

# Mycroft.eus: The open source Basque-speaking smart speaker

ELG Pilot Project

Igor Leturia – Elhuyar Fundazioa

MetaForum 2021 - 2021/11/15

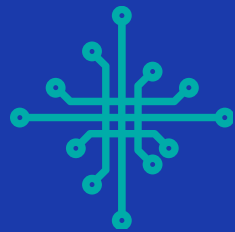


Kaixo!!!



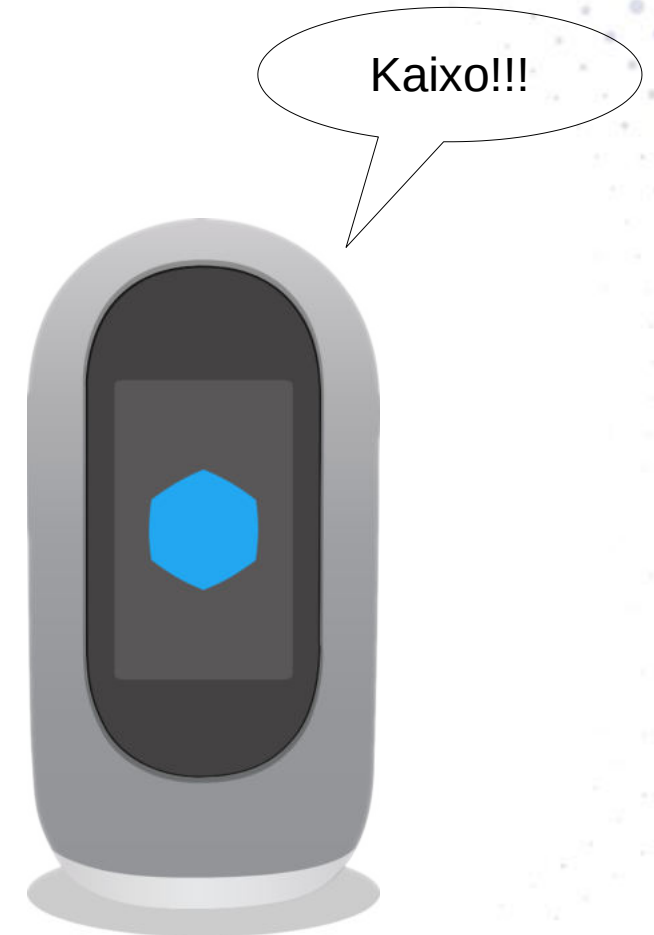
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## Introduction



## Motivation

- No smart speaker in Basque (and not expected anytime soon)
- Components available
  - Basque ASR and TTS: Elhuyar
  - Open source smart speaker: Mycroft



## Mycroft.eus

- Smart speaker
- Basque-speaking
- Based on open source Mycroft AI
- Using Elhuyar's Basque ASR and TTS
- Privacy friendly
- Non-gendered
- Local skills
- Improvement of the state of the art of Basque ASR and TTS



## Participants and funding

- Participants:
  - Elhuyar Fundazioa
  - Talaios
  - Skura
- Funding:
  - ELG



elhuyar  
ezagutuz aldatzea

The logo for Elhuyar features the word "elhuyar" in a bold, blue, sans-serif font. To its right is a teal-colored arc. Below "elhuyar" is the tagline "ezagutuz aldatzea" in a smaller, teal, sans-serif font.

Talaios  
Koop

The logo for Talaios Koop consists of a black circle containing a white Greek letter tau (τ). To the right of the circle, the word "Talaios" is written in a bold, black, sans-serif font, with "Koop" in a smaller, black, sans-serif font below it.

skura  
appitudea gara

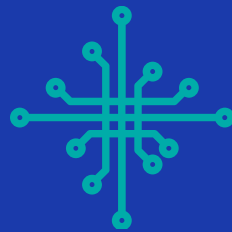
The logo for Skura features a stylized graphic of two yellow arrows pointing towards each other, forming a shape similar to the letter 'S'. Below this graphic, the word "skura" is written in a bold, black, sans-serif font. Underneath "skura" is the tagline "appitudea gara" in a smaller, yellow, sans-serif font.

EUROPEAN  
LANGUAGE  
GRID

The logo for the European Language Grid features a graphic of several vertical bars of varying heights and shades of brown and gold, resembling a bar chart or a grid. To the right of the graphic, the words "EUROPEAN", "LANGUAGE", and "GRID" are stacked vertically in a bold, black, sans-serif font.

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## Project development



## Elhuyar's ASR and TTS

- Connect Mycroft with Elhuyar's ASR and TTS (plugins)
- Improvement and adaptation in ASR
  - Noisy environments
  - Interface
- Improvement in TTS
  - Neural network technology

aditu  
elhuyar

MENU

### Elhuyar's speech recognition system

Transcriptions and subtitles, automatically in just a few minutes

TRY IT

Watch video

lehenakari\_mensaje\_2017.es.mp4 [eu-es]

Time	Transcription
00:00	Introducción
00:01	Para saber de dónde sale y cómo se desarrolla y cómo se desarrolla.
00:02	El primer mensaje que se muestra en el primer mensaje.
00:03	Este es el primer mensaje.
00:04	Este es el primer mensaje.
00:05	Este es el primer mensaje.
00:06	Este es el primer mensaje.
00:07	Este es el primer mensaje.
00:08	Este es el primer mensaje.
00:09	Este es el primer mensaje.
00:10	Este es el primer mensaje.

# Mycroft localization to Basque

- Core
- Lingua franca
- 40+ skills
- Own skills
  - Local news
  - Local music
  - ...

The screenshot shows the 'Mycroft-eus' group page in a web interface. The page is titled 'Hizketa Teknologiai > Mycroft-eus'. The group name 'Mycroft-eus' is displayed with a shield icon and 'Group ID: 68'. There are buttons for 'New subgroup' and 'New project'. A search bar is present with the text 'Search by name' and a dropdown menu showing 'Name'. Below the search bar, there are tabs for 'Subgroups and projects', 'Shared projects', and 'Archived projects'. The main content area lists several subgroups and projects, each with a letter icon, a name, a description, a star icon, and a date. The subgroups listed are 'ELG' (ELG-ko zerbitzuen docker-ak), 'skills', 'Admin platform', 'enclosure-picroft' (Mycroft interface for Raspberry Pi environ...), 'lingua-franca', 'mycroft-core' (Mycroft Core, the Mycroft Artificial Intelligen...), 'mycroft-eus', 'mycroft-repo-kudeaketa' (Mycroft repositorioen kudeaketarako script-ak), 'mycroft-skill-itzulpena' (Mycroft skill-ak itzultzen laguntzeko script-a...), 'mycroft-skills', 'mycroft-stt-plugin-elhuyar', and 'mycroft-tts-plugin-elhuyar'. The projects listed are 'Admin platform', 'enclosure-picroft', 'lingua-franca', 'mycroft-core', 'mycroft-eus', 'mycroft-repo-kudeaketa', 'mycroft-skill-itzulpena', 'mycroft-skills', 'mycroft-stt-plugin-elhuyar', and 'mycroft-tts-plugin-elhuyar'. The date for all projects is '2 months ago' or '2 weeks ago'.



# Hardware tests

- PC
- Picroft (Google AIY Kit)
- Mark II Dev Kit

```
pi@picroft: ~
Log Output:
===== mycroft-core 20.8.0 =====
Establishing mycroft messagebus connection...
Connected to Messagebus!
10:14:57.984 | INFO | 673 | __main__.handle_wakeword:67 | Wakeword Detected: hey mycroft
---/home/pi/mycroft-core/mycroft/res/snd/start_listening.wav : Signed 16 bit Little Endian, Rate 48000 Hz, Stereo
10:14:58.359 | INFO | 673 | __main__.handle_record_begin:37 | Begin Recording...
10:15:00.192 | INFO | 673 | __main__.handle_record_end:49 | End Recording...
10:15:01.028 | INFO | 672 | __main__.handle_utterance:72 | Utterance: ['zer egun da gaur.']
10:15:01.398 | WARNING | 665 | Lingua franca.format:nice_date:429 | Full code eu.eu
10:15:10.310 | INFO | 673 | __main__.handle_wakeword:67 | Wakeword Detected: hey mycroft
---/home/pi/mycroft-core/mycroft/res/snd/start_listening.wav : Signed 16 bit Little Endian, Rate 48000 Hz, Stereo
10:15:10.779 | INFO | 673 | __main__.handle_record_begin:37 | Begin Recording...
10:15:12.607 | INFO | 673 | __main__.handle_record_end:49 | End Recording...
10:15:13.374 | INFO | 673 | __main__.handle_utterance:72 | Utterance: ['zer ordu da.']
^--- NEMEST ---^

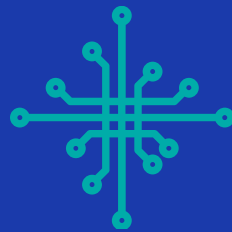
History ===== Log Output Legend ===== Mic Level ==
zer egun da gaur. DEBUG output
>> Gaur asteazkena, 2020ko azaroaren lau da skills.log, ether
zer ordu da. voice.log
>> 10:15

Input (':' for command, Ctrl+C to quit) =====
>
```



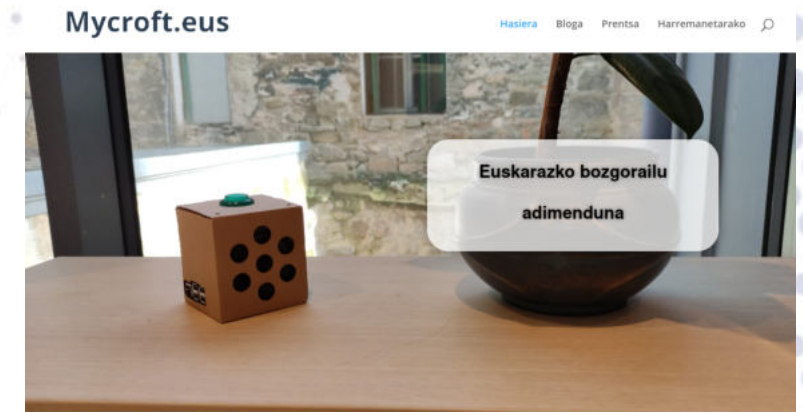
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Current state



## Current state

- Mycroft and 40+ skills translated to Basque
- Contributed back to Mycroft official repos (some PRs waiting)
- Own skills
- Soon to be uploaded to GitHub
- Project presented to the media
- Website
- Presentation to the Basque developers' community
- Elhuyar's ASR and TTS services improved
- Elhuyar's ASR and TTS services available in ELG as demos



Zer da Mycroft.eus?



### Bozgorailu adimenduna

Mycroft.eus proiektuan bozgorailu adimendun bat garatzen ari gara, etxean jarri eta hizketa bidez emandako aginduei erantzuten dieten horietakoa, Google edo Amazon-ek saltzen dituzten horien modukoa, baina haiek ez dituzten hainbat ezaugarri izango dituen.

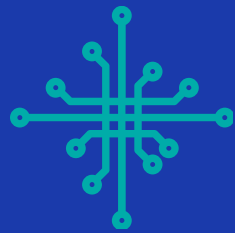
### Euskalduna

Euskalduna izango da Mycroft.eus. Euskarazko aginduak jasoko ditu eta euskaraz erantzungo du. Horretarako Elhuyarren hizketa-ezagutza eta hizketa-sinesiko teknologiak baliatuko dira, bide batez teknologioak hobetuz eta proiektuaren ezaugarrietara egokitzuz.



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Future work



## Future work

- Build and distribute
  - Basque by default
  - Local skills
  - New name and wake word
  - Home website (pairing and remote configuration)
  - ...
- Hardware issues
  - Design
  - Purchase
  - Manufacture
  - Distribution

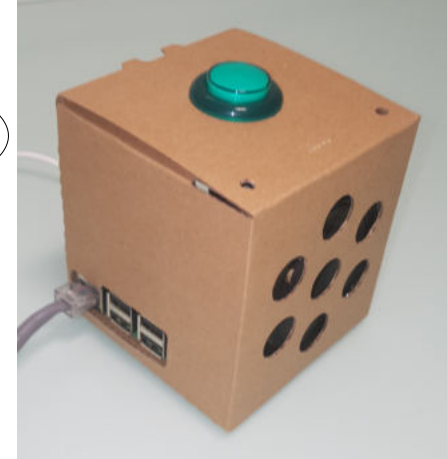
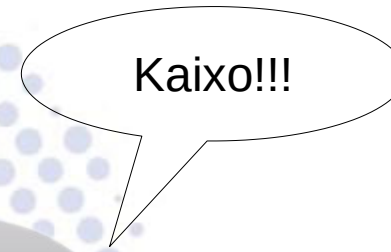


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**elhuyar**   
ezagutuz aldatzea

[www.elhuyar.eus](http://www.elhuyar.eus)