



Virtual Assistants

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1. Glossary

- ❑ **Virtual Assistant** – a software agent that can perform tasks or services for an individual.
- ❑ **Smart Speakers** – is wireless speaker and voice command device with an integrated virtual assistant and hands-free activation by “hot words”.
- ❑ **Voice-User Interface** – interface that makes human interaction with computers possible through a voice/speech platform in order to initiate an automated service or process.
- ❑ **Natural Language Processing** – a subfield of computer science, concerned with the interactions between computers and human (natural) languages.

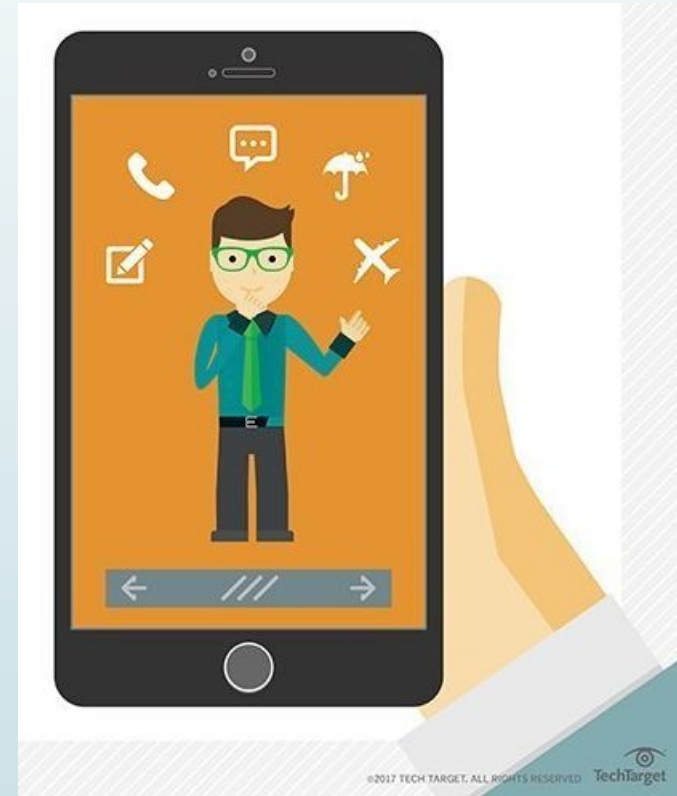
2. Technology in Brief

- **Virtual Assistant** – is a conversational, computer-generated character that simulates a conversation to deliver voice- or text-based information to a user via a Web, kiosk or mobile interface. (Gartner).
- **Popular virtual assistants** - Amazon Alexa, Apple's Siri, Google Now and Microsoft's Cortana

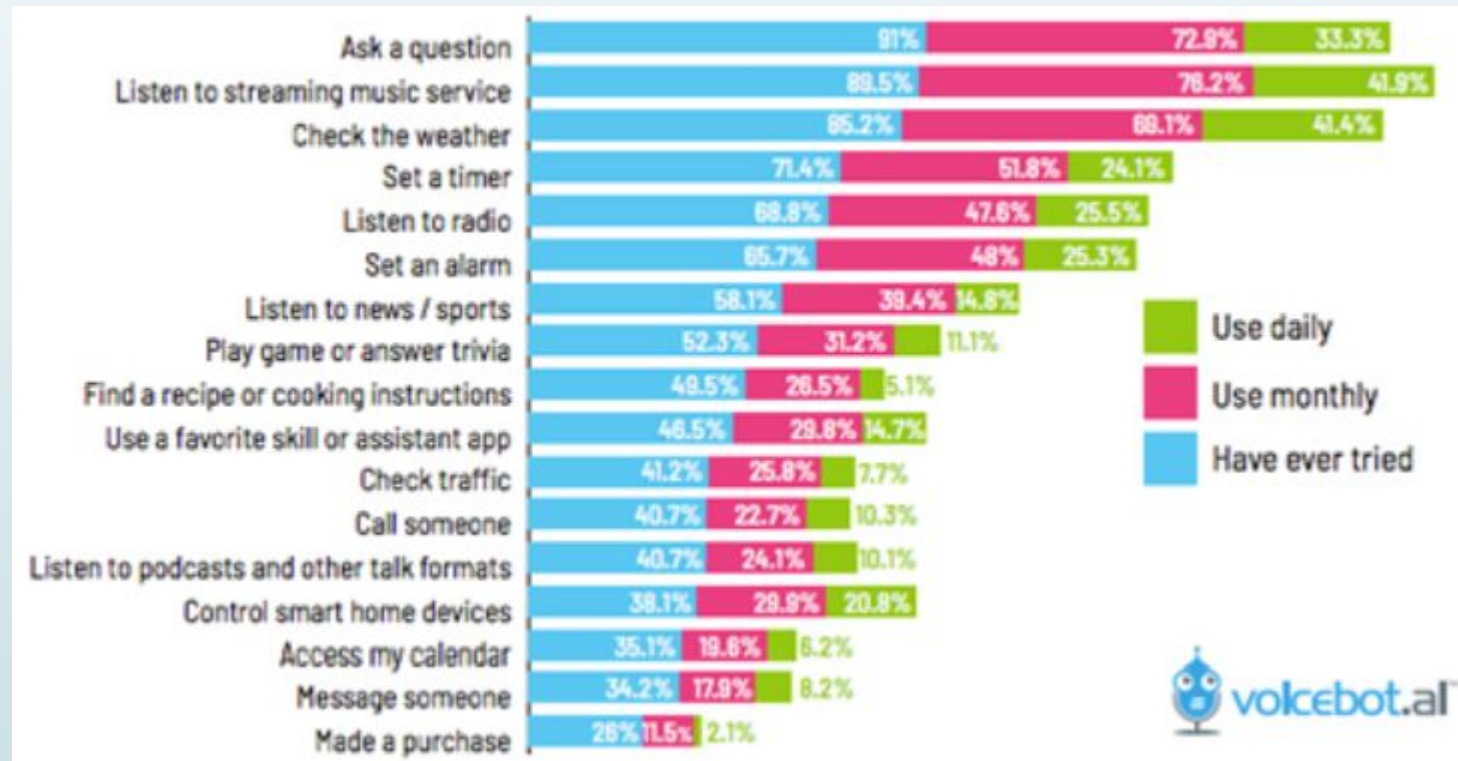


2.1. What Can Virtual Assistants Do

- Add events to a calendar.
- Add items to to-do lists.
- Control smart home devices.
- Make and receive phone calls.
- Create text messages.
- Get directions.
- Hear news and weather reports.
- Find hotels or restaurants.
- Check flight status.
- Request songs.

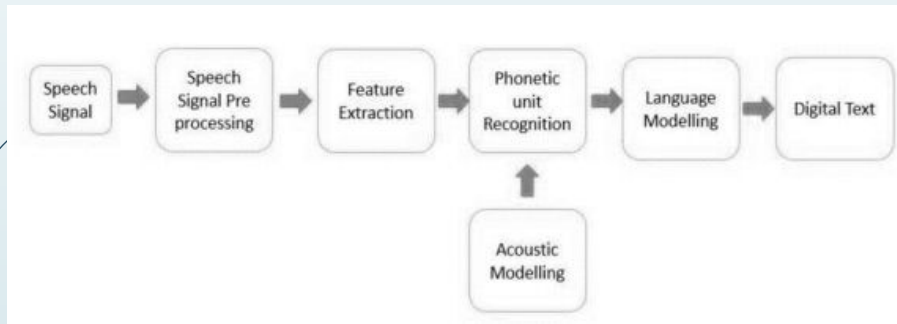


2.2. What Do People Ask of their Virtual Assistants

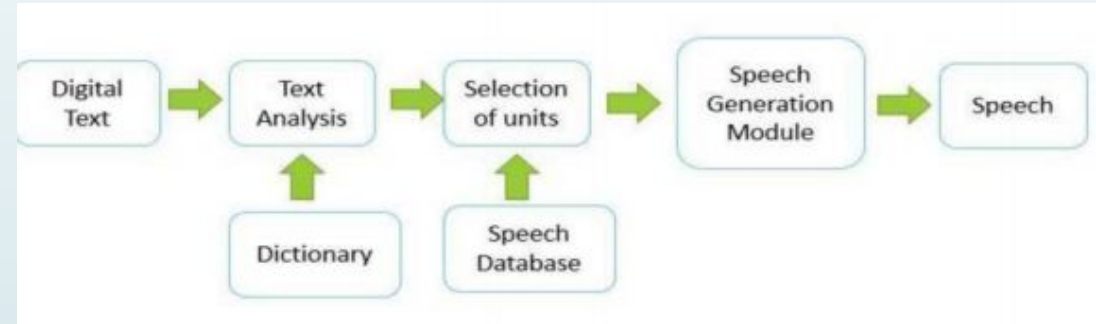


3. Methodology

□ Speech to Text

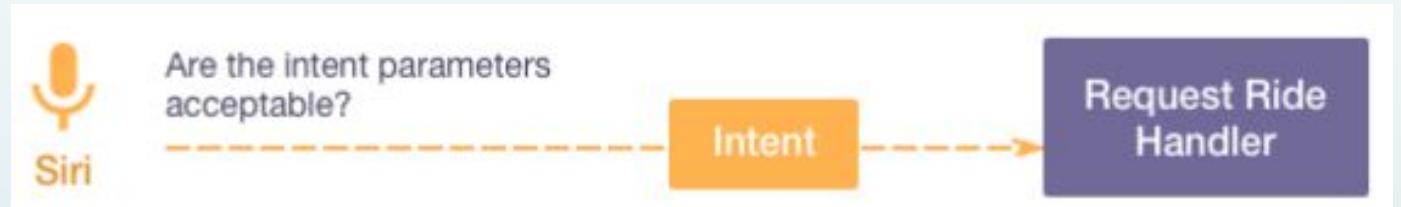


□ Text to Speech



3.1 Intent Processing

□ Resolve



□ Confirm



□ Handle



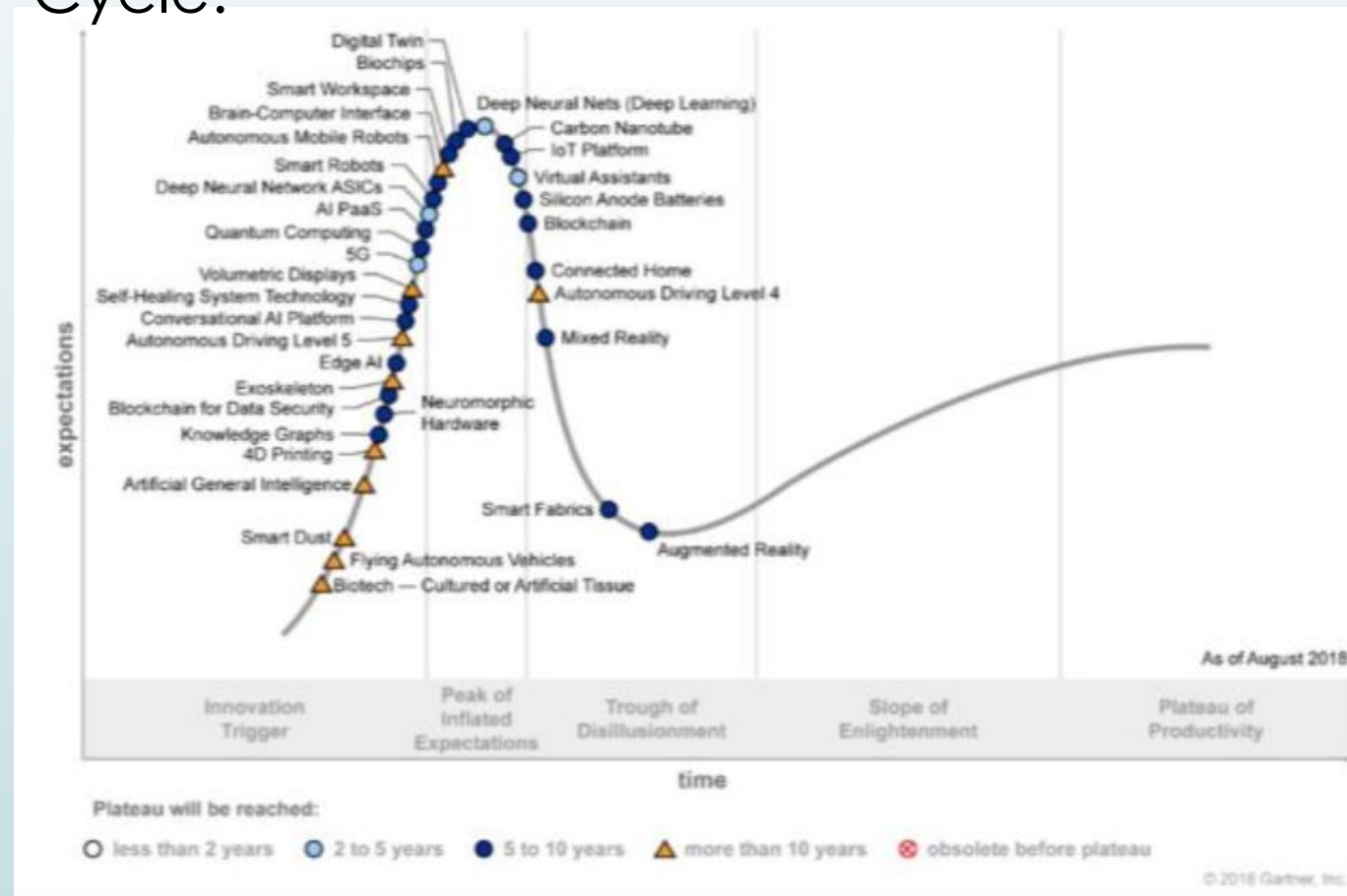


3.2 Forms of Queries

- Prefixal (“Fitness Time, choose a workout for me!”)
- Infixal (“Set a Fitness Time workout for me, please!”).
- Suffixal (“Adjust some workout in Fitness Time”).

4. State of Virtual Assistants

Position at Gartner Hype Cycle:





4.1 Open Issues

- Handling Data – need some data storage and CPU
- Security - virtual assistants are always on, and listen to everything.
- Increasing Area of Using – healthcare, cars, etc.



5. Industry Leaders and Startups

Leaders

- Cortana
- Google Now
- Alexa (Echo)
- Siri

Free Software

- Lucida
- Mycroft
- SEPIA
- Snips



6. Summary

- ❑ Virtual assistant – a software agent that can perform tasks or services for an individual.
- ❑ There are many virtual assistants around - Amazon Alexa, Apple's Siri, Google Now and Microsoft's Cortana
- ❑ Virtual assistants are on Peak on Inflated Expectations on Gartner Hype Cycle, and will be on Plateau of Productivity in 2 – 3 years in future.



Bibliography

- What Can I Help You With? Project Virtual Assistant: Designing a blueprint for the virtual assistant of the future.
- Web-based environment for user generation of spoken dialog for virtual assistants.
- Voice-controlled virtual assistants for the older people with visual impairment.
- <https://www.discovertec.com/blog/the-power-of-voice-activated-virtual-assistants>
- <http://iopscience.iop.org/article/10.1088/1757-899X/263/5/052022/pdf>
- <https://www.cleveroad.com/blog/how-to-create-virtual-assistant-apps-like-siri-and-google-assistant>
- <https://searchmobilecomputing.techtarget.com/opinion/How-virtual-assistant-technology-will-affect-the-enterprise>



Questions?



Thanks for watching!