

Smart Home Ambient Intelligence: voice assistants

a new limit for our freedom?

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Presentation Outline

Smart Home Ambient Intelligence: voice assistants
a new limit for our freedom?

① Introduction

- Technological Mediation
- Definitions

② Case Study: Google Home - Google Assistant Actions

- Applied concepts of Technological Mediation limiting our freedom
- Ethical concerns arising from loss of freedom

③ Possible Remedies

Introduction

Technological Mediation

*While fulfilling their function, technologies do much more: they **give shape to what we do** and how we experience the world. And in doing so they **contribute actively** to the ways we live our lives (Verbeek 2011)*

- ▶ Technologies are not **neutral intermediaries**
- ▶ Technologies play an **actively mediating role**
- ▶ Artifacts are **bearers of morality** (Latour 1992)
- ▶ Morality is a matter of **human-technology associations**
- ▶ Two perspectives of mediation:
 - ▶ Perception
 - ▶ **Action**: I will focus on **human freedom**

Definitions I

Ambient Intelligence

***Ambient Intelligence** is an approach that combines two major technologies: Ubiquitous Computing and Intelligent User Interfaces (Brey 2005)*

Voice Assistant

*A **voice assistant** is a digital assistant that uses voice recognition, natural language processing and speech synthesis to provide aid to users through phones and voice recognition applications (WhatIs 2017)*

Definitions II

Freedom

Two forms (Brey 2005, 2006):

- ▶ Negative Freedom:
 - ▶ act without obstruction or interference by others
 - ▶ absence of limits and external constraints
- ▶ **Positive Freedom (Human Autonomy)**: I will focus on this
 - ▶ mastery over your own life
 - ▶ think freely, make your own decisions and act based on those

Case Study: Google Home - Google Assistant Actions



Google Assistant Actions

Actions on Google

HOME GUIDES REFERENCE SAMPLES COMMUNITY PROGRAM SUPPORT

Transactions ▾

Identity ▾

Localization ▾

Tools ▴
Overview
Actions Simulator
gactions CLI
Analytics and Monitoring

START WITH A SOLUTION

Templates ▾

Smart Home ▾

PUBLISHING

Overview ▾

Developer Console ▾

Apps for Families ▾

Node.js client library

We provide both an Actions SDK and Dialogflow variant of the Node.js client library to help you build fulfillment logic conforms to the [conversation webhook](#).

Actions Simulator


Type or speak to the simulator to test out your actions and hear the responses the same way you would on a hardware device. The tool gives you debugging information to diagnose issues and lets you test your experiences before deploying them.


gactions CLI


For those of you using the Actions SDK, `gactions` is a self-updating command line interface that lets you test and deploy your actions to production.

Action building tools

Some of the leading development tools for conversational end points are fully integrated with Actions on Google:

 Dialogflow

 Converse

 PullString

Starting from the **Actions on Google documentation** I will show:

1. **Applied concepts** of Technological Mediation limiting our freedom
2. **Ethical concerns** arising from loss of freedom

Applied concepts of Technological Mediation
limiting our freedom

Script: make your own decisions

Script

*A **script** is a prescription of how to act when using the artifact (Verbeek 2011)*

Interactions can be built in two ways (Google 2017):

- ▶ **With templates**
 - ▶ ...build apps **without writing a single line of code!**
 - ▶ ...build apps quickly **without worrying about designing conversations** ...
- ▶ **Without templates**
 - ▶ **Dialogflow**
 - ▶ machine learning
 - ▶ natural language understanding
 - ▶ extract parameters (data) from the user input
 - ▶ developers can decide the whole conversational interaction

Script: make your own decisions

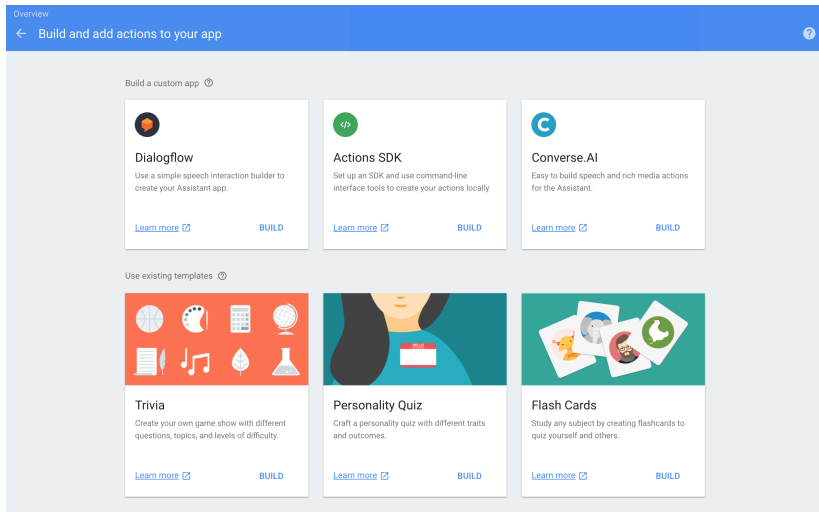


Figure: Actions On Google Console

Invitation/Inhibition: make your own decisions

Invitation/Inhibition

*The scripts of artifacts **suggest specific actions** and **discourage others** (Verbeek 2011)*

- ▶ Developers while creating the application logic (*fulfillment*) **enable some actions** and **disable some others**
- ▶ The conversational interaction doesn't go on if the user hasn't answered with **all the required parameters**

Invitation/Inhibition: make your own decisions

• make_name

SAVE



Contexts



User says

Search in user says



” Add user expression

” the luckiest number i have is 12

” 23

” My lucky number is 23

” My lucky number is 23

PARAMETER NAME	ENTITY	RESOLVED VALUE
number	@sys.number	23



Figure: DialogFlow interactions

Behaviour Steering: think freely

- 1) suggestion chips
- 2) In future Google Assistant will propose in the conversation also ADS!!! And developers can see analytics to shape further the behaviour.
- 3) Idea: natural language “may hide” the behaviour steer but it is designed there! "Explicit vs implicit invocation".

Where is Technological Mediation?

1) Google Actions Policies and terms: designed towards privacy, content, branding, ... : what about technological mediation?

Ethical concerns arising from loss of freedom

Technocracy

+ we may have the opposite problem: non technical people designing actions without having enough background!!!

Moral Laziness

commodification of morality

Moral responsibility of designers

What if in the future developers will shape morality???

Responsibility vacuum

What about behaviour change?

what if we want to change our behaviour towards what we think is good to us and not towards what is good for the designers?

Possible Remedies

Possible Remedies

Bibliography I



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