

Vocal Recognition

Vocal Recognition : Speech To Text Examples, Android
& Google Chrome

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Disclaimer

Do not use theses technologies for evil minded purposes.

- **It is just an how to**
- **I am not responsible if shit happens**

What is ctrl+F Agency

- Health Care
- Risk management
- Data science
- Business Impact Analysis
- Business Continuity Program
- Mobile/Web Dev
- Engineering
- Big data analysis
- Donuts !

Who am I ?



- Founder of ctrl+f agency (and all stuff related)
- Web/mobile Dev,
- Data science,
- Research

Age : 30 Years Old

What is an STT?

- STT means Speech to text
- Since 1932

The main algorithms developed are :

- Hidden Markov model
- Dynamic time warping
- Neural Networks (deep learning)

Current Applications of Speech To Text:

- Military
- Health Care
- Telephony
- Education
- Advertising
- Entertainment
- IOT
- ...

This talk is focused on

- Open Source Materials
- Web technologies (chrome/chromium browser)
- Mobile technologies (Android)

Browser Speech Recognition API current status

Speech Recognition API - UNOFF

Global0% + 55.12% = 55.12%

unprefixed:0%

Method to provide speech input in a web browser.

Current aligned

Usage relative

Date relative

Show all

IE	Edge*	Firefox	Chrome	Safari	Opera	iOS Safari*	Opera Mini*	Android Browser*	Chrome for Android
			<div>149</div> <div>151</div> <div>152</div> <div>153</div>						
				9.1		9.3		4.4	
11	14	249	154	10	141	10	all	53	153
		250	155	TP	142				
		251	156		143				
		252	157						

Notes

Known issues (0)

Resources (7)

Feedback

MS Edge status: In Development

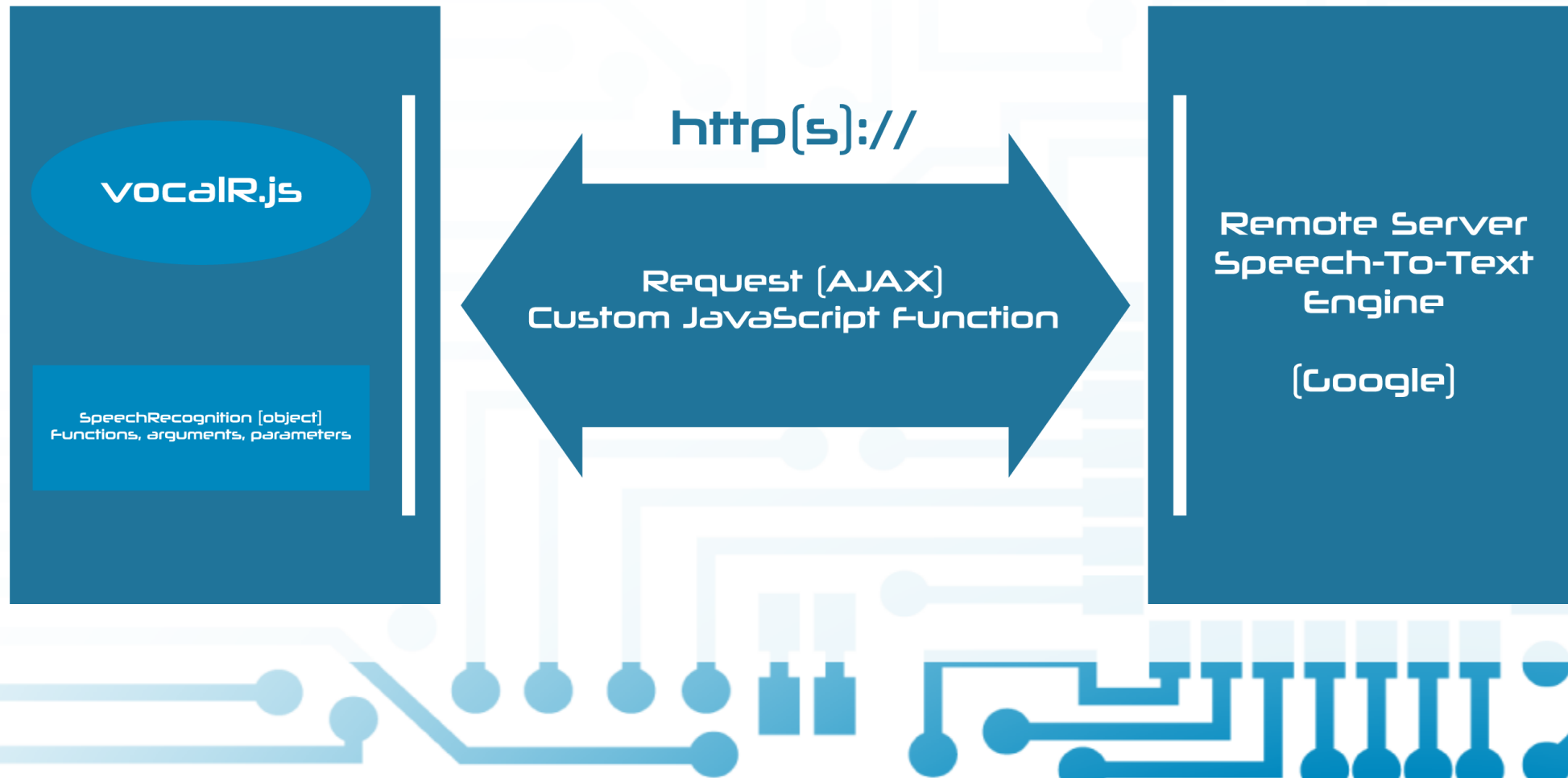
1 Partial support refers to some attributes missing.

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.

Vocal recognition assets

- Accuracy (with google speechRecognition online API)
- Better user experience
- Leveraged interface
- Middleware
- MaaS
- Multiples languages supports

SpeechRecognition API Middleware based architecture example



Example of crossdomain get request

```
function crossdomain(text) {  
  
  var element = document.getElementById('result');  
  $.ajax({  
    url : "https://siteweb.tld/api?var="+text+"&callback=?",  
    dataType:"jsonp",  
    jsonp:"callback",  
    success:function(data)  
    {  
      element.innerHTML = '<b>xhr:</b> ' + data.remotejsonresult;  
    }  
  });  
}
```

https loading

```
//condition qui permet de forcer la page à se charger en https  
if (window.location.protocol != "https:")  
    window.location.href = "https:" +  
    window.location.href.substring(window.location.protocol.length)  
;
```

vocalR.js library usage

```
<script src="vocalR.js"></script>
<script type="text/javascript">
window.onload=recognize(VocalR_obj_functions);
    function bonjour () {
        alert("Tout va bien ?");
    };

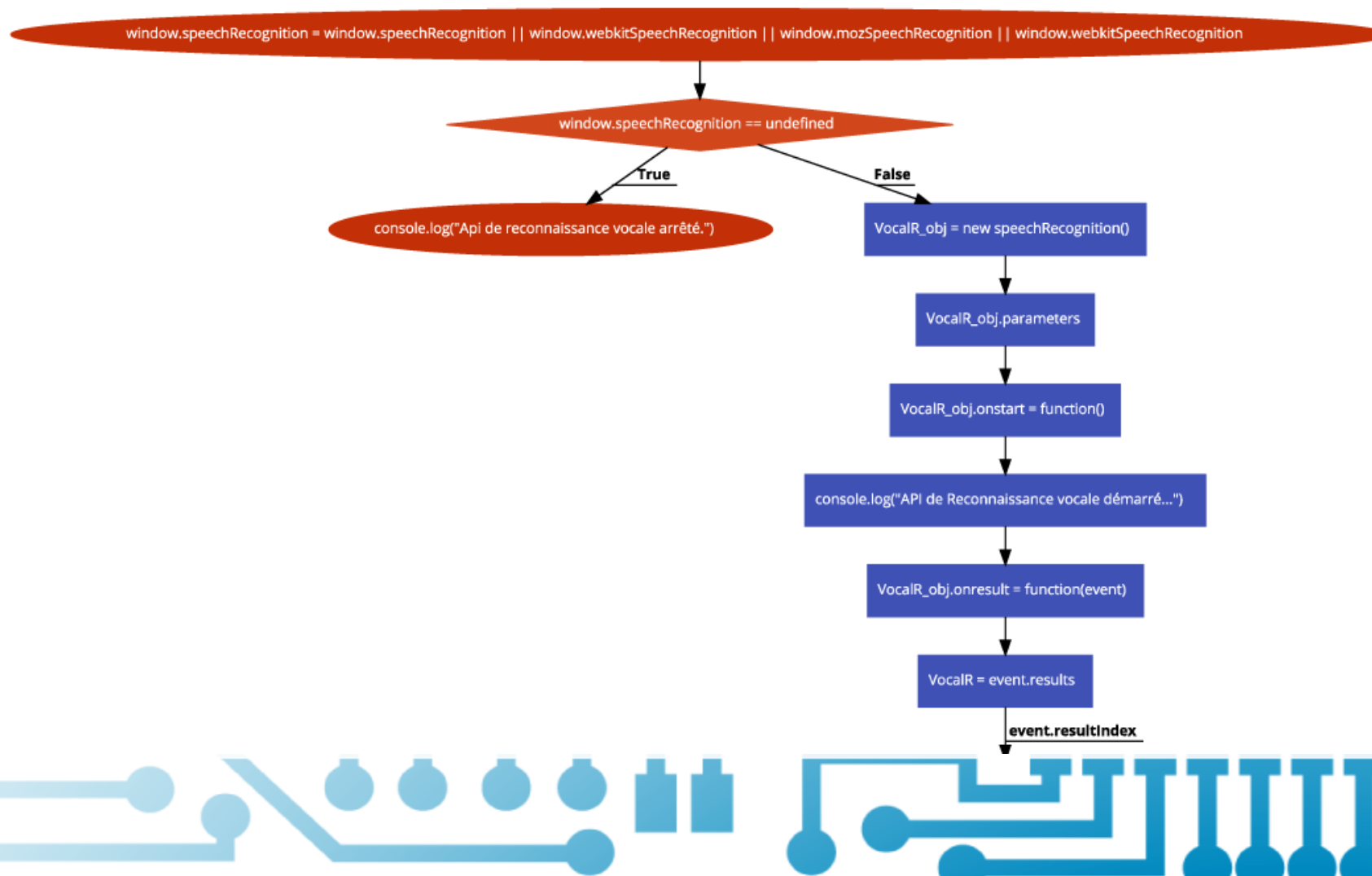
    function tqui (searchtag){
        dit_qui = searchtag.split(" ");
        alert('bonjour '+dit_qui[0]);
    };

    var VocalR_obj_functions = {
        bonjour: "bonjour",
        stop: "stop",
        VocalR_obj_functions_S : {tqui:"je suis "}
    };
</script>
```

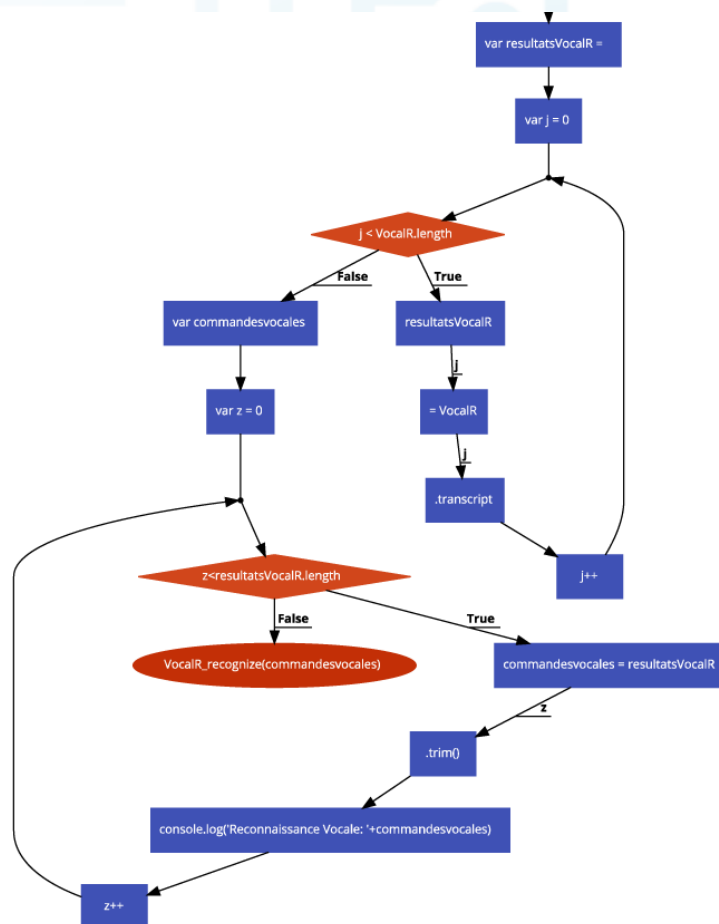
vocalR speechRecognition() API

```
VocalR_obj = new speechRecognition();
VocalR_obj.continuous = true;
VocalR_obj.lang = "fr-FR";
VocalR_obj.interimResults = false;
VocalR_obj.maxAlternatives = 1;
VocalR_obj.onstart = function() {
    console.log("API de Reconnaissance vocale démarré...");
}
VocalR_obj.onresult = function(event) {
    VocalR = event.results[event.resultIndex];
    var resultatsVocalR = []
    for(var j = 0; j < VocalR.length; j++)
    {
        resultatsVocalR[j] = VocalR[j].transcript;
    }
    var commandesvocales;
    for (var z = 0; z < resultatsVocalR.length; z++)
    {
        commandesvocales = resultatsVocalR[z].trim();
        console.log('Reconnaissance Vocale: '+commandesvocales);
    }
    VocalR_recognize(commandesvocales);
```

vocalR.js speechRecognition flowchart (1/2)



vocalR.js speechRecognition flowchart (2/2)



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Android Speech To Text



Android Speech To Text features

- More features into the `speech.RecognizerIntent`
- Native code
- Offline version
- Trendy results in online version

Android Speech To Text java example 1/4

```
import java.util.ArrayList;
import java.util.Locale;
import android.app.Activity;
import android.content.ActivityNotFoundException;
import android.content.Intent;
import android.os.Bundle;
import android.speech.RecognizerIntent;
import android.view.View;
import android.widget.ImageButton;
import android.widget.TextView;
import android.widget.Toast;
```

Android Speech To Text java example 2/4

```
public class MainActivity extends Activity {  
    private final int SPEECH_RECOGNITION_CODE = 1;  
    private TextView txtOutput;  
    private ImageButton btnMicrophone;  
    @Override  
    protected void onCreate(Bundle savedInstanceState) {  
        super.onCreate(savedInstanceState);  
        setContentView(R.layout.activity_main);  
        txtOutput = (TextView) findViewById(R.id.txt_output);  
        btnMicrophone = (ImageButton) findViewById(R.id.btn_mic);  
        btnMicrophone.setOnClickListener(new View.OnClickListener() {  
            @Override  
            public void onClick(View v) {  
                startSpeechToText();  
            }  
        });  
    }  
}
```

Android Speech To Text java example 3/4

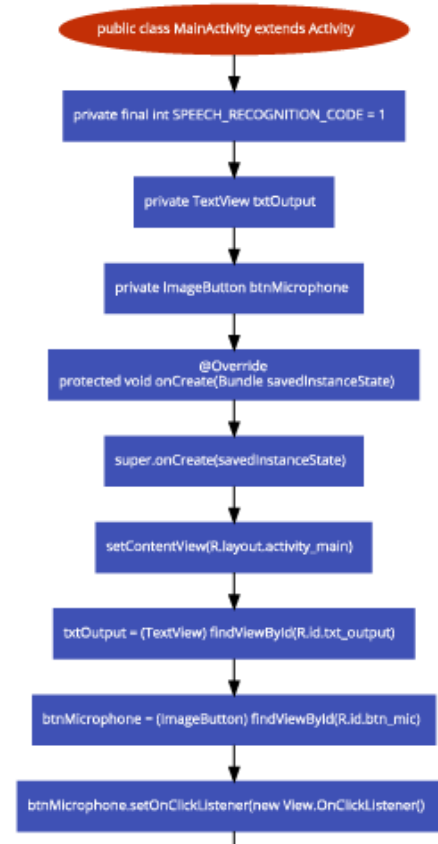
```
/**
 * Start speech to text intent. This opens up Google Speech Recognition API dialog box to listen the speech input.
 * */
private void startSpeechToText() {
    Intent intent = new Intent(Intent.ACTION_RECOGNIZE_SPEECH);
    intent.putExtra(Intent.EXTRA_LANGUAGE, Locale.getDefault());
    intent.putExtra(Intent.EXTRA_LANGUAGE_MODEL,
        Intent.EXTRA_LANGUAGE_MODEL_FREE_FORM);
    intent.putExtra(Intent.EXTRA_PROMPT,
        "Parler...");

    try {
        startActivityForResult(intent, SPEECH_RECOGNITION_CODE);
    } catch (ActivityNotFoundException a) {
        Toast.makeText(getApplicationContext(),
            "La reconnaissance vocale n'est pas supportée sur cet appareil !",
            Toast.LENGTH_SHORT).show();
    }
}
```

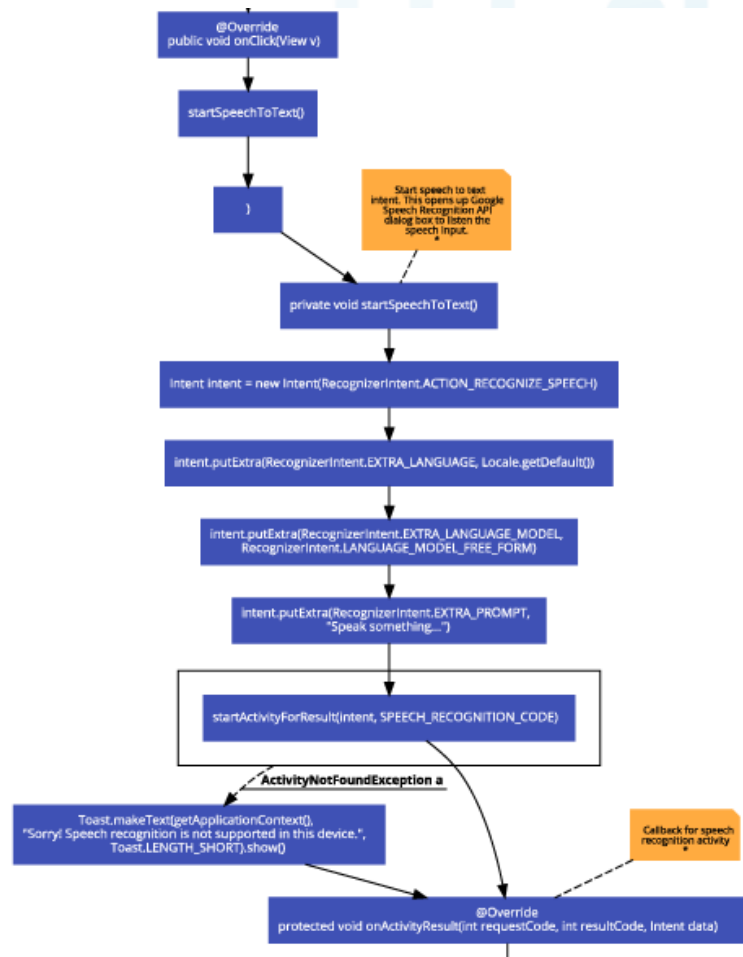
Android Speech To Text java example 4/4

```
/**
 * Callback for speech recognition activity
 * */
@Override
protected void onActivityResult(int requestCode, int resultCode, Intent data) {
    super.onActivityResult(requestCode, resultCode, data);
    switch (requestCode) {
        case SPEECH_RECOGNITION_CODE: {
            if (resultCode == RESULT_OK && null != data) {
                ArrayList<String> result = data
                    .getStringArrayListExtra(RecognizerIntent.EXTRA_RESULTS);
                String text = result.get(0);
                txtOutput.setText(text);
            }
            break;
        }
    }
}
```

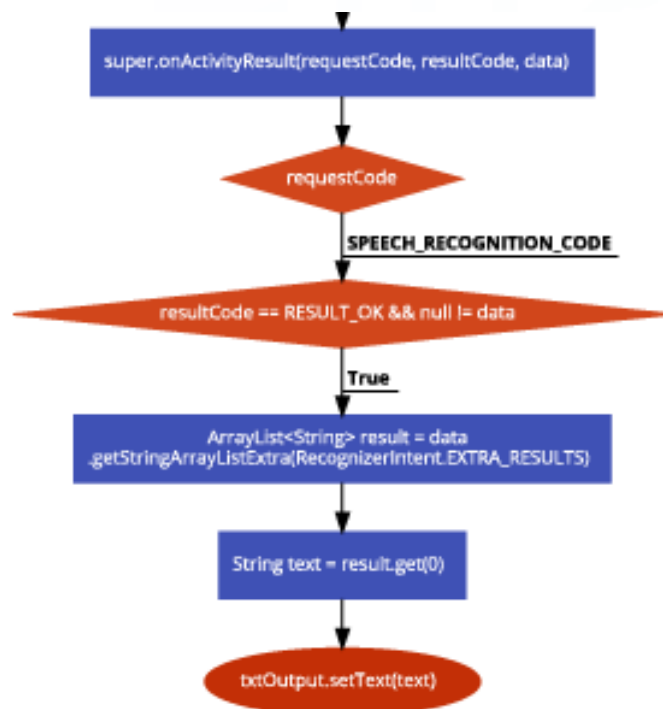
Android Speech To Text flowchart 1/4



Android Speech To Text flowchart 2/4



Android Speech To Text flowchart 3/4



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Demo

VOCALR

Home

Prenoms

Biorhythm

Vocal Recognition (in French !)

Vocal Recognition is a proof of concept designed to show-off the features of vocal recognition into Google Chrome and its WebSpeech API. This script is distributed under GNU (general public license). Most languages are available.

Let's try

Essayez :

🗨 Dites "bonjour!"

Install

VOCALR_STATIC

- French language
- XHR request
- MVC compliant (expressJS, NodeJS)
- Biorhythm API
- WTHR API
- SimpleBAN API
- Geolocation API
- Responsive Theme
- Bootstrap jumbotron Theme
- SSL/TLS compliant (startSSL certificates)
- Licensed under GPL3



Advices

My skills are for sale !

Before making your own app, ask me to help you to improve your added value, evaluate accurately your security expectations, and the risks for your business to use these kind of technologies.

For further details :

- contact@ctrlfagency.com
- If not : webmaster@tel2geo.fr

Links

Internal Links :

- Android speech to text webview implementation [here](#)
- VOCALR_STATIC speechToText Demos ([github](#))
- SpeechRecognition Android and Browsers api flowcharts [here](#)
- Speech Recognition Status ([caniuse.com](#))
- VOCALR APP [article](#)
- vocalR.js [library](#) for vocal recognition

External links :

- Recognizer [intent](#) for android
- Blog article [« getting started with voice recognition »](#)
- Android Speech To Text Tutorial ([stackandroid](#))
- Enable Speech to text on android [here](#)
- Media.webspeech.recognition.enable [specs / standards](#)

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Thanks