



**BUILD YOUR APP, TEACH
YOUR STUDENTS HOW TO
BUILD THEIR APPS!**

Florence, 23-29 May, 2022

Build Your App, Teach Your Students How to Build Their Apps!

- **What is an App?"**
 - What is an App?
 - What's the purpose of creating Apps?
 - Which sort of problems do they help to solve?
 - Introduction to programming: basic principles, programming language and understanding programming logic.

What is an App?"

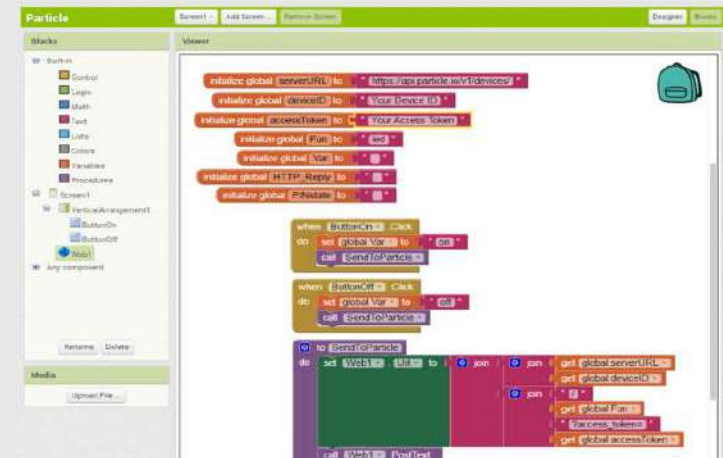
- An app, which is short for "application," is a **type of software that can be installed and run on a computer, tablet, smartphone or other electronic devices**. An app most frequently refers to a mobile application or a piece of software that is installed and used on a computer.



Get to know MIT App Inventor



- Introduction to MIT App Inventor.
- Getting familiar with MIT App Inventor Interface.
- Introduction to MIT App Inventor designing tools. Tutorial and practical activity: Designing an app (Level 1).





- **App Inventor is a free, cloud-based service that allows you to make your own mobile apps using a blocks-based programming language. You access App Inventor using a web browser (Chrome, Firefox, Safari). With these beginner-friendly tutorials, you will learn the basics of programming apps for Android and iOS phones and tablets.**
- **You will need:**
 - **A Mac or Windows computer**
 - **A Wi-Fi connection**
- **You will make a mobile app, so it's fun to see it run on a phone or tablet while you build the app (and after!). Some setup is required to run your apps.**



Beginner Tutorials



<https://www.youtube.com/watch?v=7J6DRrI5UnM>

Building with MIT App Inventor

- **The MIT App Inventor Site**

- MIT App Inventor lives on the Web, just like other online productivity tools such as Gmail and Google Drive. You do not need to download any software or save work to your hard drive before you use App Inventor



- The Designer interface in MIT App Inventor.

The choice of web browser is very important; the App Inventor team recommends using Google Chrome or Firefox. Choosing a different browser, such as Internet Explorer, could result in errors or other complications when working with App Inventor.

Exploring the App Inventor site is a good way to get a feel for what is available. To begin, launch your browser and go to appinventor.mit.edu The home page includes the portal to the App Inventor tool, along with many online tutorials and other helpful materials.

Signing In

- Signing In
- To begin a session with App Inventor, click the Create button at the top of the home page (see Figure 2.2).



- **Figure 2.2**
- **Figure 2.2 The App Inventor home page—click Create to get started.**

Next, App Inventor asks permission to connect to your Google account. This can be a personal Google account (one that ends with an @gmail.com address) or a Google apps account managed by a university, business, or other type of organization (see Figure 2.3).

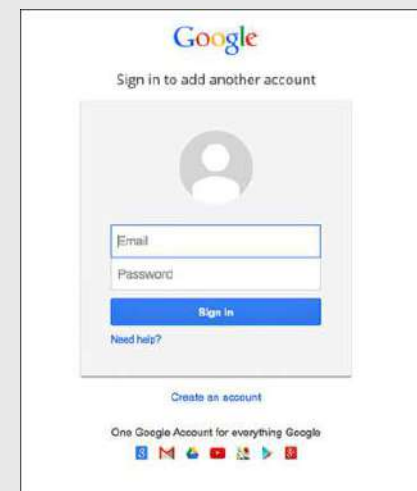


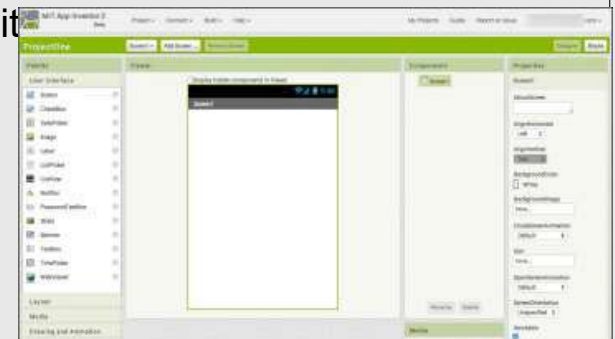
Figure 2.3

Figure 2.3 Add your Google account to connect to App Inventor.

After signing in with your Google account, you must authorize App Inventor to access your Google account so that it can verify your login information. If you select Remember This Approval for the Next 30 Days, then you will not need to repeat this step when you return to work on apps (see Figure 2.4). At the end of the 30 days, you simply need to reauthorize access.

Designer

- **Designer**
- App building begins in the Designer. Here you create the user interface, or the “look and feel” of the app. You also add the components needed to receive input from the user, as well as the components needed to display output or information to the user. The Designer also is where you specify which nonvisible components the app will use, such as the dialer, GPS, or SMS. Notice that because we are in Designer, the Designer button in [Figure 2.5](#) is slightly grayed out in the top-right corner of the screen. This button, along with the one next to it, labeled Blocks, indicates which editor you are using.
- The left side of the screen features the Palette (see [Figure 2.5](#)), which, as the name implies, is the space for all the creation tools (the next chapter details the full suite



AndroidSpeaks

Screen1 ▾ Add Screen ... Remove Screen

Designer Blocks

Palette

User Interface

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

Layout

Media

Drawing and Animation

Viewer

Display hidden components in Viewer



Non-visible components

TextToSpeech1

Components

- Screen1
 - Speak
 - TextToSpeech1

Rename Delete

Media

Properties

Screen1

- AboutScreen
- AlignHorizontal: Left
- AlignVertical: Top
- BackgroundColor: White
- BackgroundImage: None...
- CloseScreenAnimation: Default
- Icon: None...
- OpenScreenAnimation: Default
- ScreenOrientation: Unspecified
- Scrollable:

Project Name →

EventApp Screen1 Add Screen ... Remove Screen

The **Palette** contains drawers, in which you find **Components**.

Palette

User Interface

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

Layout

Media

Drawing and Animation

Sensors

Social

Storage

Connectivity

LEGO® MINDSTORMS®

Viewer

Display hidden components in Viewer



This is **Screen1** of the **Viewer**.

Drag **Components** from the **Palette** to the **Viewer** to build your app.

Components

Screen1

Active **Components** will appear here.

Rename or delete **Components** in your list here.

Rename Delete

Properties

Screen1

AboutScreen

AlignHorizontal Left -

AlignVertical Top -

AppName EventApp

BackgroundColor White

BackgroundImage None...

CloseScreenAnimation Default -

Icon None...

OpenScreenAnimation Default -

ScreenOrientation Unspecified -

Scrollable

ShowStatusBar

Title Screen1

TitleVisible

Drawers

Non-visible Components appear here.

Media files get uploaded here.

Media

Upload File ...

Change **Components Properties** here

Blocks Editor



- The Blocks Editor is where you will be programming an app's behavior (see [Figure 2.6](#)). Here you will add the commands that do the work of the app. As just noted, you access it from the Blocks button at the top right.
-
- MIT App Inventor uses the metaphor of drawers containing puzzle pieces for programming. Each item in the Blocks palette under Built-in is considered a drawer. The drawers contain the puzzle-looking pieces. The programming is accomplished by connecting the puzzle-looking pieces. Despite its seeming simplicity, App Inventor has many powerful capabilities that enable the user to build complex applications.
- To better understand what programming an app entails, it is useful to understand what is going on inside an application.



Fling

Screen1 ▾ Add Screen ... Remove Screen

Designer Blocks

Blocks

Viewer

Built-in

- Control
- Logic
- Math
- Text
- Lists
- Colors
- Variables
- Procedures

Built in Blocks

Screen1

Canvas1

Ball1

HorizontalArrangement1

Play_Button

Score

Reset_Button

Any component

Rename

Delete

Media

Upload File ...

⚠ 0 🔴 0

Show Warnings

Backpack



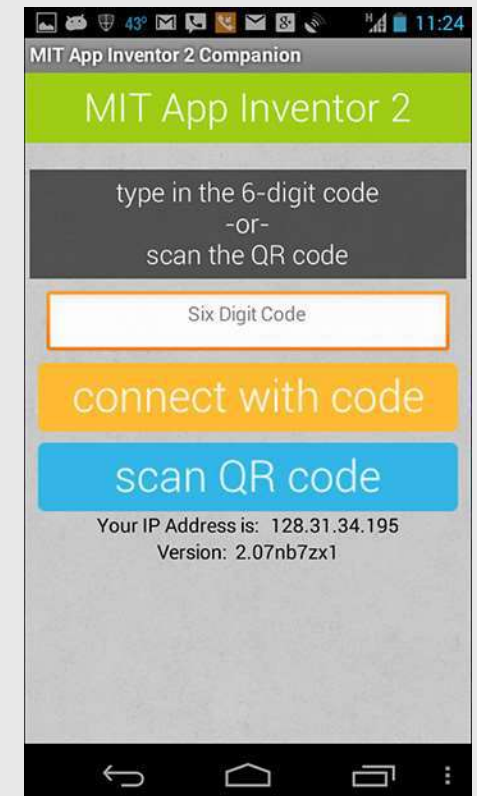
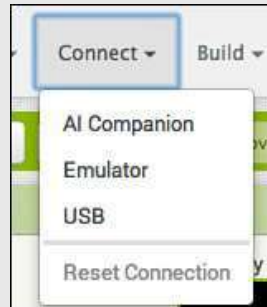
Trash



Your Component Blocks

The AI2 Companion App

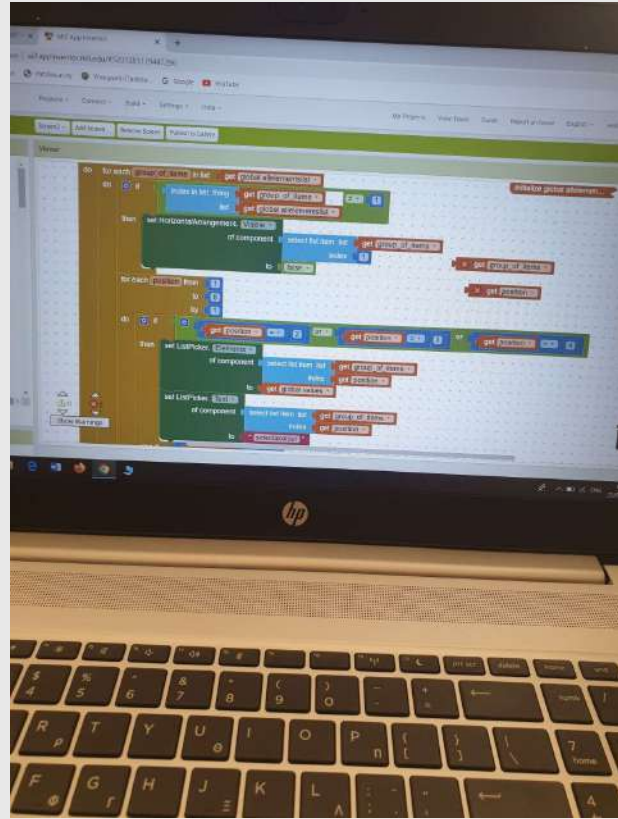
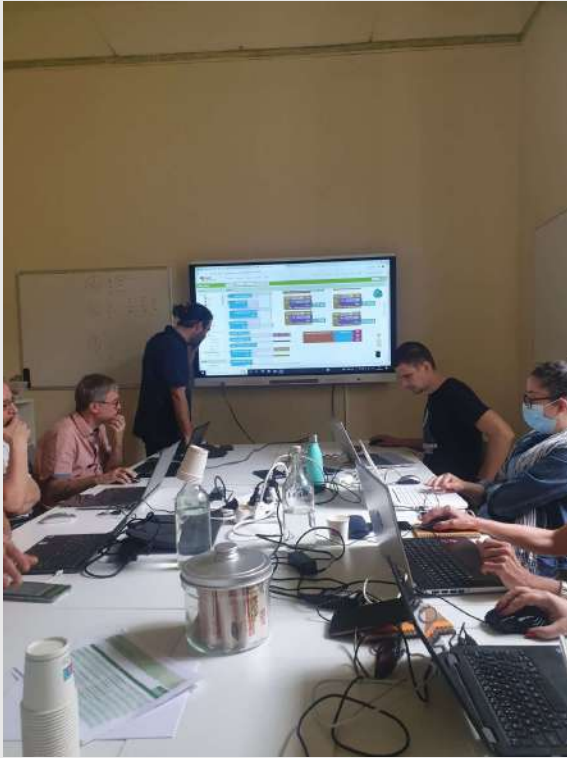
- **The AI2 Companion App**
- App Inventor has a useful tool for continuously seeing your app in real time on an Android device during each step of the development process.
- You can find the MIT AI2 Companion app (see [Figure 2.7](#)) in the Google Play Store by performing a search for “MIT AI2 Companion.”
- When you are building your app, the computer and Android device must be connected to the same wireless network (the desktop machine might have a wired connection). To connect your app to your device in App Inventor on your computer, click AI Companion on the Connect tab (see [Figure 2.8](#)).

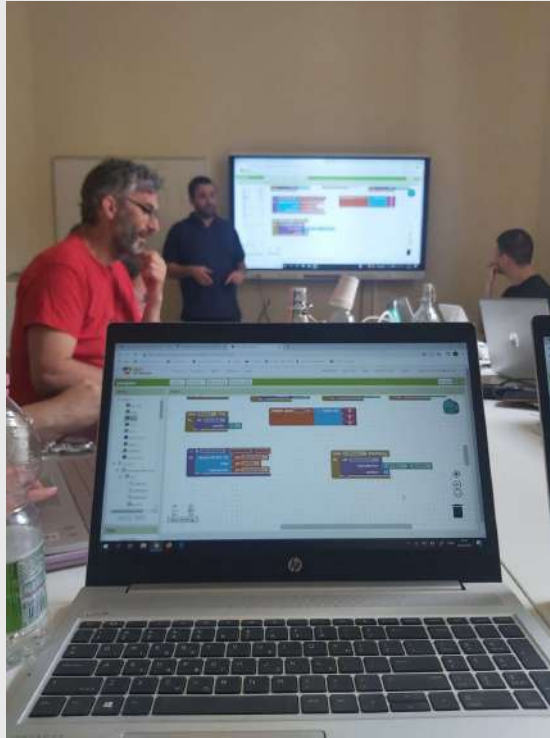


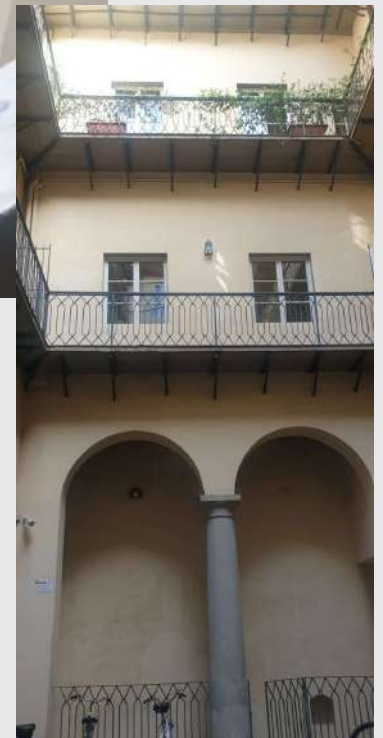
- You can then type in a six-digit code or scan the QR code with your device (see [Figure 2.9](#)), using the App Inventor app. Doing so brings up a live view of your app. As you add elements to it with the MIT App Inventor software, those changes are reflected in real time on your device.

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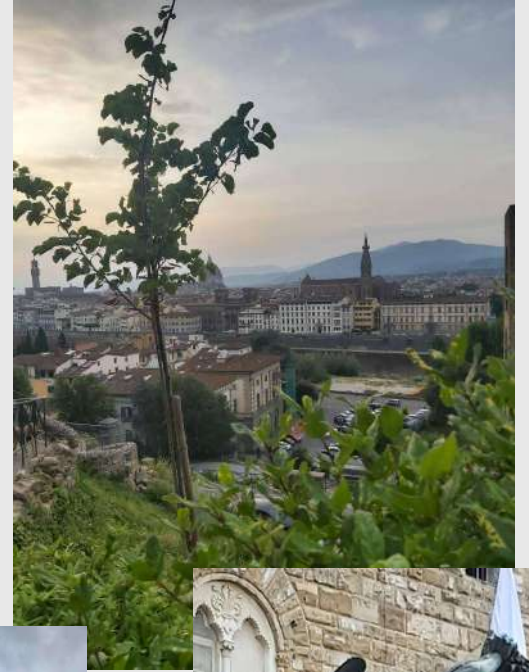








ΤΟ «ΣΧΟΛΕΙΟ» ΜΑΣ





Grazie per l'attenzione