BUILDING BOTS WITH JAVASCRIPT
A BIT OF HISTORY

- Mainframe: IBM 370
- Mini Computing: DEC VT180
- Client / Server: IBM AT PC
- Desktop Internet: IBM ThinkPad
- Cloud & Mobile: iPhone & iPad
- Connected Products: "?

Data Management Apps
Business Logic Apps
Process Automation Apps
Web Apps
Mobile Apps
Intelligent Devices
Apps, Open APIs & big data

1960's
1970's
1980's
1990's
2000's
2010's
2020's
SOME MORE HISTORY
"Bots are like new applications that you can converse with."

Satya Nadella, Microsoft
“We will evolve in computing from a mobile first to an AI first world.”

Sundar Pichai, Google
Why is this happening to me?
WHY IS THIS HAPPENING TO ME

1. New era of computing
2. Boom of Artificial Intelligence
3. Advances in machine learning
4. Advances in language technologies (Text-to-speech, natural language processing, etc.)
“contextual communication is the bidirectional transfer of information between two parties where both parties are aware of the relational, environmental, and cultural context of the exchange”
OLD WEB APP FLOW

hello

Send

Special Meals

Vegetarian lacto-ovo
Hindu vegetarian
Vegan
Gluten-free
Kosher
Muslim

tab
CONVERSATIONAL INTERFACES

- Tell Jokes
- Answer Questions
- Play Games
- Make Stories

CogniToys Dino - https://cognitoy.com
CONVERSATIONAL INTERFACES
I want a large pepperoni pizza

Sure. What kind of crust do you want:

1. Thin
2. Cheese
3. Thick

Cheese please!
Hey, wanna meet up?

Sure!

What’s the address?

15 Bonhill Street

Request a ride?

Yes, get me a ride in 5 minutes

Your driver Alex will pick you up in 10 minutes. Look for a blue Mini
CONVERSATIONAL INTERFACE

- Intuitive
- Accessible
- Productive
MESSAGING PLATFORMS

- Slack
- Facebook Messenger
- Telegram
- WeChat
- Nexmo Stitch 😊 (shameless plug)
BOTS AT **nexmo**

**geekbot**  **APP**  9:36 AM
What do you plan to ship this week?

**Alex Lakatos**  **APP**  9:37 AM
- give the CityJS talk
- Stitch with Angular blog post
- host 2 meetups in the office

**geekbot**  **APP**  9:37 AM
Go ship it!

**Zapier**  **APP**  1:20 PM
New item Buffered: #VT Coders meetup attendees tonight are in for a treat: @Rabeb_Othmani & @julielerman are going to talk about bots, azure functions, LUIS, APIs and a lot more goodness
https://www.meetup.com/VTCode/events/248025786/
Scheduled to tweet: Today at 3:38 pm

**Trello**  **APP**  7:33 PM
Task:

```markdown
talk to mark about push
```
was moved to: ✔

Task: talk to mark about push was moved to: ✔

Task: talk to mark about push is now ✔
**Productbot** | 7:43 PM
---
**Task:** talk to mark about push is now ✅

---

**Nexmo Releases** | 12:10 AM
---

New conversation-js-sdk release published: **v0.1.20**

# Changelog

All notable changes to this project will be documented in this file.

### [0.1.20]

#### Added

- Get notified when a new member is in ringing state in a Call
- Support for webpack and other bundle tools
- Changelog file

[Changelog file](https://github.com/nexmo-inc/conversation-js-sdk/blob/master/CHANGELOG.md)

#### Fixed

- Receiving Seen, delivered and delete events from iOS and Android

Show more
NATURAL CONVERSATION AI

● DialogFlow (API.ai/Google)
● Wit.ai (Facebook)
● Microsoft BotFramework
● Motion.ai
● chatbots.io

● Converse AI
● landbot.io
● Recast.ai
● ManyChat
● Fluent.ai (Voice UI)
Set the temperature to 70° in my bedroom

Did you try... What's the weather tomorrow in Palo Alto?
Artificial Intelligence as a Service - via @girlie_mac

Google Assistant
Build Actions for the Google Assistant to reach users through Google Home, Android phones, and more devices.

INTEGRATION SETTINGS

- Web Demo
- Facebook Messenger
- Slack
- Viber
- Twitter
- Skype
- Tropo (Text messaging)
- Telegram
Hey, I want to book a flight

Hey Alex. From LGW as usual?

Yes, from Gatwick

Where are you going this time?

San Francisco
KLM BOOKING BOT
NATURAL LANGUAGE PROCESSORS

Natural Language Processing & Cognitive platforms:

• IBM Watson
• Google Cloud Natural Language API
• Microsoft LUIS
• Amazon Lex
• Baidu UNIT
1. Make it smart.

2. Use a language that users understand and can relate to.

3. The capabilities of your tech

4. The structure of the information
VOICE UX

Listening...

Listening...

Thinking...
CONVERSATIONAL INTERFACES IN JAVASCRIPT
**WEB SPEECH API**

The Speech Recognition API is a method to provide speech input in a web browser. It is part of the Web Speech API.

### Browser Support

<table>
<thead>
<tr>
<th>Browser</th>
<th>IE</th>
<th>Edge</th>
<th>Firefox</th>
<th>Chrome</th>
<th>Safari</th>
<th>iOS Safari</th>
<th>Opera Mini</th>
<th>Chrome for Android</th>
<th>UC Browser for Android</th>
<th>Samsung Internet</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>11</td>
<td>17</td>
<td>61</td>
<td>49</td>
<td>68</td>
<td>11.1</td>
<td>11.2</td>
<td></td>
<td>69</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>18</td>
<td>62</td>
<td>63</td>
<td>69</td>
<td>12</td>
<td>all</td>
<td>11.4</td>
<td>69</td>
<td>11.8</td>
<td>7.2</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>64</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Notes

- MS Edge status: Under Consideration
- Firefox status: under consideration

1. Partial support refers to some attributes missing.
2. Firefox currently has a media webspeech.recognition.enable flag in about:config for this, but actual support is waiting for permissions to be sorted out.
toggleVoice() {
  var SpeechRecognition = SpeechRecognition || webkitSpeechRecognition;
  this.recognition = new SpeechRecognition();

  this.recognition.lang = "en-US";
  this.recognition.interimResults = false;
  this.recognition.start();

  this.recognition.addEventListener('result', (e) => {
    let last = e.results.length - 1
    let text = e.results[last][0].transcript
    this.sendText(text, true)
    this.recognition.stop()
    this.recognition = null
  });
}
**WEB SPEECH API**

A web API for controlling a text to speech output.

<table>
<thead>
<tr>
<th>Browser</th>
<th>IE</th>
<th>Edge</th>
<th>Firefox</th>
<th>Chrome</th>
<th>Safari</th>
<th>iOS Safari</th>
<th>Opera Mini</th>
<th>Chrome for Android</th>
<th>UC Browser for Android</th>
<th>Samsung Internet</th>
</tr>
</thead>
<tbody>
<tr>
<td>Current aligned</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Usage relative</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Date relative</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Show all</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- **Notes**
  - Samsung Internet for GearVR: In Development, release based on Chromium m53 due Q1/2017
  - Speech Synthesis in Chrome since version 55 stops playback after about 15 seconds on Windows 7 & 10, and Ubuntu 14.04, possibly other platforms
let utterance = new SpeechSynthesisUtterance();

utterance.text = response.result.fulfillment.speech
utterance.rate = 5.5;
utterance.pitch = 2;
utterance.lang = "en-GB";
speechSynthesis.speak(utterance)
DEMO TIME!

Client

Web Speech API
Nexmo Stitch SDK

Server

Node.js
Nexmo Stitch API

DialogFlow API
(api.ai)
Web Speech API

Jump to: Web Speech Concepts and Usage  Web Speech API Interfaces  Examples  Specifications  Browser compatibility

Firefox OS permissions  See also

Web technology for developers  Web APIs  Web Speech API

This is an experimental technology
Check the Browser compatibility table carefully before using this in production.

The Web Speech API enables you to incorporate voice data into web apps. The Web Speech API has two parts: SpeechSynthesis (Text-to-Speech), and SpeechRecognition (Asynchronous Speech Recognition.)

Web Speech Concepts and Usage

DIALOGFLOW (API.AI)

https://dialogflow.com/
CONVERSATIONAL INTERFACES ARE FOR HUMANS
A BOT INTERFACE SHOULD BE A HUMAN INTERFACE
It looks like you're writing a letter.
Would you like help?
- Get help with writing the letter
- Just type the letter without help
- Don't show me this tip again

Clippy (1997 - 2007)
R.I.P.
THANK YOU, HALFCORACK!

Alex
Lakatos
@lakatos88