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# C2 Short-Term Training, Fondazione Mondo Digitale

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## Materials and Requirements



Edu4AI

Artificial Intelligence and Machine Learning to foster 21st century skills in secondary education



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# EDU4AI project: Autonomous driving vehicle recognizing traffic signs - FMD

## Software

- To create, train and export an AI image recognition model (\*)

<https://teachablemachine.withgoogle.com/>

(\*) this part is done on a Windows computer or laptop, the robot car and the Raspberry Pi are not required here.

- To set-up the Raspberry Pi and program the robot vehicle:

Download the Raspberry Pi OS with desktop from

<https://www.raspberrypi.com/software/operating-systems/> and download the

Raspberry Pi Imager software for Windows from

<https://www.raspberrypi.com/software/> to copy the OS image on the Raspberry Pi SD.

To interface with the Raspberry Pi from your Windows computer or laptop, instructions to download and install VNC server on the Raspberry Pi are on the Teacher's guide document, section 1.4; to download and install VNC viewer on your Windows computer or laptop:

<https://www.realvnc.com/download/file/viewer.files/VNC-Viewer-6.21.920-Windows.exe>

## Other materials

- For the creation, training and exporting of the AI model it will be necessary a Windows computer or laptop with access to the internet and a webcam.
- To train the AI model, possibly print in colour images of traffic signs, one for each type of traffic sign you want to consider, e. g. "stop", "left turn", "right turn", "give way", "no entry", ...
- The list of hardware parts you need to create the robot car is reported in the Teacher's Guide document with assembly instructions.

# EDU4AI project: Control a DIY robotic car with voice commands – EDUMOTIVA

## Software

For creating and programming the application: MIT App Inventor

<https://appinventor.mit.edu/>

For programming the robotic car: Arduino IDE (for writing and uploading the main code)

<https://www.arduino.cc/en/software>

For warm up activities that will help students pass smoothly into Arduino IDE text-based coding we recommend:

mBlock <https://mblock.makeblock.com/en-us>

or Pictoblox <https://thestempedia.com/product/pictoblox/>

## Other materials

[Here](#) you can find a full list with all the hardware you need for creating the robotic car. The file contains 3 sheets:

- the first one contains all the components that you will need (electronics included) for the robotic car,
- the second one contains indicative materials for crafting,
- the third one recommends kits with all the needed components to make a chassis or a full kit for a robotic car.

Indicative suggestions regarding the quantity and the places/stores where you can find the majority of the components are also included.

# EDU4AI project: Virtual Secretary's Office – AIJU

## Software

The [DialogFlow](#) platform will be used for making a Chabot that will be a virtual secretary assistant. [DialogFlow](#) actually is a conversational IA, the last generation that can process natural language in several different idioms. Users can use two editions, being the first, [Dialogflow CX](#), which is an advanced version that is thought for designing the architecture of conversational assistant. The agents of this version can handle conversations with real users and even a module that allows natural comprehension, which is very accurate and can analyze different situations easily. Furthermore, this version can translate texts and audio when the conversation is happening.

The second, and the edition that will be used, is [DialogFlow \(Standard\)](#) that offers an interface very friendly. This service allows developing conversation assistants that can be used for several people without needing to know how to program, because the platform allows the users to create a Chabot that can be deployed over different apps as can be Messenger from Facebook, Telegram, LINE, WhatsApp, Twitter, Skype, and many more others.

To work with [DialogFlow](#) it will be necessary that the user has a [Gmail account](#) because this service is a Google tool and to work with whatever service Google always needs.

Below is the website where [DialogFlow](#) is deployed.

Here, you can consult the [DialogFlow](#) documentation:  
<https://cloud.google.com/dialogflow/docs/>

## Other materials

In addition, it will be necessary to have a computer or laptop with access to the internet and a smartphone where users can connect with the Virtual Secretary or chatbot for interacting with each other.