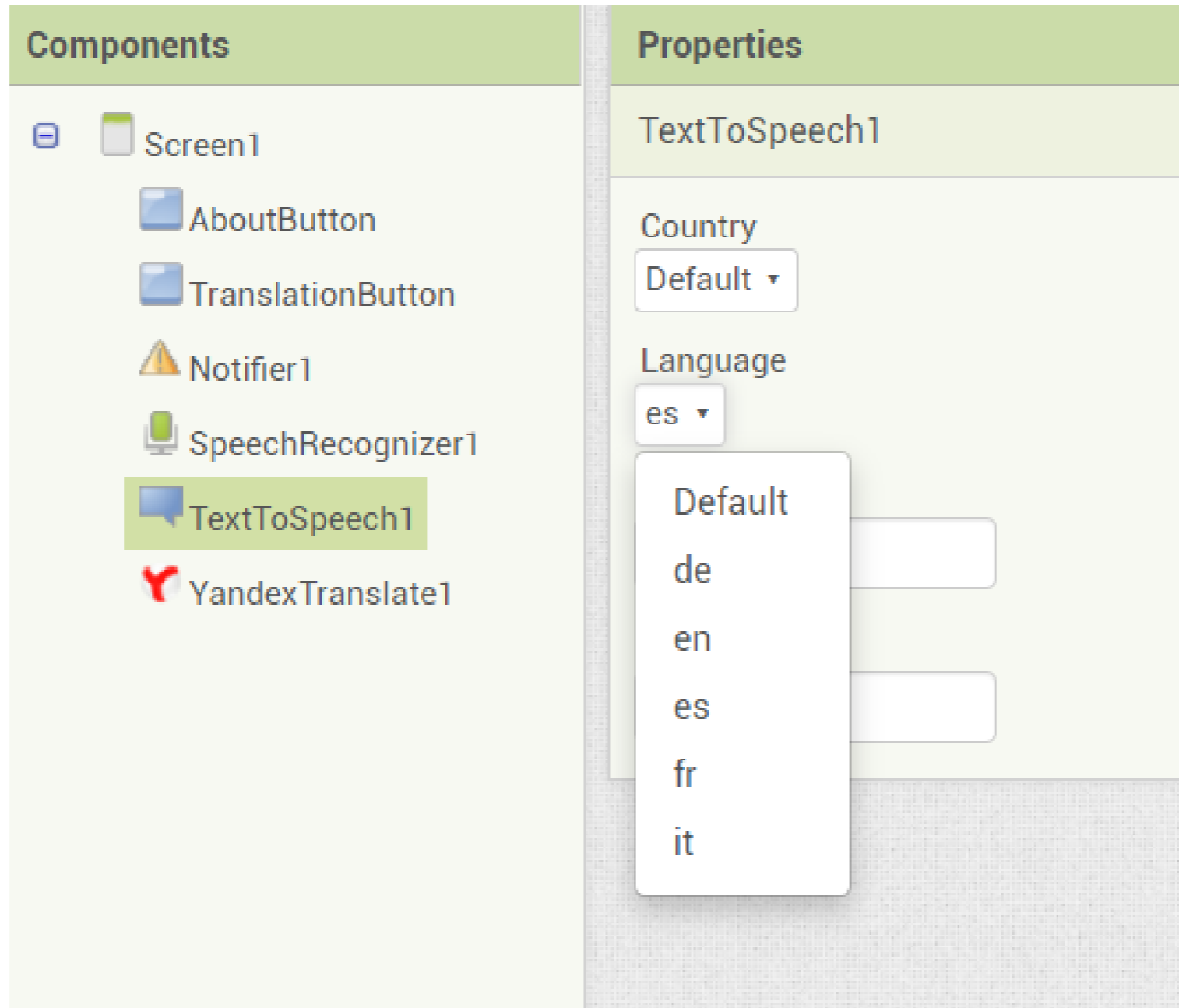


1. Setup User Interface

- **User Interface: Button**
 - Rename Button to "AboutButton"
 - Properties - Text: "About"
- **User Interface: Button**
 - Rename to "TranslateButton"
 - Properties - Text: Translation
- **User Interface: Notifier**
 - Nonvisible Component
 - Displays Alerts
- **Media: SpeechRecognizer**
 - Nonvisible Component
 - Component for using Voice Recognition to convert from speech to text
- **Media: TextToSpeech**
 - Nonvisible Component
 - Component speaks a given text aloud.
- **Media: YandexTranslate**
 - Nonvisible Component
 - component to translate words and sentences between different languages

2. Specify Language

- TextToSpeech component
 - Properties: Language (Select)



The screenshot displays a development environment with two main panels: Components and Properties.

Components Panel: Shows a tree view of the application components. The components listed are: Screen1, AboutButton, TranslationButton, Notifier1, SpeechRecognizer1, TextToSpeech1 (highlighted in green), and YandexTranslate1.

Properties Panel: Shows the properties for the selected TextToSpeech1 component. The properties are: Country (Default) and Language (es). A dropdown menu is open for the Language property, showing the following options: Default, de, en, es, fr, and it.



DIGITAL LEADERSHIP INSTITUTE

Setup Companion

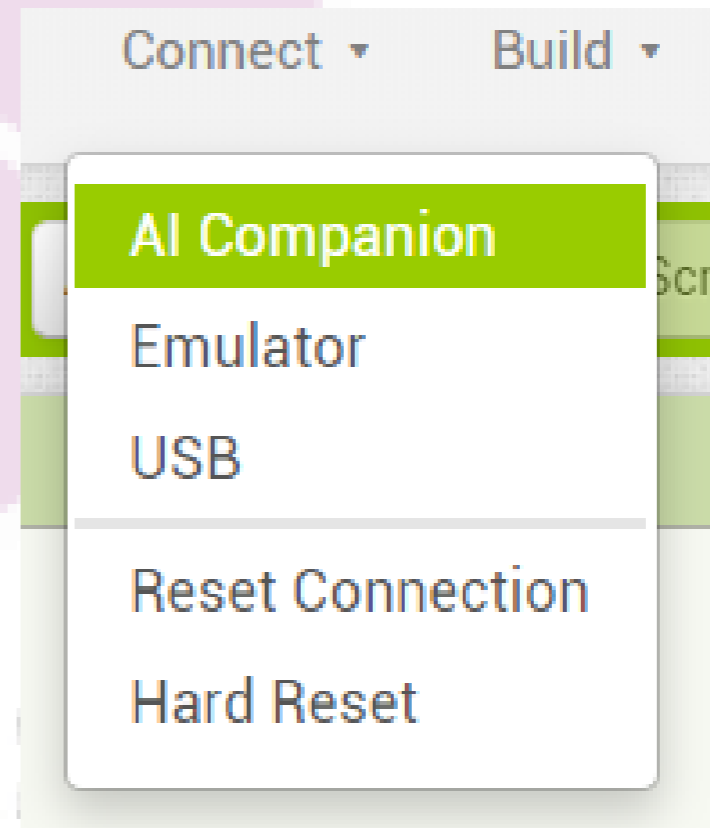


Build your project on
your computer



Test it in real-time on
your device

- Download and install the MIT AI2 Companion App on your phone from Google Playstore!
- Try it out already:
 - Connect: AI Companion
 - Use Companion to Scan QR Code
 - Should bring you to your App!!!



DIGITAL LEADERSHIP INSTITUTE
INTERNATIONAL



DIGITAL LEADERSHIP INSTITUTE

Blocks Editor

- Blocks Editor
 - Give all your components a behavior!
 - Built-in blocks are available regardless of which components are in your project.
 - In addition to these language blocks, each component in your project has its own set of blocks specific to its own events, methods, and properties. This is an overview of all of the Built-In Blocks available in the Blocks Editor.
 - Hover over elements to see what you can do with them
- Screen1: Everything you've made! :)



3. Enable Speech Recognizer

The screenshot displays a visual programming environment with two main panels: 'Blocks' on the left and 'Viewer' on the right.

Blocks Panel:

- Built-in:**
 - Control
 - Logic
 - Math
 - Text
 - Lists
 - Colors
 - Variables
 - Procedures
- Screen1:**
 - AboutButton
 - TranslationButton (highlighted)
 - Notifier1
 - SpeechRecognizer1
 - TextToSpeech1
 - YandexTranslate1

Viewer Panel:

The script in the viewer consists of two blocks:

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



DIGITAL LEADERSHIP INSTITUTE

3. Enable Speech Recogniser

- TranslationButton: When TranslationButton.Click Do (Control block)
- SpeechRecognizer: call SpeechRecognizer.get text (Purple)



4. Use Yandex Translate

The screenshot displays a visual programming environment with two main panels: 'Blocks' on the left and 'Viewer' on the right.

Blocks Panel:

- Built-in:**
 - Control
 - Logic
 - Math
 - Text
 - Lists
 - Colors
 - Variables
 - Procedures
- Screen1:**
 - AboutButton
 - TranslationButton
 - Notifier1
 - SpeechRecognizer1 (highlighted)
 - TextToSpeech1
 - YandexTranslate1

Viewer Panel:

The script in the viewer panel is as follows:

```
when SpeechRecognizer1 .AfterGettingText
  result partial
do
  call YandexTranslate1 .RequestTranslation
    languageToTranslateTo "es"
    textToTranslate get result
```



4. Use Yandex Translate

- SpeechRecognizer: When SpeechRecognizer.AfterGettingText (yellow)
- YandexTranslate: when YandexTranslate.RequestTranslation (purple)
 - languageToTranslateTo: Text (pink) : es (Spanish)
 - textToTranslate: Variable (orange): get result



5. Use TextToSpeech

The screenshot shows the Android Studio IDE with the 'Blocks' panel on the left and the 'Viewer' panel on the right. The 'Blocks' panel is expanded to show the 'YandexTranslate1' block. The 'Viewer' panel displays the following code block:

```
when YandexTranslate1 .GotTranslation  
  responseCode translation  
do call TextToSpeech1 .Speak  
  message get translation
```



DIGITAL LEADERSHIP INSTITUTE

5. Use TextToSpeech

- YandexTranslate: when YandexTranslate1.GotTranslation
- TextToSpeech: call TextToSpeech1.SpeakMessage (purple)
 - Variable: get translation (orange)



6. Add About Button (optional)

The screenshot shows a visual programming interface with two main panels: 'Blocks' on the left and 'Viewer' on the right.

Blocks Panel:

- Built-in:**
 - Control
 - Logic
 - Math
 - Text
 - Lists
 - Colors
 - Variables
 - Procedures
- Screen1:**
 - AboutButton
 - TranslationButton
 - Notifier1
 - SpeechRecognizer1
 - TextToSpeech1
 - YandexTranslate1

Viewer Panel:

The viewer displays a script for an event listener:

```
when AboutButton .Click
do
  call Notifier1 .ShowMessageDialog
    message join " This app translates your speech input in English "
              " into Spanish "
    title " About TranslateIt app "
    buttonText " OK "
```



DIGITAL LEADERSHIP INSTITUTE

6. Add About Button (optional)

- About Button: when AboutButton.click do (yellow)
 - Notifier: call Notifier.ShowMessageDialog (purple)
 - ◆ Message: Text Join (2 sentences): “nul” & “nul”:
 - ★ This app translates your speech input in English
 - ★ into Spanish
 - ◆ Title: Text - “nul”: About TranslateIt App
 - ◆ ButtonText: Text - “nul”: OK



You did it! Now test! :)

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

```
when SpeechRecognizer1 .AfterGettingText  
  result partial  
do call YandexTranslate1 .RequestTranslation  
  languageToTranslateTo " es "  
  textToTranslate get result
```

```
when YandexTranslate1 .GotTranslation  
  responseCode translation  
do call TextToSpeech1 .Speak  
  message get translation
```

```
when AboutButton .Click  
do call Notifier1 .ShowMessageDialog  
  message join " This app translates your speech input in English "  
  " into Spanish "  
  title " About TranslateIt app "  
  buttonText " OK "
```



Show Warnings



Keep Going!

- MIT App Inventor:
<http://appinventor.mit.edu/explore>
- Coding: <http://hourofcode.org>
- Us: <http://digitalmuse.org>
- GOOGLE!!!!

www.dlii.org