

Práctica 05

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Nota al lector

Este documento fue escrito originalmente en **Markdown** y posteriormente exportado a un PDF, por lo cual, para una mejor lectura, revisar el documento original en https://github.com/mnegretev/MobileRobots-2020-2-for-Covid19/blob/aguilar_enriquez/Entregables/practica_05/README.md.

Objetivo

- Síntesis de voz con *festival*.
- Realizar los ejercicios de las diapositivas 21, 22 y 23

Entregables

- Archivos de audio donde se escuchen frase sintetizadas. Las frases a sintetizar se dejan a elección del estudiante.
- Al menos dos archivos de audio, es decir, sintetizar con al menos dos voces diferentes.

Desarrollo

Instalación de las voces

Se instalaron las voces:

- `festvox-en1`
- `festvox-us1`

Voces instaladas

Voces instaladas

Configuración y uso de voces utilizadas

Se sintetizaron textos con tres voces diferentes:

- `en1_mbrola`
- `us1_mbrola`
- `kal_diphone`

```

penserbjorne@ubuntu-xenial:~/Proyectos/MobileRobots-2020-2-for-Covid19$ sudo apt install festvox-
festvox-ca-ona-hts      festvox-en1             festvox-kdlpc8k         festvox-suopuhe-mv
festvox-czech-dta      festvox-hl-nsk          festvox-mr-nsk          festvox-te-nsk
festvox-czech-krb      festvox-italp16k        festvox-rablpc16k       festvox-us1
festvox-czech-nachac    festvox-itapc16k        festvox-rablpc8k        festvox-us2
festvox-czech-ph        festvox-kallpc16k       festvox-ru               festvox-us3
festvox-don             festvox-kallpc8k        festvox-suopuhe-common
festvox-ellpc1k         festvox-kdlpc16k        festvox-suopuhe-lj
penserbjorne@ubuntu-xenial:~/Proyectos/MobileRobots-2020-2-for-Covid19$ sudo apt install festvox-en1 festvox-us1
[sudo] password for penserbjorne:
Reading package lists... Done
Building dependency tree
Reading state information... Done
The following packages were automatically installed and are no longer required:
  linux-headers-4.15.0-45 linux-headers-4.15.0-45-generic linux-image-4.15.0-45-generic
  linux-modules-4.15.0-45-generic linux-modules-extra-4.15.0-45-generic snapd-login-service
Use 'sudo apt autoremove' to remove them.
The following additional packages will be installed:
  festlex-oald gcc-6-base:i386 libc6:i386 libgcc1:i386 mbrola mbrola-en1 mbrola-us1
Suggested packages:
  glibc-doc:i386 locales:i386 espeak cicero
The following NEW packages will be installed:
  festlex-oald festvox-en1 festvox-us1 gcc-6-base:i386 libc6:i386 libgcc1:i386 mbrola
  mbrola-en1 mbrola-us1
0 upgraded, 9 newly installed, 0 to remove and 0 not upgraded.
Need to get 15.9 MB of archives.
After this operation, 34.0 MB of additional disk space will be used.
Do you want to continue? [Y/n]
Get:1 http://mx.archive.ubuntu.com/ubuntu xenial/main i386 gcc-6-base i386 6.0.1-0ubuntu1 [14.3 kB]
Get:2 http://mx.archive.ubuntu.com/ubuntu xenial/main i386 libgcc1 i386 1:6.0.1-0ubuntu1 [46.8 kB]
Get:3 http://mx.archive.ubuntu.com/ubuntu xenial-updates/main i386 libc6 i386 2.23-0ubuntu11 [2 262 kB]
Get:4 http://mx.archive.ubuntu.com/ubuntu xenial/multiverse amd64 mbrola amd64 3.01h+1-3 [36.2 kB]
Get:5 http://mx.archive.ubuntu.com/ubuntu xenial/multiverse amd64 mbrola-en1 all 19980910-2 [5 833 kB]
Get:6 http://mx.archive.ubuntu.com/ubuntu xenial/multiverse amd64 festlex-oald all 1.4.0-4 [1 138 kB]
Get:7 http://mx.archive.ubuntu.com/ubuntu xenial/multiverse amd64 festvox-en1 all 1.95-1 [5 484 B]
Get:8 http://mx.archive.ubuntu.com/ubuntu xenial/multiverse amd64 mbrola-us1 all 0.3-2 [6 565 kB]
Get:9 http://mx.archive.ubuntu.com/ubuntu xenial/multiverse amd64 festvox-us1 all 1.95-1 [14.0 kB]
Fetched 15.9 MB in 4s (3 667 kB/s)
Preconfiguring packages ...
Selecting previously unselected package gcc-6-base:i386.
(Reading database ... 356051 files and directories currently installed.)
Preparing to unpack .../gcc-6-base_6.0.1-0ubuntu1_i386.deb ...
Unpacking gcc-6-base:i386 (6.0.1-0ubuntu1) ...
Selecting previously unselected package libgcc1:i386.
Preparing to unpack .../libgcc1_1%3a6.0.1-0ubuntu1_i386.deb ...
Unpacking libgcc1:i386 (1:6.0.1-0ubuntu1) ...
Selecting previously unselected package libc6:i386.
Preparing to unpack .../libc6_2.23-0ubuntu11_i386.deb ...
Unpacking libc6:i386 (2.23-0ubuntu11) ...
Selecting previously unselected package mbrola.
Preparing to unpack .../mbrola_3.01h+1-3_amd64.deb .....]
Unpacking mbrola (3.01h+1-3) ...
Selecting previously unselected package mbrola-en1.
Preparing to unpack .../mbrola-en1_19980910-2_all.deb ...
Unpacking mbrola-en1 (19980910-2) ...
Selecting previously unselected package festlex-oald.
Preparing to unpack .../festlex-oald_1.4.0-4_all.deb ...
Unpacking festlex-oald (1.4.0-4) ...
Selecting previously unselected package festvox-en1.
Preparing to unpack .../festvox-en1_1.95-1_all.deb ...
Unpacking festvox-en1 (1.95-1) ...
Selecting previously unselected package mbrola-us1.
Preparing to unpack .../mbrola-us1_0.3-2_all.deb ...
Unpacking mbrola-us1 (0.3-2) ...
Selecting previously unselected package festvox-us1.
Preparing to unpack .../festvox-us1_1.95-1_all.deb ...
Unpacking festvox-us1 (1.95-1) ...
Processing triggers for libc-bin (2.23-0ubuntu11) ...
Processing triggers for man-db (2.7.5-1) ...
Setting up gcc-6-base:i386 (6.0.1-0ubuntu1) ...
Setting up festlex-oald (1.4.0-4) ...
Setting up libc6:i386 (2.23-0ubuntu11) ...
Setting up mbrola (3.01h+1-3) ...
Setting up mbrola-en1 (19980910-2) ...
Setting up festvox-en1 (1.95-1) ...
Setting up mbrola-us1 (0.3-2) ...
Setting up festvox-us1 (1.95-1) ...
Setting up libgcc1:i386 (1:6.0.1-0ubuntu1) ...
Processing triggers for libc-bin (2.23-0ubuntu11) ...
penserbjorne@ubuntu-xenial:~/Proyectos/MobileRobots-2020-2-for-Covid19$

```

Figure 1: voces_instaladas_1

```

penserbjorne@ubuntu-xenial:~/Proyectos/MobileRobots-2020-2-for-Covid19$ ls /usr/share/festival/voices/english/
en1_mbrola/ kal_diphone/ us1_mbrola/
penserbjorne@ubuntu-xenial:~/Proyectos/MobileRobots-2020-2-for-Covid19$ ls /usr/share/festival/voices/english/ -la
total 20
drwxr-xr-x 5 root root 4096 may 19 18:44 .
drwxr-xr-x 3 root root 4096 may 17 23:30 ..
drwxr-xr-x 3 root root 4096 may 19 18:44 en1_mbrola
drwxr-xr-x 4 root root 4096 may 17 23:30 kal_diphone
drwxr-xr-x 3 root root 4096 may 19 18:44 us1_mbrola
penserbjorne@ubuntu-xenial:~/Proyectos/MobileRobots-2020-2-for-Covid19$

```

Figure 2: voces_instaladas_2

```

#!/usr/bin/env python

import sys
import rospy
from sound_play.msg import SoundRequest

def main(text_to_say):
    print "INITIALIZING SPEECH SYNTHESIS TEST..."
    rospy.init_node("speech_syn")
    pub_speech = rospy.Publisher("robotsound", SoundRequest, queue_size=10)
    loop = rospy.Rate(2)

    msg_speech = SoundRequest()
    msg_speech.sound = -3
    msg_speech.command = 1
    msg_speech.volume = 1.0
    msg_speech.arg2 = "voice_kal_diphone"
    #msg_speech.arg2 = "voice_en1_mbrola"
    #msg_speech.arg2 = "voice_us1_mbrola"
    msg_speech.arg = text_to_say

    loop.sleep()
    print "Sending text to say: " + text_to_say
    pub_speech.publish(msg_speech)

if __name__ == "__main__":
    text_to_say = "hello"
    if len(sys.argv) > 1:
        text_to_say = sys.argv[1]
    main(text_to_say)

```

Figure 3: voces_seleccionadas

Estas se indicaron en el script `catkin_ws/src/speech_syn/scripts/speech_test.py`.

Asignación de voces para sintetizar

```
penserbjorne@ubuntu-xenial:~/Proyectos/MobileRobots-2020-2-for-Covid19$ rosrn speech_syn speech_
test.py "Hello, good day for everyone, this is an audio for the mobile robots class with the voic
e en 1 embrola"
INITIALIZING SPEECH SYNTHESIS TEST...
Sending text to say: Hello, good day for everyone, this is an audio for the mobile robots class w
ith the voice en 1 embrola
penserbjorne@ubuntu-xenial:~/Proyectos/MobileRobots-2020-2-for-Covid19$
```

```
sound: -3
command: 1
volume: 1.0
arg: "Hello, good day for everyone, this is an audio for the mobile robots class with the\
 \ voice en 1 embrola"
arg2: "voice_en1_mbrola"
```

Figure 4: voces_en1_mbrola

Voz en1_mbrola

```
penserbjorne@ubuntu-xenial:~/Proyectos/MobileRobots-2020-2-for-Covid19$ rosrn speech_syn speech_
test.py "Hello again, this is another audio for the mobile robots class with the voice US 1 embro
la"
INITIALIZING SPEECH SYNTHESIS TEST...
Sending text to say: Hello again, this is another audio for the mobile robots class with the voic
e US 1 embrola
penserbjorne@ubuntu-xenial:~/Proyectos/MobileRobots-2020-2-for-Covid19$
```

```
sound: -3
command: 1
volume: 1.0
arg: "Hello again, this is another audio for the mobile robots class with the voice US\
 \ 1 embrola"
arg2: "voice_us1_mbrola"
```

Figure 5: voces_us1_mbrola

Voz us1_mbrola

Voz kal_diphone

Audios sintetizados

- en1_mbrola
- us1_mbrola
- kal_diphone

```
penserbjorne@ubuntu-xenial:~/Proyectos/MobileRobots-2020-2-for-Covid19$ rosrun speech_syn speech_
test.py "Hello one more time, this is just another audio for the mobile robots class with the voi
ce kal diphone"
INITIALIZING SPEECH SYNTHESIS TEST...
Sending text to say: Hello one more time, this is just another audio for the mobile robots class
with the voice kal diphone
penserbjorne@ubuntu-xenial:~/Proyectos/MobileRobots-2020-2-for-Covid19$
```

```
sound: -3
command: 1
volume: 1.0
arg: "Hello one more time, this is just another audio for the mobile robots class with\
 \ the voice kal diphone"
arg2: "voice_kal_diphone"
```

Figure 6: voces_kal_diphone