We4
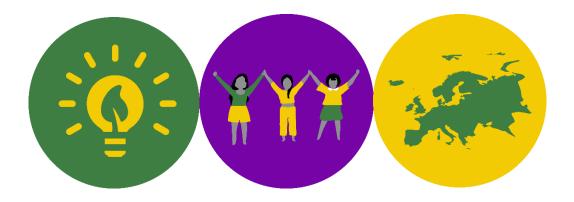Change

Girls and Women Connecting
for Environmental Change

We4Change: Girls and Women Connecting for Environmental Change

We4Change Changemakers Event Curriculum

Trainer instructions for the workshop
Translate it!
Create a voice translation app with MIT App Inventor

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Introduction

The smartphone is an information nexus in today's digital age, with access to a nearly infinite supply of content on the web, coupled with rich sensors and personal data. However, people have difficulty harnessing the full power of these ubiquitous devices for themselves and their communities. Most smartphone users consume technology without being able to produce it, even though local problems can often be solved with mobile devices. How then might they learn to leverage smartphone capabilities to solve real-world, everyday problems? MIT App Inventor is designed to democratize this technology and is used as a tool for learning computational thinking in a variety of educational contexts, teaching people to build apps to solve problems in their communities.

MIT App Inventor is an intuitive, visual programming environment that allows everyone even children to build fully functional apps for smartphones and tablets. Those new to MIT App Inventor can have a simple first app up and running in less than 30 minutes. And what's more, the blocks-based tool facilitates the creation of complex, high-impact apps in significantly less time than traditional programming environments.
The MIT App Inventor project seeks to democratize software development by empowering all people, especially young people, to move from technology consumption to technology creation.

The MIT App Inventor user interface includes two main editors: the design editor and the blocks editor. The design editor, or designer (see Fig. 3.1), is a drag and drop interface to lay out the elements of the application's user interface (UI). The blocks editor (see Fig. 3.2) is an environment in which app inventors can visually lay out the logic of their apps using color-coded blocks that snap together like puzzle pieces to describe the program. To aid in development and testing, App Inventor provides a mobile app called the App Inventor Companion (or just "the Companion") that developers can use to test and adjust the behavior of their apps in real time. In this way, anyone can quickly build a mobile app and immediately begin to iterate and test.

About the workshop

The workshop "Translate it! Create a voice translation app with MIT App Inventor" is designed following the project-based learning approach, to give students the

opportunity to develop knowledge and skills through engaging projects set around challenges and problems they may face in the real world. In this case, they learn how to develop a translation app that users can use in different contexts that pose language barriers.

The workshop is dedicated to a group of maximum 20-30 students and has a duration of 2h. The students have little or no previous experience in app development.

The structure of the workshop is the following:
- Introduction to the MIT App Inventor platform and its elements;
- Discussion about the kind of app they will develop, an initial discussion about the components that it should include and the design of the prototype;
- Step-by-step development of the app;
- Testing, troubleshooting and Q&A with the students.

Follow the **workshop script and PowerPoint** presentation to follow this structure.

Learning objectives:

- ➢ Students will recognize the different elements of the MIT App Inventor platform: the design editor and the blocks editor, and the pallet of components.
- ➢ Students will be able to navigate the MIT App Inventor platform – login, create new projects, save their projects – and set-up and use the AI2 Companion App – download on the phone and use it to test their projects.
- ➢ Students will discuss the logic behind the introduction of different components (visible and invisible) that will be part of the final app they will create
- ➢ Students will demonstrate understanding of the role of each component in relation with another one (how actions of a component determine follow-up actions of another component)

Set-up instructions:

- ➢ A workshop room that can accommodate 20-30 people.
- ➢ A good internet connection (WiFi)
- ➢ Participants need access to a computer and an Android mobile device, connected to the same Wi-Fi connection. If not every participant has her own

computer, they can also be grouped, with maximum 3 students using one single computer.

➢ The trainer needs a computer connected to a projector/screen that will allow the participants to follow the step-by-step development of the app

➢ To access the MIT App Inventor platform, the students need a Gmail account. If they don't have one, allow 5 minutes for the students to create Gmail accounts.

➢ Foresee sufficient extension cords to ensure the computers and mobile device are connected to a power supply.

Engage the students

The students are new to the MIT App Inventor platform, and they might find it unrealistic that at the end of the workshop they would have created a functional app on their mobile devices. The trainer's role is also to animate the workshop to give space to participants to express their frustrations when learning a new skill and encourage and support them to overcome these challenges by creating a judgement-free learning environment. Here are a few tips on how to do this:

➢ Be clear with the fact that you are not a tech specialist yourself! You are all learning and discovering the tools together.

➢ At the beginning of the workshop briefly explain what the workshop is about and what results they should expect.

➢ Share that errors when developing tech products are more common than they think. They should not be discouraged if their app doesn't work properly in the moment of the testing. Ask them to **troubleshoot**: review the code (from the script presentation) to make sure everything is correct and to reestablish the connection with the companion app.

➢ Highlight when participants solve the errors they encounter and support them to explain it to their peers.

➢ Share with them that the quick answer to their tech challenges is one internet search away ("to Google" has become a widely used verb for this very reason; we can "google" everything!)

Further information on how to teach with MIT App Inventor can be found here:
https://appinventor.mit.edu/explore/teach