

Gesture Music Player

GitHub Link:

<https://github.com/Bryce138675/Mini-project-Gesture-Music-Player>

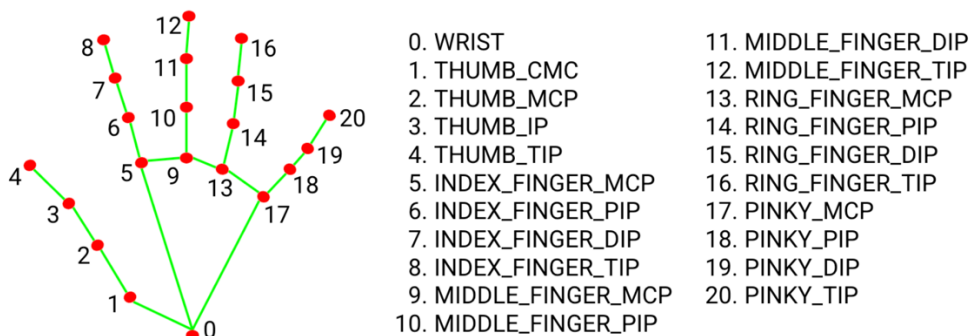
1. Importing libraries

- **Import Pygame** --- Pygame is a cross-platform set of Python modules designed for writing video games. It includes computer graphics and sound libraries designed to be used with the Python programming language.
- **Import os** --- The OS module in Python provides functions for creating and removing a directory (folder), fetching its contents, changing and identifying the current directory, etc.

2. Hand keypoint detection

Reference to a project to present a PPT through gesture recognition

(<https://blog.csdn.net/dgvv4/article/details/12368273>)



- Video capture (Get the computer camera, Width of the image, Height of the image)
- Create music dataset (5 songs)
- Draw a line on the camera and make a gesture with your hand above the line to trigger
- Hand recognition module configuration (Up to 2 hands detected)
- FlipType--- Flip the image so that the computer image is a mirror image of our own
- Draw a line and make a gesture above the line to trigger
- Draw a finger movement mapping area
- Counts how many fingers are cocked and returns a list where 1 means the finger is cocked and 0 means bent
- Get the xyz position of 21 key points
- Setting the mapping area (x,y)
- Hand centre coordinates

3. Control music

The following code uses the pygame library to play music (https://blog.csdn.net/RNG_uzi/article/details/98315639)

- Work on key finger points to determine which fingers are cocked--- returns a list where 1 means the finger is cocked and 0 means bent

```
1 from pygame import mixer
2 import time
3
4 mixer.init()
5 mixer.music.load('xx.mp3')
6 mixer.music.play()
7 time.sleep(5)
8 mixer.music.stop()
```

- Use fingers to play music
 - a. thumb and forefinger--- Watermelon Sugar
 - b. thumbs, forefinger and little finger--- I Knew You Were Trouble
 - c. thumbs and little finger to play--- Adore You
 - d. forefinger, middle finger, ring finger, little finger--- As It Was
 - e. Use forefinger and middle finger to play--- Golden

- Use fingers to control music

The following codes refer to the music player. (<https://blog.csdn.net/txr152111/article/details/119213827>)

```
def pause_music():
    print("暂停播放\n")
    pygame.mixer.music.pause()

def unpause_music():
    print("继续播放\n")
    pygame.mixer.music.unpause()

def stop_music():
    print("停止播放\n")
    pygame.mixer.music.stop()
```

- a. forefinger and little finger--- pause music
- b. thumb, middle finger, ring finger and little finger---unpause music
- c. thumb, forefinger, middle finger, ring finger and little finger---stop music

4. Display and Release

5. Feedback

I have only used five gestures to play music. After that I will use more gestures to play music. In the future, I want to create a music player which can be controlled by gestures. I will add gestures to play the previous and next song and to adjust the volume. And I want to try use gestures to control the keyboard and mouse to search music in the database. This music player even could show lyrics and some images of songs. I hope this music player could help people play music when they couldn't use their hands to control keyboard and mouse. I hope this music player could help disabled people to conduct music therapy and enjoy music.