

# Google Home Midterm Presentation

Mehmet Kardan, Hanna Köb, Mathias Meinschad, Daniel Linter

University of Innsbruck - SIT

April 22, 2020

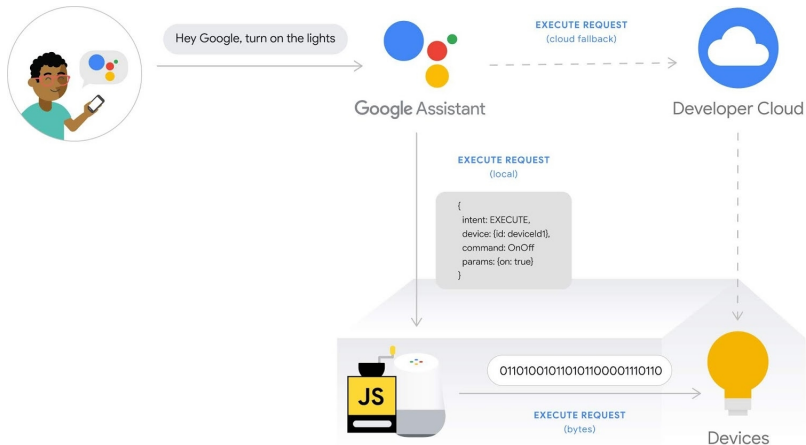
# Overview

- 1 Overview
- 2 Execution Path
- 3 Developer Console
- 4 Dialogflow
  - Intents
  - Entities
  - Knowledge Base
- 5 Compatible Devices
- 6 Live Demo



- Founded by Google in 2016
- Development through googles developer console and Dialogflow
- Creating skills pretty easy
- No programming skills required

# Execution Path



# Developer Console

The screenshot shows the Google Actions Console interface. At the top, there's a navigation bar with tabs: Overview, Develop (selected), Test, Deploy, and Analytics. The user is logged in as 'OcSeminarGroup3'. On the left, a sidebar lists navigation options: Invocation (selected), Actions, Theme customization, Account linking, and Backend services. The main area is titled 'Invocation' and contains a configuration panel for an action named 'Intelligent Textbook'. The panel has two sections: 'Display name' and 'Google Assistant voice'. The 'Display name' section has a text input field containing 'Intelligent Textbook' and a link to 'Modify languages in Settings'. The 'Google Assistant voice' section has a dropdown menu set to 'Female 1' and a checked checkbox for 'Match user's language setting'.

Actions Console

Overview **Develop** Test Deploy Analytics

OcSeminarGroup3

Invocation

Save

English [Modify languages in Settings](#)

**Display name**

Choose a name for your Action. Users say or type this name to begin interacting with it. [Learn](#)

Intelligent Textbook

Click to hear the pronunciation of your name

Modify the pronunciation if it doesn't sound right

**Google Assistant voice**

Select the type of voice you want to use for your app. [Learn](#)

Female 1

☒ Match user's language setting

- Gives an overview of your skill
- Specifies general settings
- Gives the user the ability to test their skill
- Deployment of the skill

- Service developed and provided by Google
- Natural language tool to create conversational user interfaces for apps, chatbots, etc.
- By adding 'Training phrases' Dialogflow automatically trains the machine learning model

## Concepts

### • Intents

- Each intent describes an intent a user might have
- E.g. check prices, get opening hours or book a repair
- By communicating with the interface, Dialogflow classifies the user's intent and performs the associated action
- An intent can require some parameters such as a date in order to book a repair

### • Entities

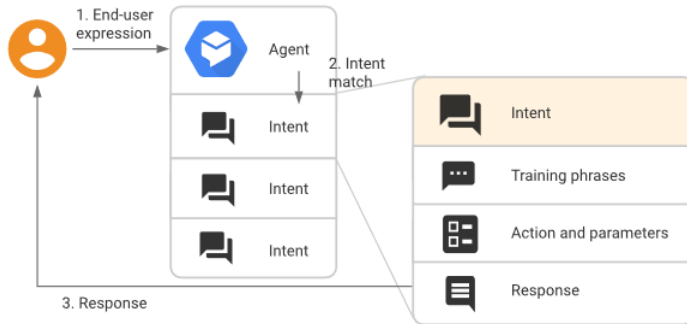
- Each intent parameter has a type and therefore belongs to an entity
- There are predefined system entities for dates, colors, addresses, etc.
- Define entities to make Dialogflow 'understand' your vocabulary
- E.g. Entity 'bike-type' with the instances road bike and mountain bike

### • Knowledge Base

- Complement defined intents
- Used to find automated responses



# Intents



# Intents cont'd

The screenshot displays the Google Dialogflow console interface. On the left is a sidebar with navigation options: Dialogflow, OcSeminarGroup3, en, Intents, Entities, Knowledge, Fulfillment, Integrations, Training, Validation, History, Analytics, Prebuilt Agents, Small Talk, Docs, Standard Free, Upgrade, and Support. The main area is titled 'annotation differences' and contains three sections: 'Training phrases', 'Action and parameters', and 'Responses'. The 'Training phrases' section lists three phrases related to explaining the difference between semi-automatic, manual, and automatic editing. The 'Action and parameters' section shows a table for defining parameters with columns for Required, Parameter Name, Entity, Value, and Is List. The 'Responses' section shows a 'Text Response' with a single response from the knowledge graph. On the right, a 'Try it now' panel is visible.

**Dialogflow**

OcSeminarGroup3

en

Intents

Entities

Knowledge

Fulfillment

Integrations

Training

Validation

History

Analytics

Prebuilt Agents

Small Talk

Docs

Standard Free

Upgrade

Support

• annotation differences

SAVE

Training phrases

Search training phrases

99 Add user expression

99 Explain the difference between a semi-automatic editing, manual editing, and automatic annotation

99 What is the difference between semi-automatic editing, manual editing, and automatic annotation

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

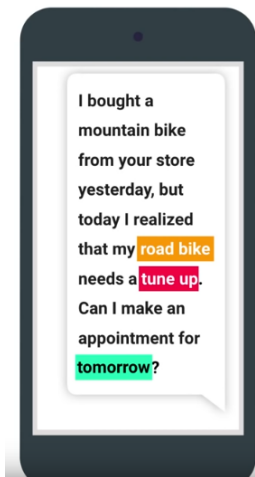
1 Response from knowledge graph

Try it now

Please use test console above to try a sentence.

See how it works in Google Assistant.

# Entities



road bike  
tune up  
tomorrow  
2017-11-09

## System entities

@sys.time

@sys.date

## Developer entities

@service-option

- Tune up
- Repair
- Tire change
- Upgrade

@bike-type

- Road bike
- Mountain bike
- Beach cruiser
- Racing bike
- Fixed gear bike
- Cross bike

# Entities cont'd

The screenshot displays the Dialogflow console interface. On the left is a sidebar with navigation options: Dialogflow, OcSeminarGroup3, Intents, Entities (selected), Knowledge, Fulfillment, Integrations, Training, Validation, History, Analytics, Prebuilt Agents, Small Talk, Docs, Standard Free, and Support. The main area is titled 'NLP\_tasks' and contains a table of NLP tasks. Above the table are four checkboxes: 'Define synonyms' (checked), 'Regex entity' (unchecked), 'Allow automated expansion' (unchecked), and 'Fuzzy matching' (checked). The table lists various NLP tasks in two columns. The 'lemmatization' row is highlighted. Below the table is a '+ Add a row' link. On the right side of the console, there is a 'Try it now' button and a message: 'Please use test console above to try a sentence.' with a link to 'See how it works in Google Assistant.'

Dialogflow

OcSeminarGroup3

Entities

NLP\_tasks

SAVE

Try it now

Define synonyms ☒ Regex entity ☐ Allow automated expansion ☐ Fuzzy matching ☒

tokenization	tokenization
stemming	stemming
lemmatization	lemmatization
sentence boundary disambiguation	sentence boundary disambiguation
named entity recognition	named entity recognition
part of speech tagging	part of speech tagging, part-of-speech tagging
chunking	chunking
syntactic parsing	syntactic parsing
semantic role labeling	semantic role labeling
coreference resolutions	coreference resolutions, co-reference resolutions, co reference resolutions

Click here to edit entry

+ Add a row

Please use test console above to try a sentence.

See how it works in Google Assistant.

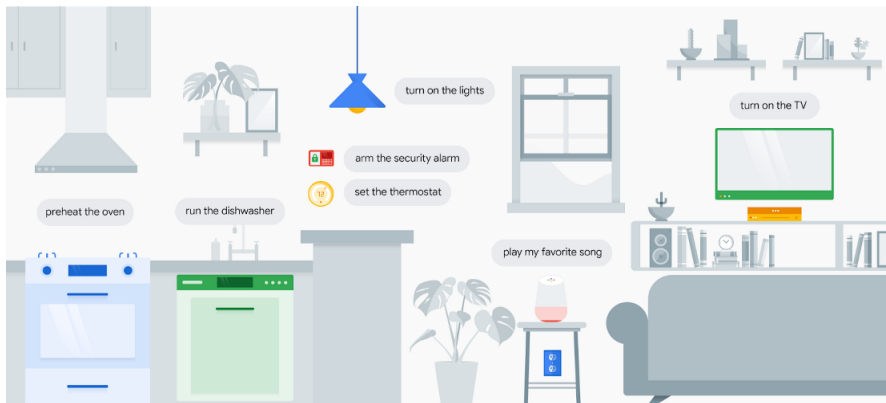
## Problem

We need to somehow add the Knowledge Base from Group 1 into our skill.

## Solution

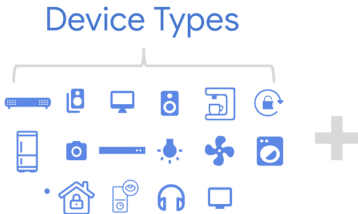
There is a Knowledge Base feature which is already implemented in Dialogflow. However here we only can use documents like texts or csv files or pdfs. So we are not exactly sure how to handle this at the moment.

# Compatible Devices



## Device Types & Traits

## Traits



## Attributes - SYNC

Defines configuration options for traits.

## States - QUERY & EXECUTE

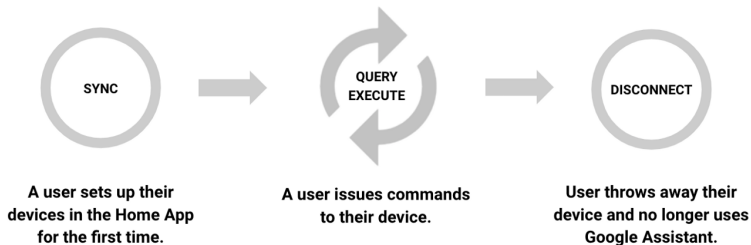
Defines the real-time state of the device.

## Commands - EXECUTE

Used to change the state or perform a function on the device.

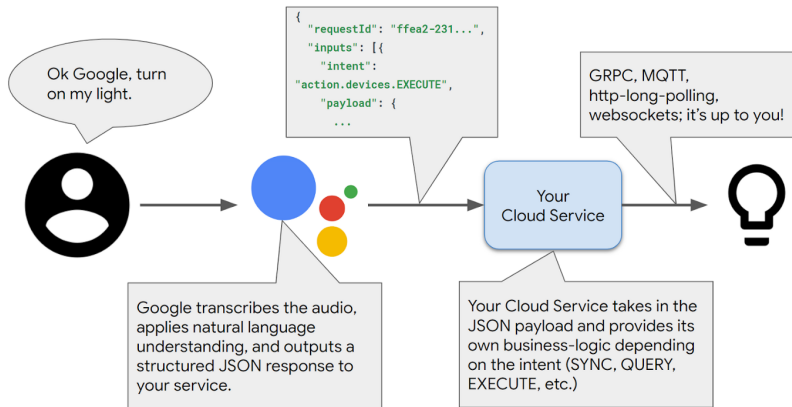
- various device types ( air purifier to yogurt maker )
- capabilities of a device  $\Rightarrow$  traits

# Life Cycle





# Communication



# Sample Trait Schema

# Live Demo

Thank you for your  
attention!