2022년 IoT기반 스마트 솔루션 개발자 양성과정

Programming : Python

10-PySound

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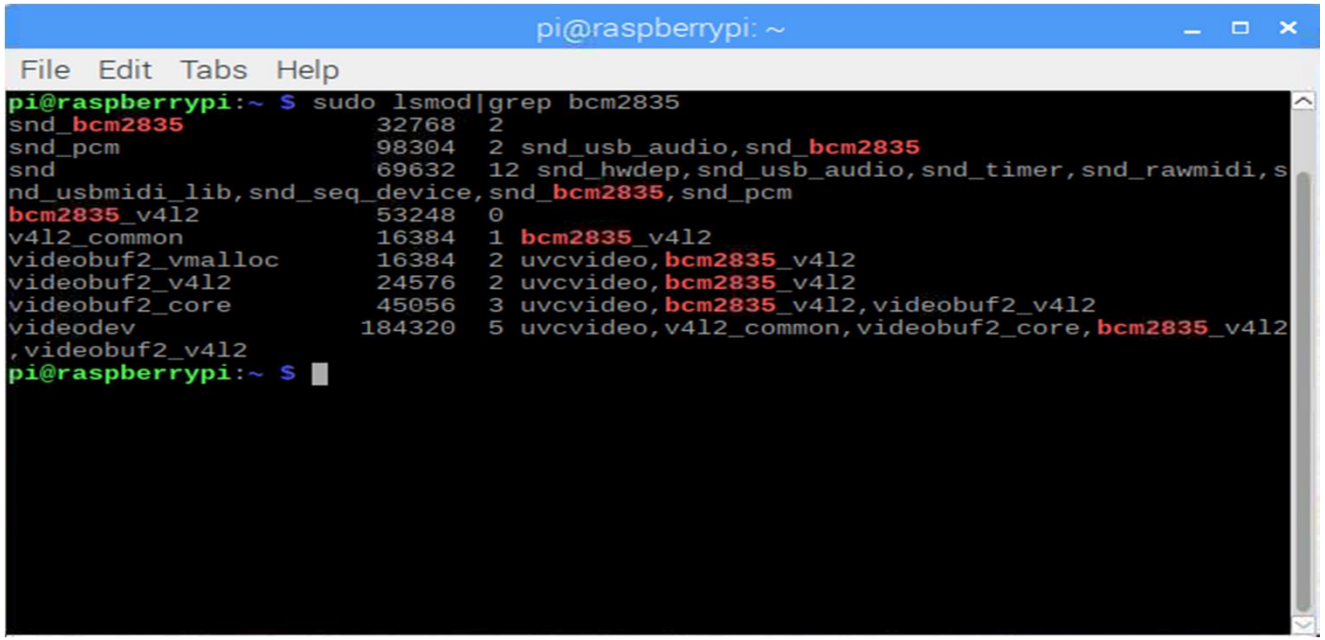
Sound Driver

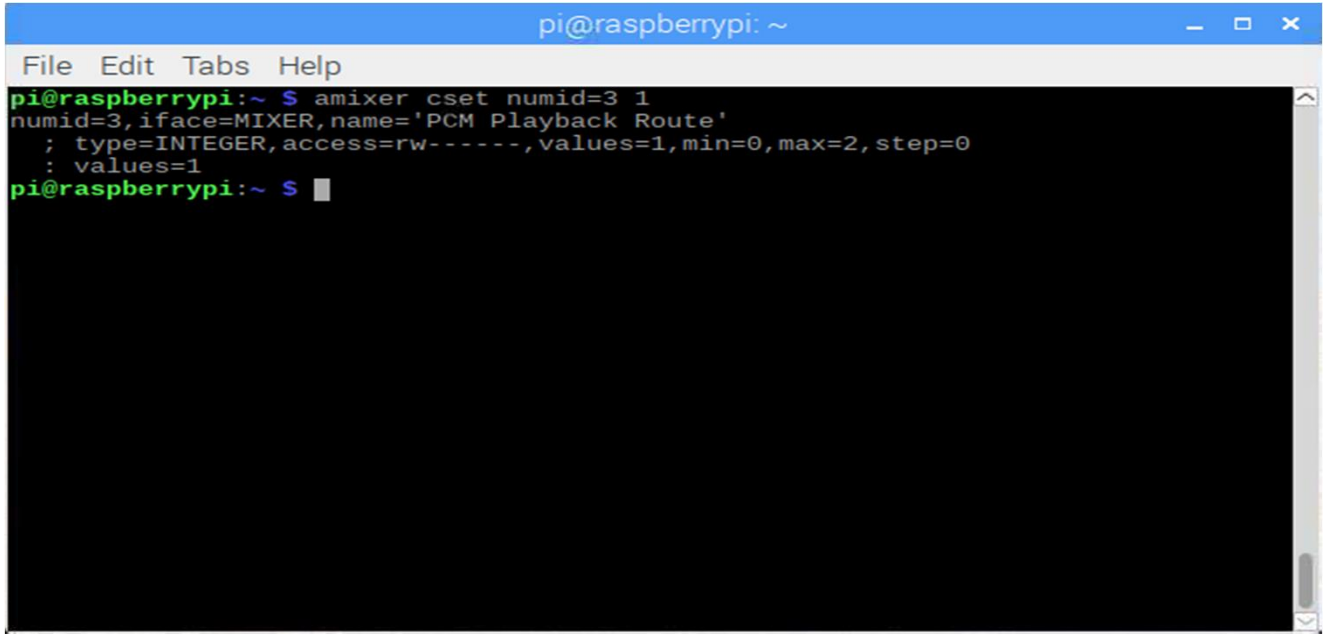
- $ sudo lsmod | grep bcm2835



미설치시
$ sudo apt-get install alsa-utils

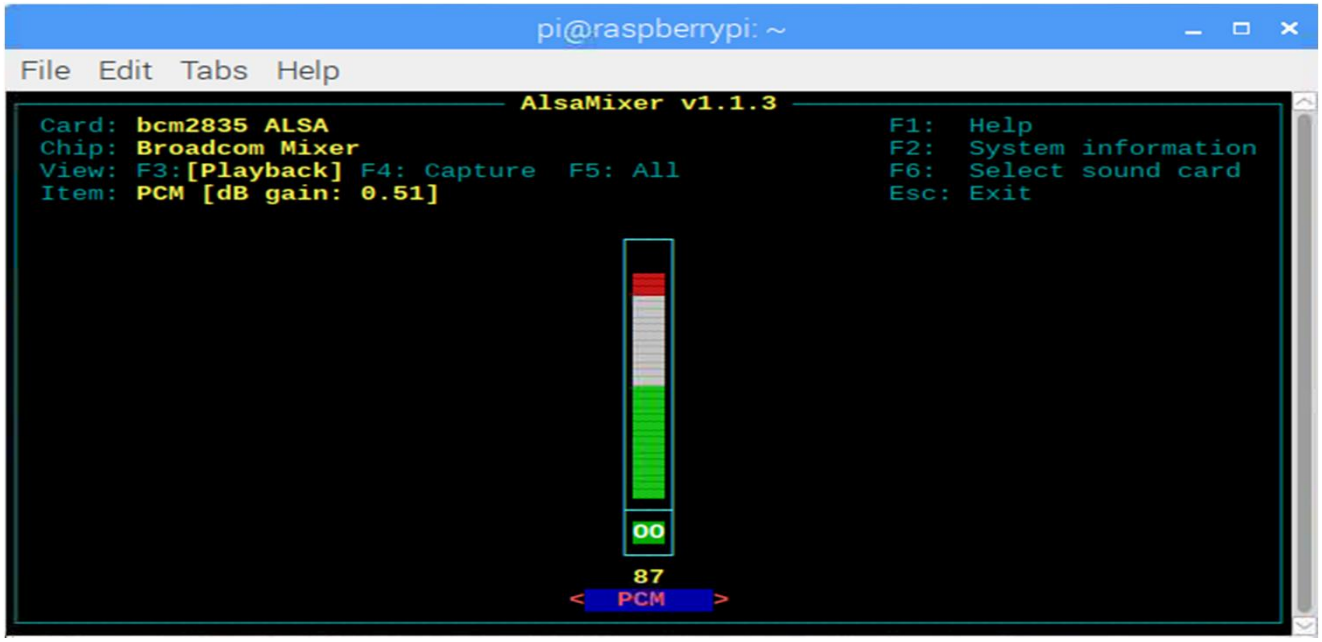
Audio Out Port Set

- $ amixer cset numid=3 n
  - n =0 auto, =1 Analog, =2 HDMI

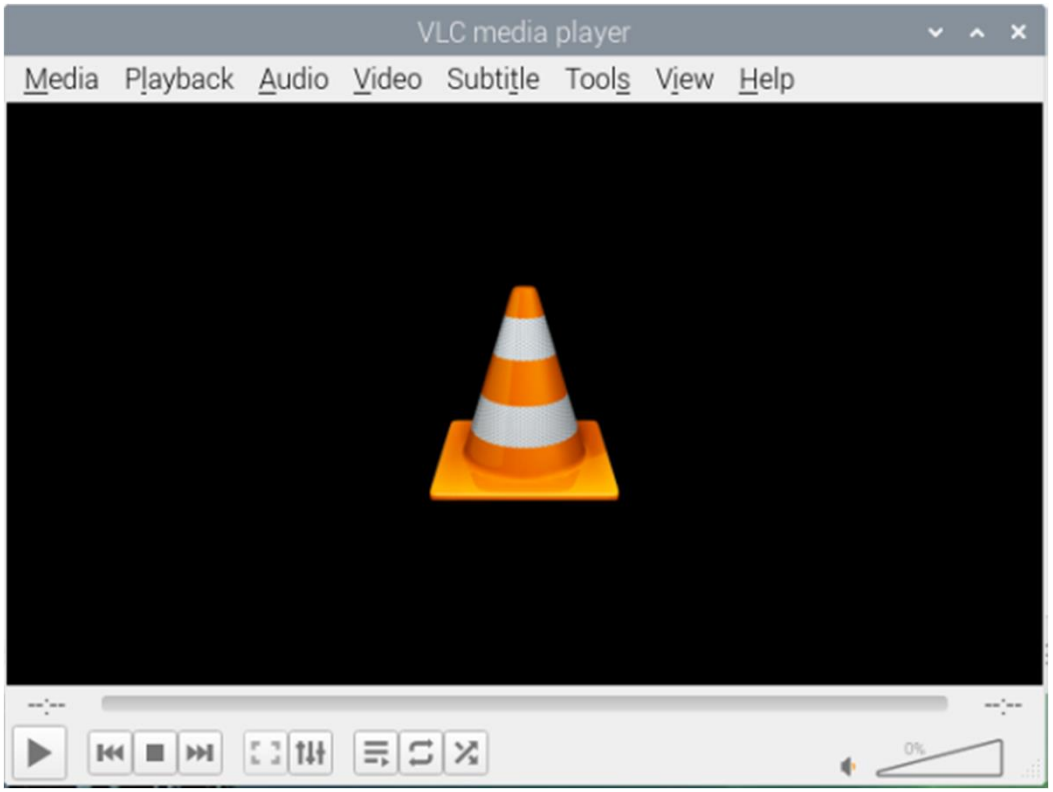


AlsaMixer

- $ alsamixer



VLC media player



omxplayer

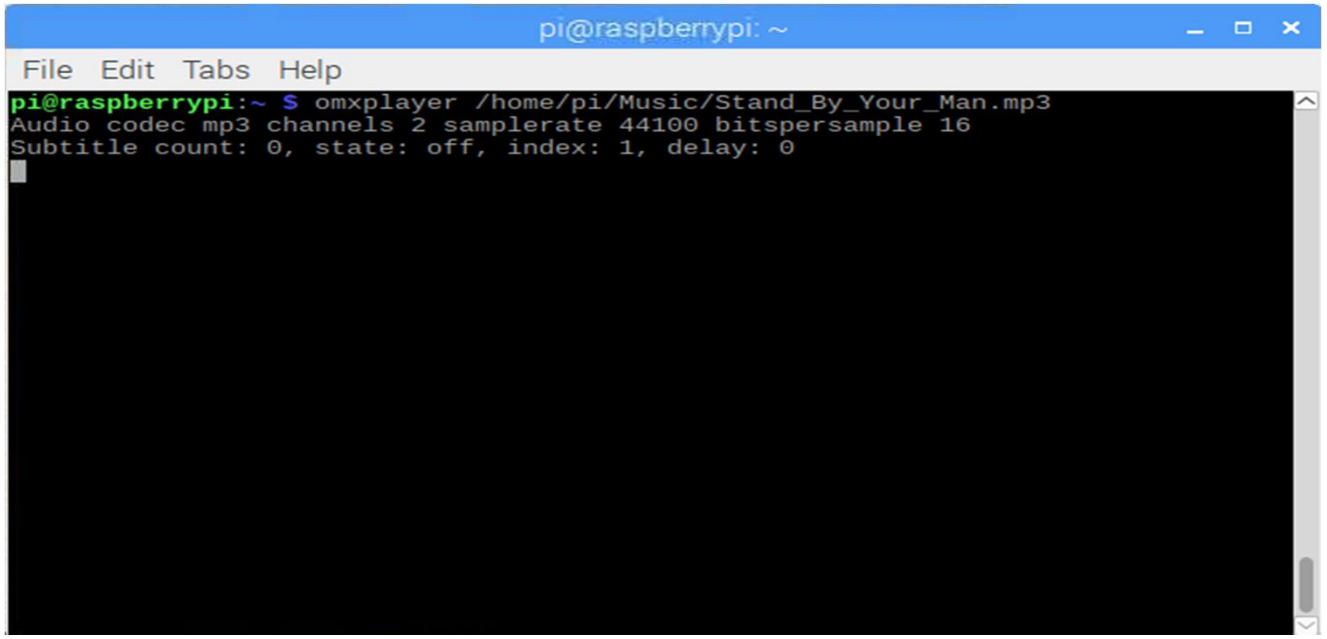
- OpenMAX (omx) 하드웨어 가속 인터페이스(API)를 사용
- 오디오/비디오 파일 형식을 재생
- omxplayer <media filename>

```
-h --help 이 도움말을 출력
-o --adev device 오디오 출력 장치: e.g. hdmi/local/both/alsa[:device]
--win x1,y1,x2,y2 비디오 창 위치 설정
--fps n Set fps of video where timestamps are not present
--alpha 비디오 투명도 설정(0..255)

-k --keys 키 바인딩을 출력
- 볼륨 작게
+ / = 볼륨 크게
p / space 정지/복귀
q omxplayer 종료
```

omxplayer

- $ omxplayer /home/pi/Music/Stand_By_Your_Man.mp3



subprocess

- Child process를 생성/실행

- subprocess.call( )
  - 단순 호출
- subprocess.Popen( )
  - Subprocess의 입출력
  - 문자열 출력에 대한 변환
  - 컨텍스트 매니저
  - Methode
    - poll ( ) : child process가 종료되었는지 확인
    - wait ( ) : child process가 종료될 때까지 대기
    - communicate ( ) : child process와 입출력
    - terminate ( ) : child process에 종료 signal을 전송
    - kill ( ) : child process 강제 종료
    - stdin ( ) : child process read/write (stream 객체)
    - stdout ( ) : child process read
    - stderr ( ) : child process read

Ex1 : Play_MP3.py

Play_MP3.py

```
1   import subprocess
2
3   mediafile="/home/pi/Music/Stand_By_Your_Man.mp3"
4
5   try:
6       print ('Play',mediafile)
7       proc=subprocess.Popen(['omxplayer','-o','local',mediafile],\
8                             shell=False, stdin=subprocess.PIPE,\
9                             stdout=subprocess.PIPE,stderr=subprocess.PIPE)
10
11      while proc.poll() is None:
12          pass
13
14      print ('End')
15
16  except KeyboardInterrupt:
17      proc.stdin.write('q'.encode())
18      proc.stdin.flush()
19      print ('Quit')
```

Ex1 : Run

Shell

```
Python 3.5.3 (/usr/bin/python3)
>>> %Run Play_MP3.py

  Play /home/pi/Music/Stand_By_Your_Man.mp3
  Quit

>>> %Run Play_MP3.py

  Play /home/pi/Music/Stand_By_Your_Man.mp3
  End

>>>
```

Ex2 : pygame music

pygame_sound.py

```
1   import pygame
2
3   mp3File='/home/pi/Music/Johnny_B_Goode.mp3'
4
5   pygame.mixer.init()
6   pygame.mixer.music.load(mp3File)
7
8   print ('Play')
9   pygame.mixer.music.play()
10  while pygame.mixer.music.get_busy()==True:
11      continue
12  print ('End Play')
```

Ex2 : Run