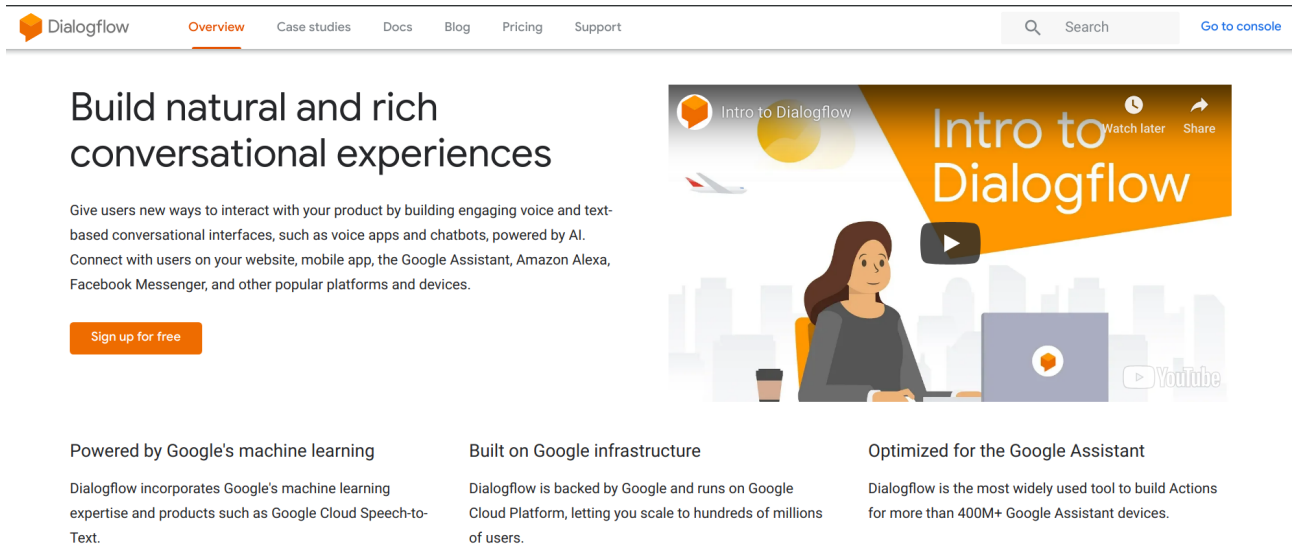


# DialogFlow API Setup for Moving Dobot Arm

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Make sure the json file of the service\_account is downloaded for the project. Required for authorization.

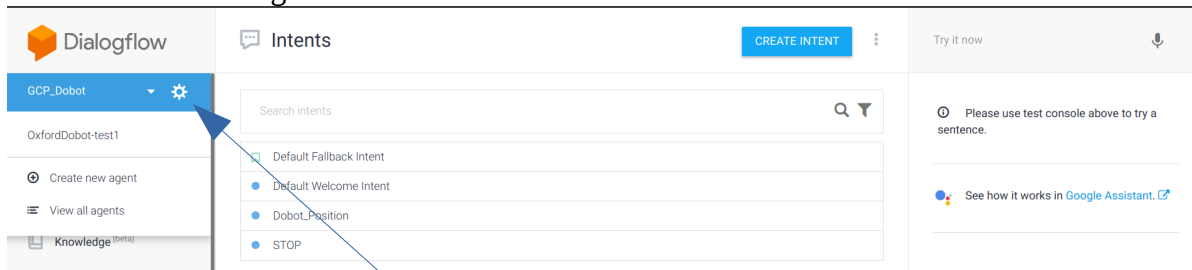
## 1. Go to dialogflow.com



The screenshot shows the Dialogflow website homepage. At the top, there is a navigation bar with the Dialogflow logo, menu items (Overview, Case studies, Docs, Blog, Pricing, Support), a search bar, and a 'Go to console' link. The main content area features a large heading 'Build natural and rich conversational experiences' and a sub-heading 'Give users new ways to interact with your product by building engaging voice and text-based conversational interfaces, such as voice apps and chatbots, powered by AI. Connect with users on your website, mobile app, the Google Assistant, Amazon Alexa, Facebook Messenger, and other popular platforms and devices.' Below this is a 'Sign up for free' button. To the right is a video player titled 'Intro to Dialogflow'. Below the main content, there are three columns of text: 'Powered by Google's machine learning', 'Built on Google infrastructure', and 'Optimized for the Google Assistant'.

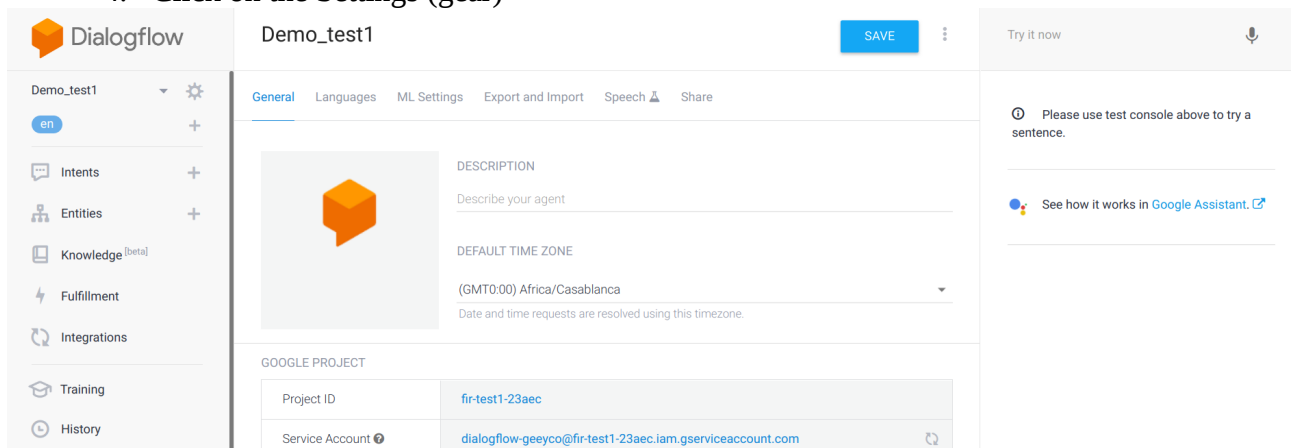
## 2. Go to console (top right)

## 3. Create new agent



The screenshot shows the Dialogflow console interface. On the left, there is a sidebar with the Dialogflow logo and a list of agents: 'GCP\_Dobot', 'OxfordDobot-test1', 'Create new agent', 'View all agents', and 'Knowledge (beta)'. A blue arrow points to the gear icon next to 'GCP\_Dobot'. The main area is titled 'Intents' and contains a search bar, a 'CREATE INTENT' button, and a list of intents: 'Default Fallback Intent', 'Default Welcome Intent', 'DobotLPosition', and 'STOP'. On the right, there is a 'Try it now' section with a microphone icon and a message: 'Please use test console above to try a sentence.' Below this is a link: 'See how it works in Google Assistant.'.

## 4. Click on the Settings (gear)



The screenshot shows the Dialogflow console interface for the 'Demo\_test1' agent. The left sidebar shows the agent name 'Demo\_test1' with a gear icon and a plus sign. Below it are icons for 'Intents', 'Entities', 'Knowledge (beta)', 'Fulfillment', and 'Integrations'. At the bottom of the sidebar are 'Training' and 'History'. The main area is titled 'Demo\_test1' and has a 'SAVE' button. Below the title are tabs for 'General', 'Languages', 'ML Settings', 'Export and Import', 'Speech', and 'Share'. The 'General' tab is active and shows a 'DESCRIPTION' field with the text 'Describe your agent', a 'DEFAULT TIME ZONE' dropdown menu set to '(GMT0:00) Africa/Casablanca', and a 'GOOGLE PROJECT' section with a table containing 'Project ID' (fir-test1-23aec) and 'Service Account' (dialogflow-geeyco@fir-test1-23aec.iam.gserviceaccount.com). On the right, there is a 'Try it now' section with a microphone icon and a message: 'Please use test console above to try a sentence.' Below this is a link: 'See how it works in Google Assistant.'.

5. Click the Service Account link, will take you to Google Cloud Platform page

The screenshot shows the Google Cloud Platform interface. The top navigation bar includes the Google Cloud Platform logo, the project name 'Demo-test1', and a search icon. The left sidebar shows the 'IAM & admin' menu with 'Service accounts' selected. The main content area is titled 'Service accounts for project "Demo-test1"' and includes a description: 'A service account represents a Google Cloud service identity, such as code running on Compute Engine systems running outside Google. [Learn more](#)'. Below the description is a table of service accounts.

<input type="checkbox"/>	Email	Name ↑	Description
<input type="checkbox"/>	<a href="mailto:fir-test1-23aec@appspot.gserviceaccount.com">fir-test1-23aec@appspot.gserviceaccount.com</a>	App Engine default service account	
<input type="checkbox"/>	<a href="mailto:dialogflow-geeyco@fir-test1-23aec.iam.gserviceaccount.com">dialogflow-geeyco@fir-test1-23aec.iam.gserviceaccount.com</a>	Dialogflow Integrations	
<input type="checkbox"/>	<a href="mailto:firebase-adminsdk-6g104@fir-test1-23aec.iam.gserviceaccount.com">firebase-adminsdk-6g104@fir-test1-23aec.iam.gserviceaccount.com</a>	firebase-adminsdk	Firebase Admin SDK Service Agent

6. Select the account created above

This close-up screenshot shows the service accounts table with the 'dialogflow-geeyco@fir-test1-23aec.iam.gserviceaccount.com' account selected. The context menu is open, showing options: 'Edit', 'Delete', and 'Create key'.

<input type="checkbox"/>	Email	Name ↑	Description	Creation date	Actions
<input type="checkbox"/>	<a href="mailto:fir-test1-23aec@appspot.gserviceaccount.com">fir-test1-23aec@appspot.gserviceaccount.com</a>	App Engine default service account			⋮
<input checked="" type="checkbox"/>	<a href="mailto:dialogflow-geeyco@fir-test1-23aec.iam.gserviceaccount.com">dialogflow-geeyco@fir-test1-23aec.iam.gserviceaccount.com</a>	Dialogflow Integrations		Jan 28, 2019	⋮
<input type="checkbox"/>	<a href="mailto:firebase-adminsdk-6g104@fir-test1-23aec.iam.gserviceaccount.com">firebase-adminsdk-6g104@fir-test1-23aec.iam.gserviceaccount.com</a>	firebase-adminsdk	Firebase Admin SDK Service Agent		⋮

7. Choose Create Key and then JSON. Download and keep it safe. You will need this for authorization.

### Create private key for "Dialogflow Integrations"

Downloads a file that contains the private key. Store the file securely because this key can't be recovered if lost.

**Key type**

JSON

Recommended

P12

For backward compatibility with code using the P12 format

CANCEL CREATE

8. Follow steps below to create intents and then run the program.

Creating and training Intent to move the Dobot arm:

- Need to choose each number (with the mouse) and select '@sys.number-integer'.
- Declaring several such training phrases

The screenshot shows the Dialogflow training phrases interface. A text input field at the top contains the phrase "go to 100 200 and 300". Below it is a table of training phrases. A dropdown menu is open over the table, showing a list of intent types. The first option, "@sys.number-int...:number-integer", is highlighted in blue. Other options include "@sys.geo-country-code", "@sys.number-integer", "@sys.temperature", "@sys.geo-country", and "@sys.age". At the bottom of the dropdown menu is a "+ Create new" button.

Training Phrase	Intent Type
go to 100 200 and 300	@sys.number-int...:number-integer
go to 64 87 34	@sys.number-integer
go to 175 243 199	@sys.number-integer
go to 6 9 1	@sys.number-integer
go to 0 95 131	@sys.number-integer
go to 0 66 and 182	@sys.temperature
go to 198 26 and 211	@sys.geo-country
move to 0 176 11	@sys.age
ok Dobot go to 20 0 a	
Dobot move to 200 37 and 250	

” go to 64 87 34			
” go to 175 243 199			
PARAMETER NAME	ENTITY	RESOLVED VALUE	
number-integer	@sys.number-integer	175	×
number-integer	@sys.number-integer	243	×
number-integer	@sys.number-integer	199	×
” go to 6 9 1			
” go to 0 95 131			
” go to 0 66 and 182			
” go to 198 26 and 211			
” move to 0 176 11			
” ok Dobot go to 20 0 and 0			
” Dobot move to 200 37 and 250			

Extracting x, y and z positions: Set up Action and Parameters as below

### Action and parameters



Enter action name

REQUIRED ?	PARAMETER NAME ?	ENTITY ?	VALUE	IS LIST ?
<input type="checkbox"/>	number-integer	@sys.number-integer	\$number-integer	<input checked="" type="checkbox"/>
<input type="checkbox"/>	Enter name	Enter entity	Enter value	<input type="checkbox"/>

## Then Responses

Responses 



DEFAULT

GOOGLE ASSISTANT




Text response




- 1 \$number-integer
- 2 Enter a text response variant

ADD RESPONSES

Set this intent as end of conversation 

## Creating and training Intent to close the connection:

Training phrases 

Search training phrases



” Add user expression

” STOP THE PROGRAM

” END THE PROGRAM

” CLOSE THE PROGRAM

” END THE CONNECTION

” TERMINATE THE CONNECTION

” STOP THE CONNECTION

” CLOSE THE CONNECTION

## Action and parameters



Enter action name

REQUIRED ?	PARAMETER NAME ?	ENTITY ?	VALUE	IS LIST ?
<input type="checkbox"/>	Enter name	Enter entity	Enter value	<input type="checkbox"/>

+ New parameter

## Responses ?



DEFAULT GOOGLE ASSISTANT +

Text response ?

1	STOP
2	Enter a text response variant

Test the model here

The screenshot shows the Dialogflow console for the 'Dobot\_Position' intent. The interface includes a sidebar with navigation options like 'Intents', 'Entities', and 'Knowledge'. The main content area is divided into sections for 'Contexts', 'Events', and 'Training phrases'. A 'Try it now' button with a microphone icon is highlighted with a red box. Below it, a message reads: 'Please use test console above to try a sentence.' A 'SAVE' button is visible in the top right of the configuration area.

Once everything seems fine, run the code GCP\_VirtualDobot\_v3.py

Make sure the required packages are installed (see code).