

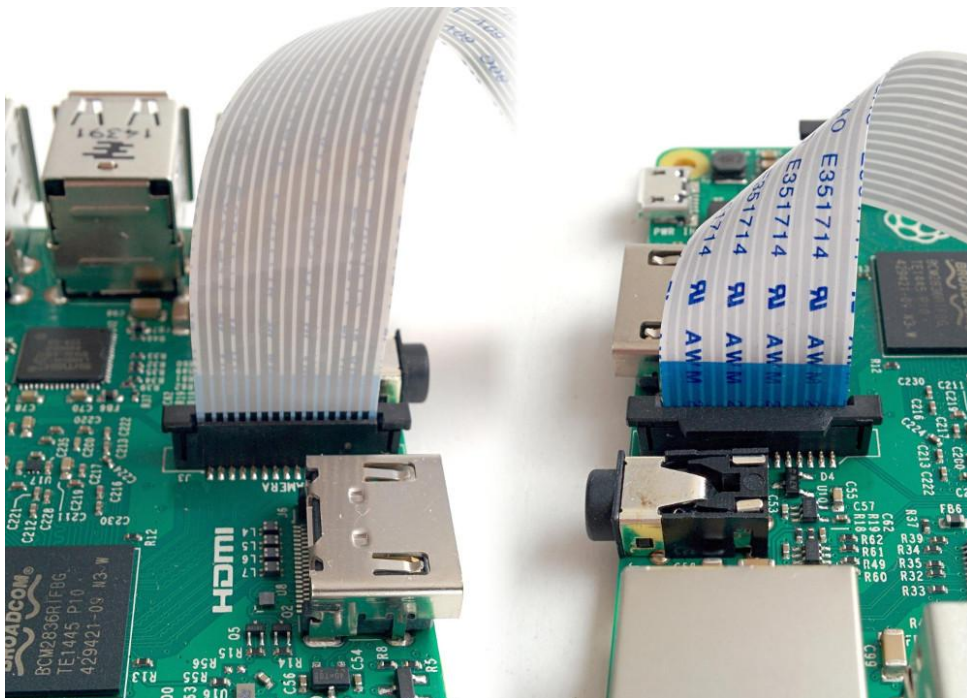
라즈베리파이 8MP V2 카메라보드 사용방법

라즈베리파이 8MP V2 카메라보드 스펙

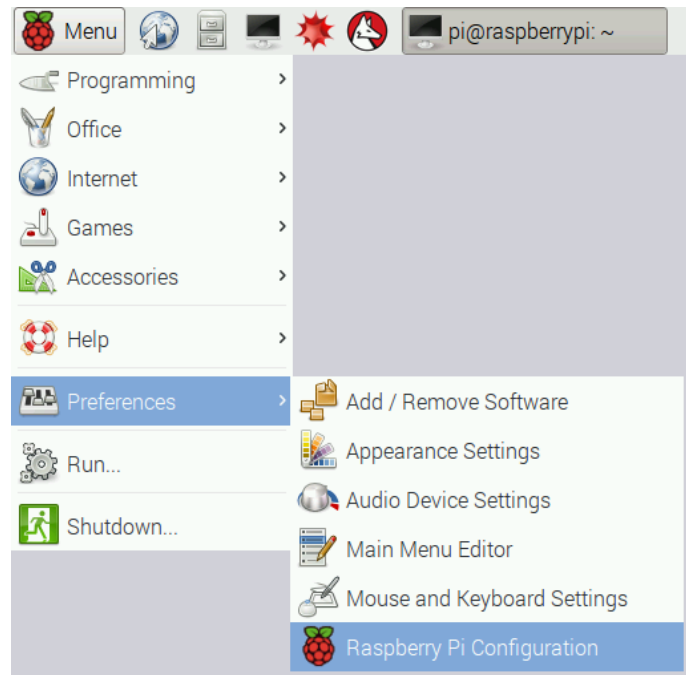
<input type="checkbox"/> Type	Camera Module
<input type="checkbox"/> Number of Channels	1
<input type="checkbox"/> Supported Bus Interfaces	CSI-2
<input type="checkbox"/> Maximum Supported Resolution	3280 x 2464
<input type="checkbox"/> Maximum Frame Rate Capture	30fps
<input type="checkbox"/> Dimensions	23.86 x 25 x 9mm
<input type="checkbox"/> Height	9mm
<input type="checkbox"/> Length	23.86mm
<input type="checkbox"/> Maximum Operating Temperature	+60°C
<input type="checkbox"/> Minimum Operating Temperature	-20°C
<input type="checkbox"/> Width	25mm

1. 라즈베리파이와 카메라보드 연결

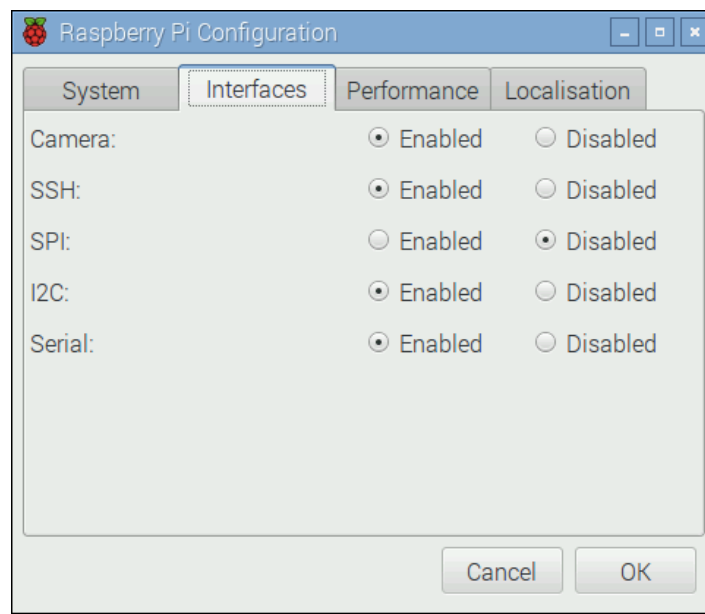
아래와 같이 라즈베리파이의 CSI 포트에 카메라보드를 동봉된 15센치미터 길이의 케이블을 이용해 연결



2. 카메라 보드 사용을 위해 Configuration Tool 실행



3. 카메라 보드 Enabled 체크 및 OK 버튼 클릭



4. 사진 촬영 소프트웨어 (raspistill) 사용

- 터미널창 실행



- raspistill 이라는 간단한 명령어로 사진 촬영이 가능
- 사진촬영은 아래 명령어 및 옵션을 입력

```
pi@raspberrypi: ~
pi@raspberrypi:~ $ raspistill -o test.jpg
```

- raspistill 명령어의 도움말 보기

```
pi@raspberrypi: ~
pi@raspberrypi:~ $ raspistill
raspistill Camera App v1.3.8

Runs camera for specific time, and take JPG capture at end if requested

usage: raspistill [options]

Image parameter commands

-?, --help      : This help information
-w, --width     : Set image width <size>
-h, --height    : Set image height <size>
-q, --quality   : Set jpeg quality <0 to 100>
-r, --raw       : Add raw bayer data to jpeg metadata
-o, --output    : Output filename <filename> (to write to stdout, use '-o -'). If not
specified, no file is saved
-l, --latest    : Link latest complete image to filename <filename>
-v, --verbose   : Output verbose information during run
-t, --timeout   : Time (in ms) before takes picture and shuts down (if not specified,
set to 5s)
-th, --thumb    : Set thumbnail parameters (x:y:quality) or none
-d, --demo      : Run a demo mode (cycle through range of camera options, no capture)
-e, --encoding  : Encoding to use for output file (jpg, bmp, gif, png)
-x, --exif      : EXIF tag to apply to captures (format as 'key=value') or none
-tl, --timelapse : Timelapse mode. Takes a picture every <t>ms. %d == frame nu
mber (Try: -o img_%04d.jpg)
-fp, --fullpreview : Run the preview using the still capture resolution (may red
uce preview fps)
-k, --keypress  : Wait between captures for a ENTER, X then ENTER to exit
-s, --signal    : Wait between captures for a SIGUSR1 from another process
-g, --gl        : Draw preview to texture instead of using video render component
-gc, --gpcapture : Capture the GL frame-buffer instead of the camera image
```

5. 비디오 녹화 소프트웨어 (raspivid) 사용

- 카메라 모듈에는 마이크가 없어 비디오 녹화 시 소리는 녹음되지 않음

- 터미널창 실행



- raspivid 라는 간단한 명령어로 사진 촬영이 가능
- 동영상촬영은 아래 명령어 및 옵션을 입력
- 파일명 video.h264 파일로 10초간 촬영

```
pi@raspberrypi: ~
pi@raspberrypi:~ $ raspivid -o video.h264 -t 10000
```

- raspivid 명령어의 도움말 보기

```
pi@raspberrypi: ~
pi@raspberrypi:~ $ raspivid

raspivid Camera App v1.3.12

Display camera output to display, and optionally saves an H264 capture at requested bitrate

usage: raspivid [options]

Image parameter commands

-?, --help      : This help information
-w, --width     : Set image width <size>. Default 1920
-h, --height    : Set image height <size>. Default 1080
-b, --bitrate   : Set bitrate. Use bits per second (e.g. 10Mbits/s would be -b 10000000)
-o, --output    : Output filename <filename> (to write to stdout, use '-o -')
-v, --verbose   : Output verbose information during run
-t, --timeout   : Time (in ms) to capture for. If not specified, set to 5s. Zero to disable
-d, --demo     : Run a demo mode (cycle through range of camera options, no capture)
-fps, --framerate : Specify the frames per second to record
-e, --penc     : Display preview image *after* encoding (shows compression artifacts)
-g, --intra    : Specify the intra refresh period (key frame rate/GoP size). Zero to produce an initial I-frame and then just P-frames.
-pf, --profile  : Specify H264 profile to use for encoding
-td, --timed   : Cycle between capture and pause. -cycle on,off where on is record time and off is pause time in ms
-s, --signal   : Cycle between capture and pause on Signal
-k, --keypress  : Cycle between capture and pause on ENTER
-i, --initial   : Initial state. Use 'record' or 'pause'. Default 'record'
```

- 녹화된 동영상은 omxplayer 라는 명령어로 재생

```
pi@raspberrypi: ~
pi@raspberrypi:~ $ omxplayer video.h264
```