

Voice control: the new normal for home appliances?

The
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control



Speaker: René Janssen

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Agenda

- E.D.&A.
- Voice Control
 - ✓ What is voice control ?
 - ✓ Voice control system overview
 - ✓ Which steps do we have to take to integrate?
 - ✓ Example of our demonstrator
- Q&A

E.D.&A.

Electronics, Development & Assembly

- Founded in 1981
- HQ Located in Belgium, Kalmthout (Antwerp)
- Sales office in Bonn, Germany
- 80+ employees (37 on R&D)
- E.D.&A. develops and produces custom-made electronic controllers for machines and appliances.

- Industrial market
- Consumer market



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E.D.&A.

Examples

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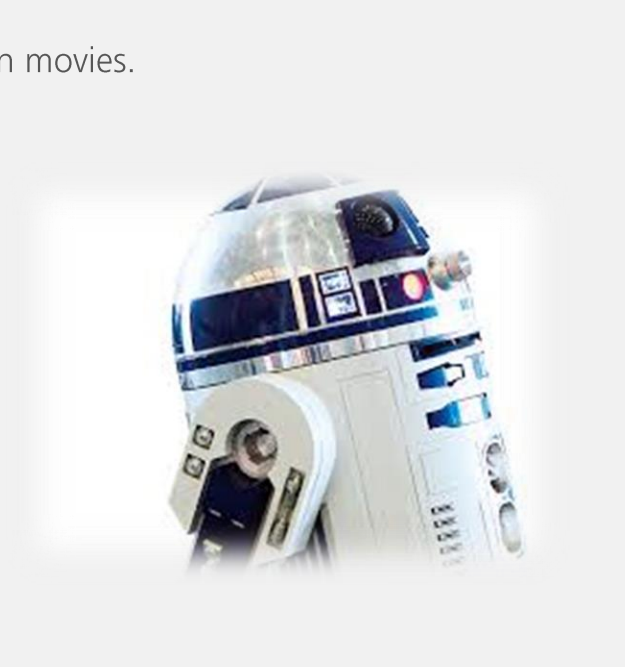


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What is Voice Control?

Where did it start?

- We started to speak to computers in '68 in science fiction movies.
 - 2001: A Space Odyssey (1968)
 - Star Trek (1966)
 - Star Wars Episode IV: A New Hope (1977)
- Lernout & Hauspie (1987 – 2001)
 - Specialised in speech recognition, speech synthesis
 - Microsoft took large share in 1998
 - Former employee is now Siri's voice
- Discuss with computer / still big challenge.
- Nowadays we are able to interpret commands.
 - 'Hey google' turn on the washing machine



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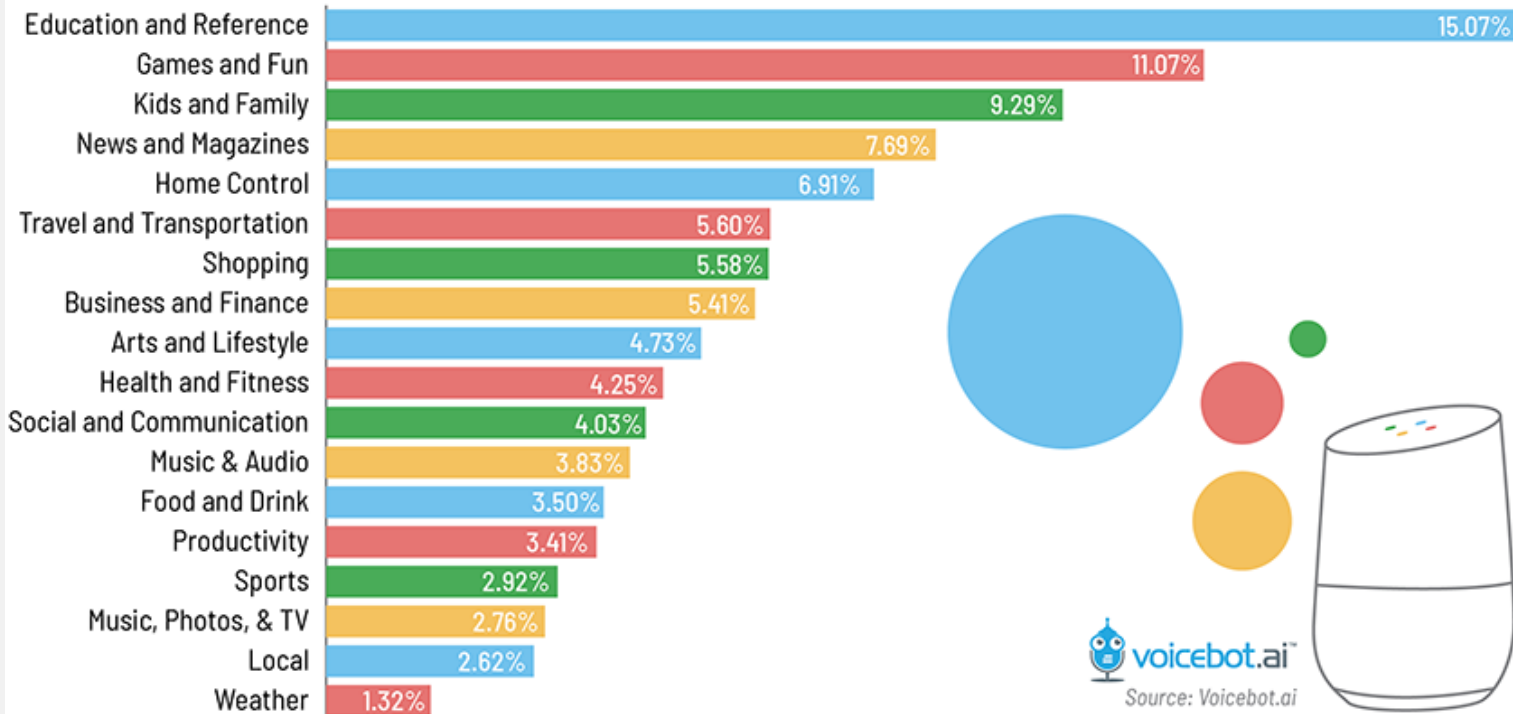


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Google Assistant Apps

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Google Assistant Apps by Category - February 2019

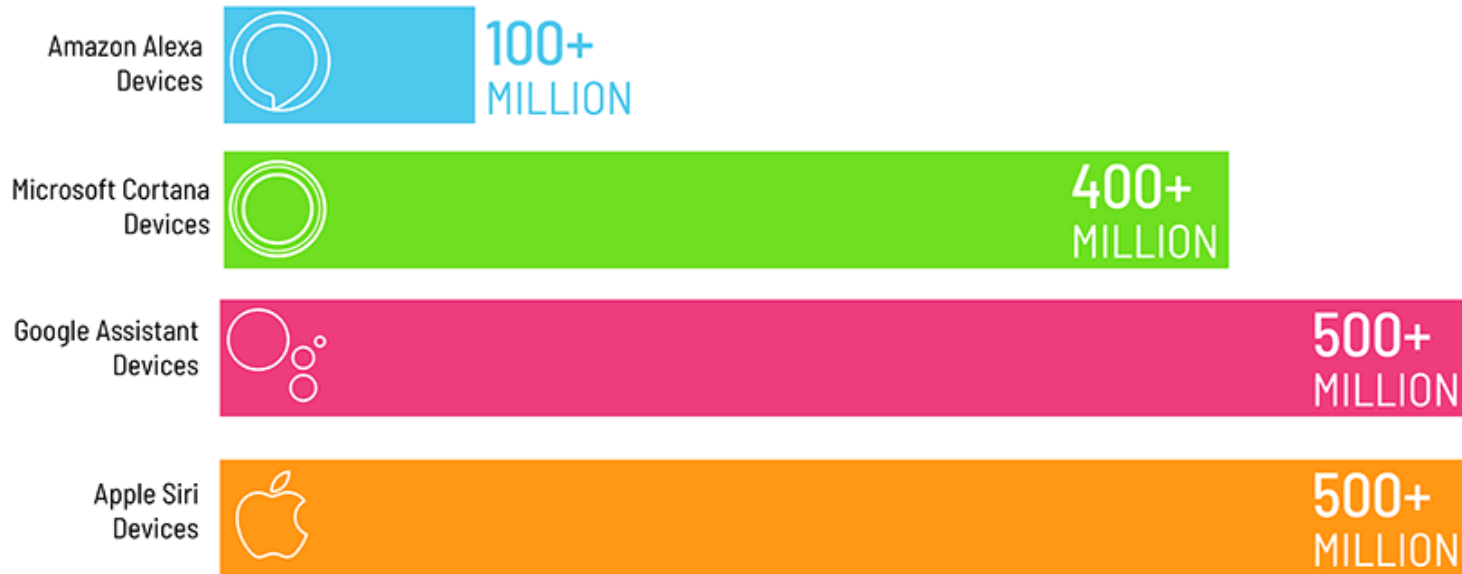


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Voice assistant installed base

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Voice Assistant Installed Base - 2019



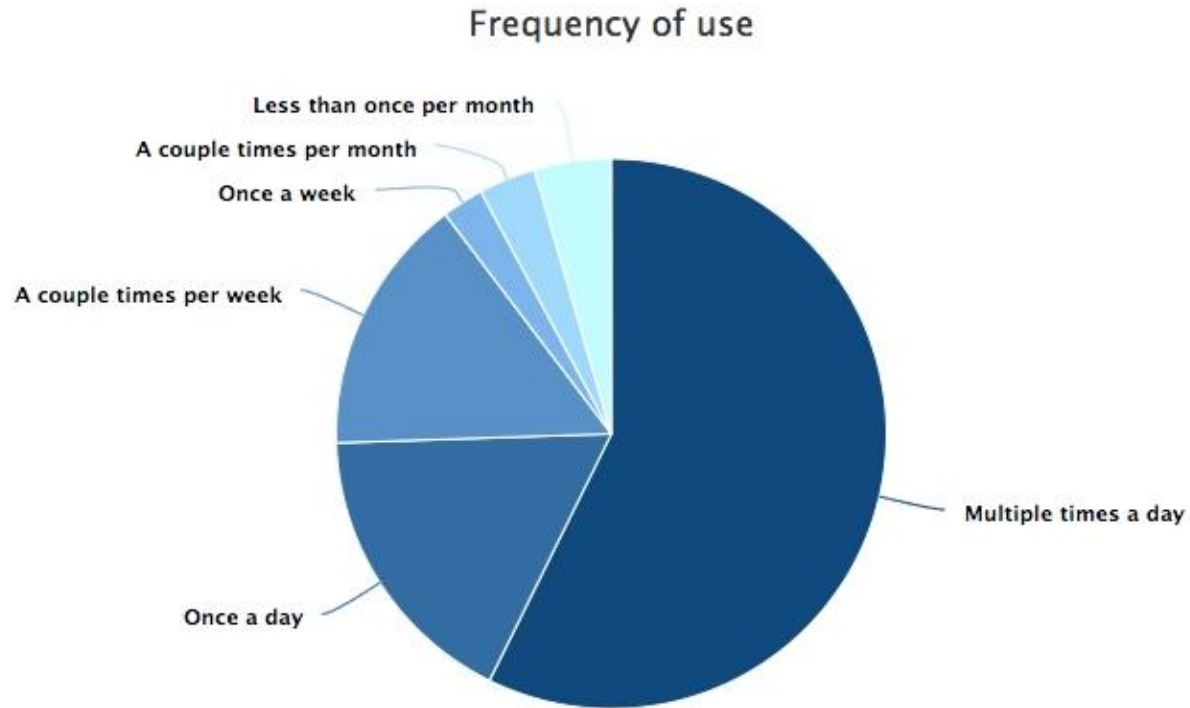
Source: Canals, Amazon, Microsoft, Google, Apple



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Frequency of use

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Voice control

What are the options? (1/2)

- Offline / not-connected appliances
 - Small vocabulary
 - Not many languages
 - Not up-to-date
 - No need for 'hey' or 'hi'
- Example : voice control in your (not-connected) car
 - Call Results in!#@\$!



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Voice control

What are the options? (2/2)

- Online / connected appliances
 - Large vocabulary
 - All popular languages supported
 - Artificial Intelligence
 - Always up-to-date
 - Will be more and more used in home appliances
- Example:
 - ‘Hey google, turn lights to green’



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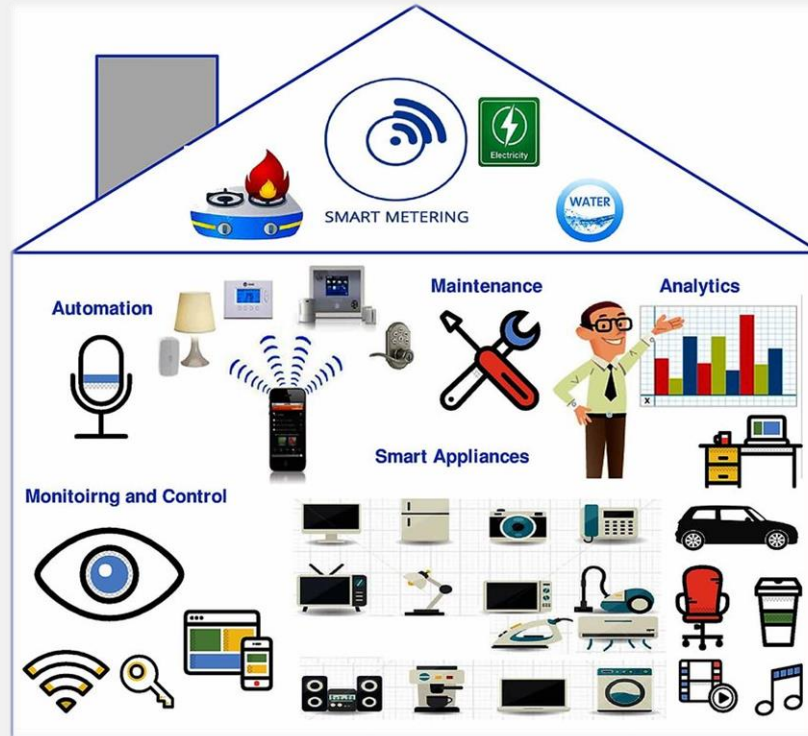


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Voice control for home appliances

Make use of available systems

- More and more systems are already installed and connected.
 - Alexa
 - Google
 - Siri
- Pros and cons
 - Intelligence of proven system (+)
 - Data collection (+)
 - Smart scripts (+)
 - Online (-)



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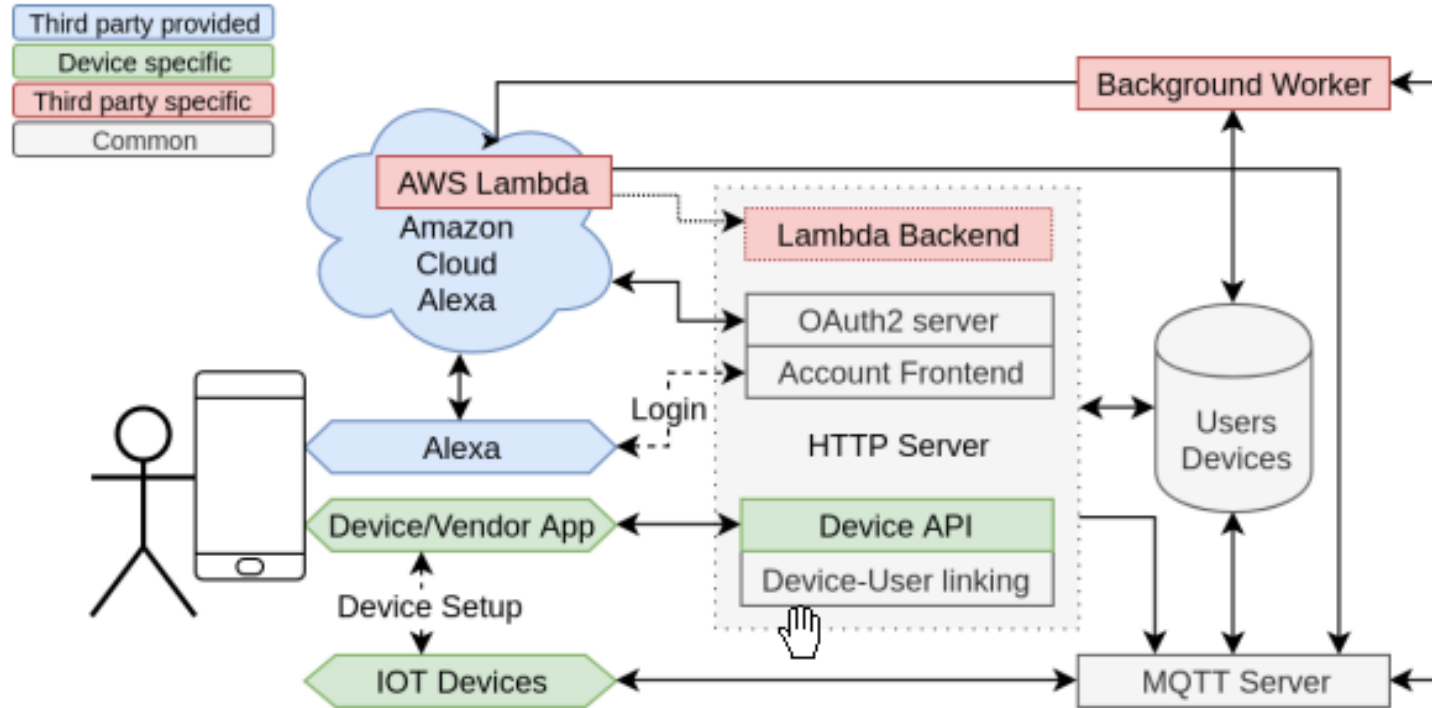


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Voice control in your home appliance

System overview Amazon

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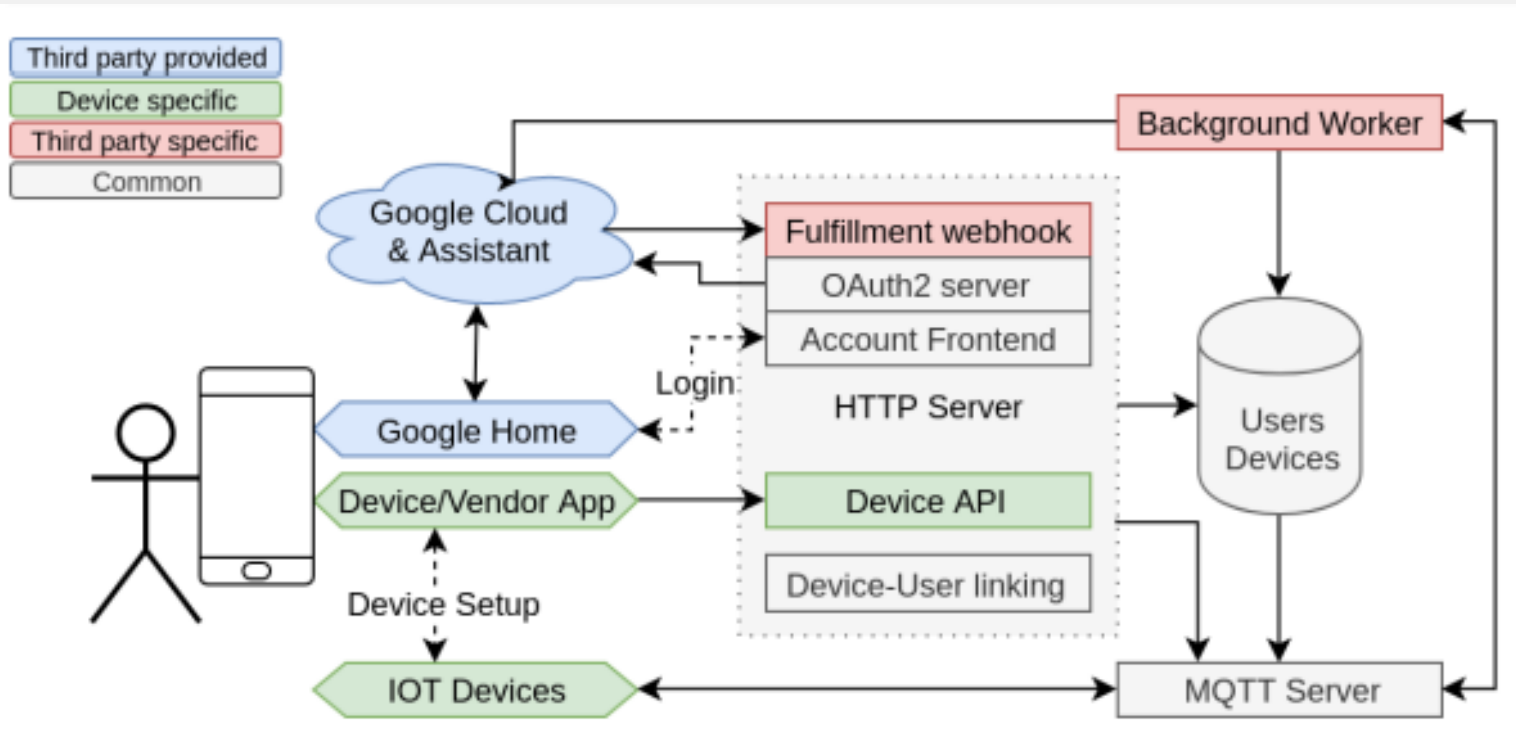


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Voice control in your home appliance

System overview Google

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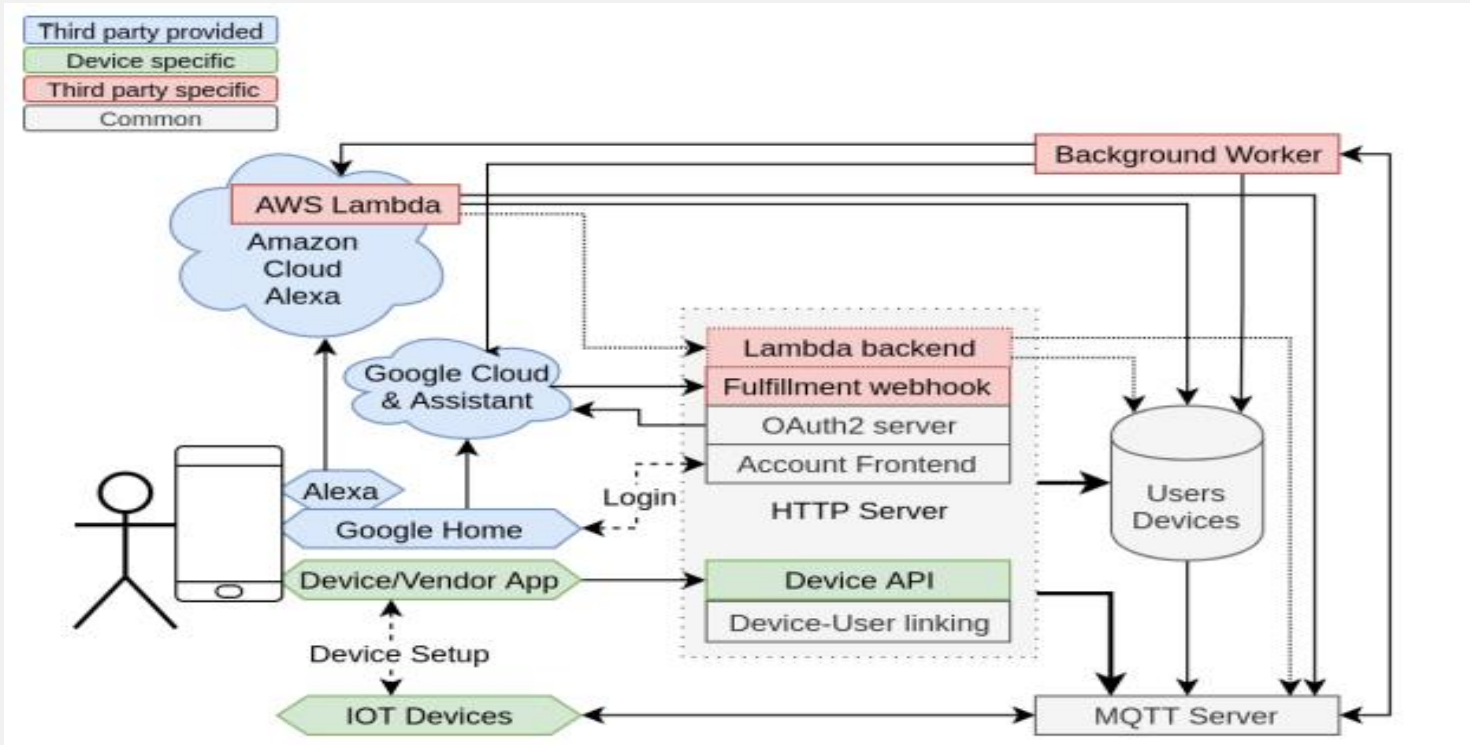


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Voice control in your home appliance

System overview combined

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Voice control: our E.D.&A demo

Steps to take

- Configure AWS
 - Skills
 - Account structure
 - Device registration
 - Companion App
- Setup Device cloud server
 - Communication to AWS
 - MQTT broker
- Device
 - Link to MQTT broker



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Voice control in your home appliance

Our demonstrator

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- Colors of the 2 lights
- Lights on/off
- Light brightness
- FAN On/off
- FAN Speed



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Recorded demo (video)

Alexa : motor (fan) and light control

Play this video and recognize the following voice commands:

- 'Alexa, set light to red'
- 'Alexa, set motor speed to 1'
- 'Alexa, set light green'
- 'Alexa, set motor off'



[>> Video: voice control demonstrator. Click here <<](#)

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Voice control in your home appliance

Where can we help?

- Device
 - **E**lectronic **D**evelopment (HW +SW) and **A**ssembly (ed&a)

- AWS / Google configuration (with external close partner)

- Device registration
- Companion App
- Skills / Actions



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Project
management

- Device cloud server / MQTT broker (with close external partner)

- Cloud server or on dedicated server



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