Audio player in C++

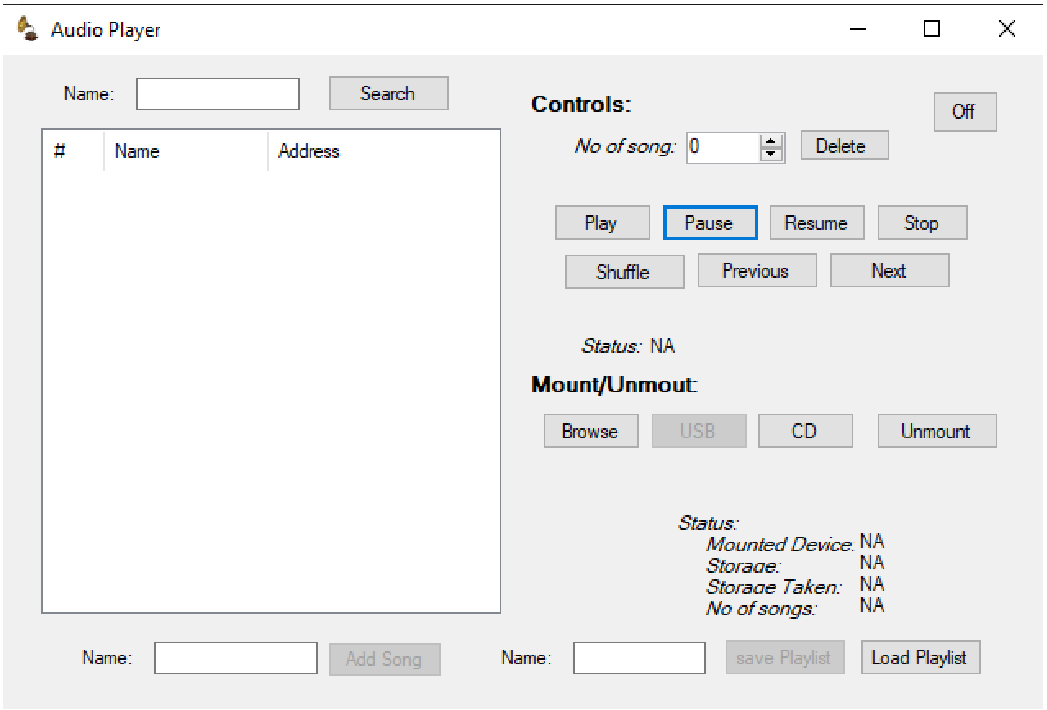
On start, a device must be mounted, which is done with help of the *navigation* and *storage_media* classes which go to the path specified by the user and display the file names in that path. The CD and USB are checked for compatibility, a CD only supports .mp3 files and a USB can have a maximum size of 16GB. For handling music, the *aud_player* and *aud_playerv2* classes are used. A playlist is displayed containing all the song names. It provides the features of shuffle, search, add and deleting songs. Once a song is selected it can be played. This enables the use of the pause, stop, resume and stop button. The playlist is saved into a text file which can be retrieved the next time the program is run.

Concepts used:

- Abstraction
- Dynamic programming/arrays
- Composition
- File handling
- GUI

Features:

- File handling, saving playlists
- File browsing and folder browsing for adding songs and folders
- Searching a song
- Playing/pausing/resuming/stopping songs
- Handled errors, and status of current songs, and devices



No of song: 0

Status: NA

Status:
Mounted Device: NA
Storage: NA
Storage Taken: NA
No of songs: NA

Introduction:

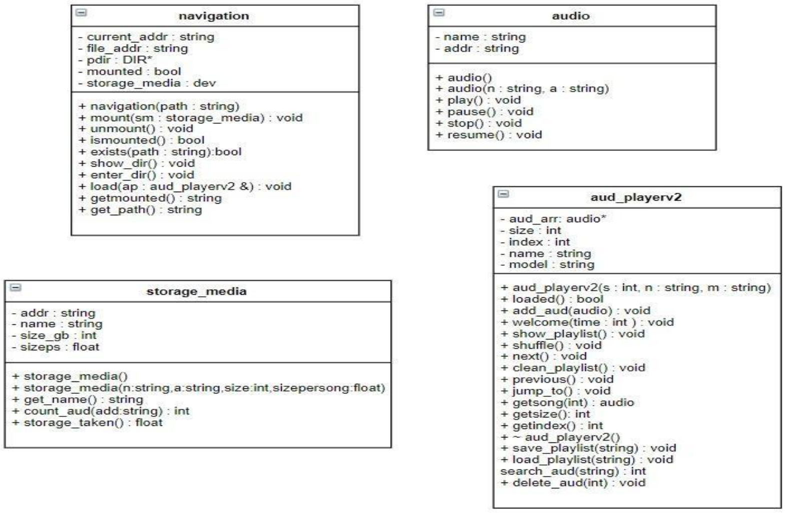
A GUI based audio player capable of playing songs from a CD or a USB. It allows playlists to be made and provides the features of shuffling songs, saving and loading playlist from a text file, deleting or adding songs to the playlist and searching for an audio file. The storage media i.e. CD or USB can be mounted or unmounted. The music starts playing on mounting and the name of the song is displayed along with the functionalities of pause/play, next/previous song, power on/off.

The audio files must be of .mp3 or .wav format.

Methodology:

Description

UML:



Classes:

- ## Navigation:
    - **Constructor:**
      Saves the current path in a string variable and sets the initial mount status to false.
    - **mount:**
      Checks if device is already mounted, if not it gets the address of the storage media and mounts it.
    - **getmounted:**
      Returns the name of the mounted device.
    - **unmount:**
      Checks if device is mounted and unmounts it.
    - **ismounted:**
      Returns the mount status.
    - **exists:**
      Checks if a path exists by trying to open it.
    - **show_dir:**
      Opens a directory and displays all the filenames.
    - **enter_dir:**
      Takes names of the files the user wants to open and enters that directory. Also allows to go back to the previous directory.
    - **load:**
      Checks the number of songs in the directory, if songs are present, the directory is opened and they are added to the playlist.
    - **get_path:**
      Returns the path of the current directory.

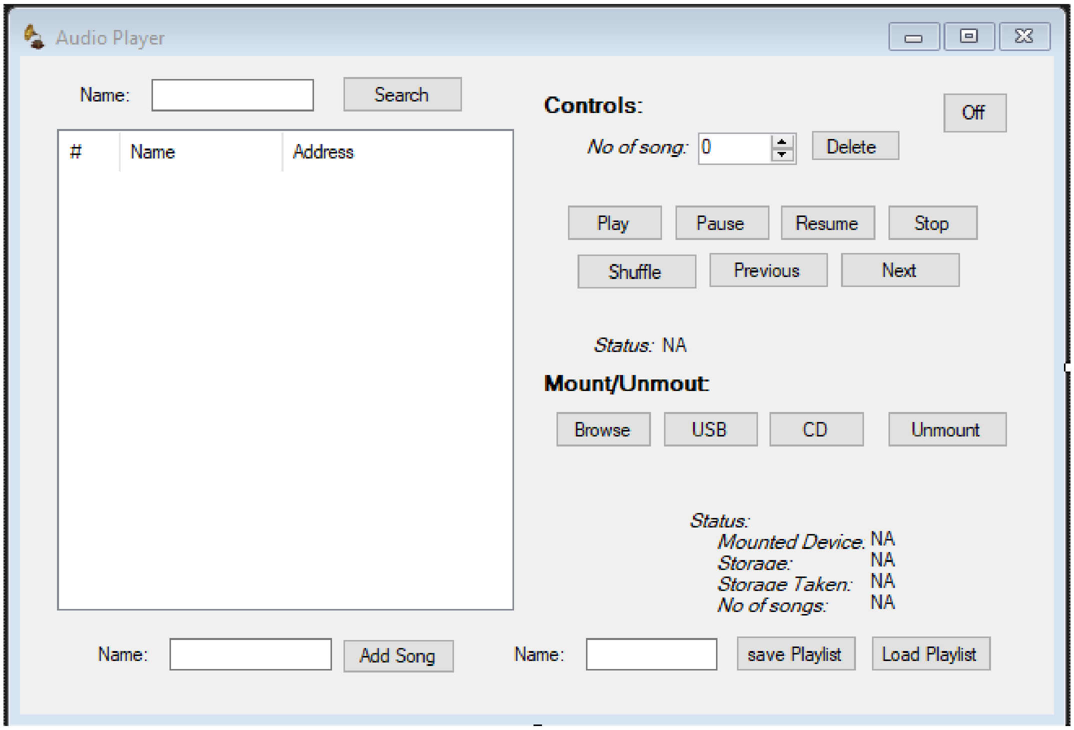
- ## Storage_media:
  - **Constructor:**
    Initializes the attributes i.e. name, address, size in GBs, size per song, of the storage device. If the size used exceeds the limit, it gives an error.
  - **get_addr:**
    Returns the address of the device.
  - **get_name:**
    Returns the name of the device.
  - **count_aud:**
    Opens the directory and counts the number of .mp3 and .wav files on the device.
  - **get_size:**
    Returns the size of the device.
  - **storage_taken:**
    Calculates and returns the amount of storage that has been used.
- ## Aud_player:
  - **get_name:**
    Returns the name of the song.
  - **get_address:**
    Returns the address of the song.
  - **play:**
    Plays a song by sending its path to the mciSendString function.
  - **pause:**
    Pauses the song that was playing.
  - **stop:**
    Stops playing.
  - **resume:**
    Resumes the song that was paused.
- ## Aud_playerv2:
  - **Constructor:**
    Makes a playlist of the specified size and initializes some parameters.
  - **welcome:**
    Displays the welcome message.
  - **loaded:**
    Checks if songs have been loaded into the playlist.
  - **add_aud:**
    Creates a deep copy of the old playlist and adds a new song into it.
  - **show_playlist:**
    Displays all song names.
  - **clean_playlist:**

Deletes the old playlist and creates a new one of size 0.

- **next:**
  Plays the next song by incrementing the song index.
- **previous:**
  Plays the previous song by decreasing the song index.
- **shuffle:**
  Creates a randomly shuffled playlist.
- **jump_to:**
  Takes a song index and plays it.
- **getsong:**
  Returns the song at the specified index.
- **getsize:**
  Returns the size of the playlist.
- **getindex:**
  Returns the index of a song.
- **save_playlist:**
  Creates a .txt file using fstream and stores all song names and addresses in it.
- **load_playlist:**
  Clears the existing playlist and loads the one saved in a .txt file.
- **search_aud:**
  Searches for a song using its name.
- **delete_aud:**
  Deletes a song from a playlist and creates a new playlist without it.

- **Destructor:**
  Empties all dynamically declared memory.

Design:

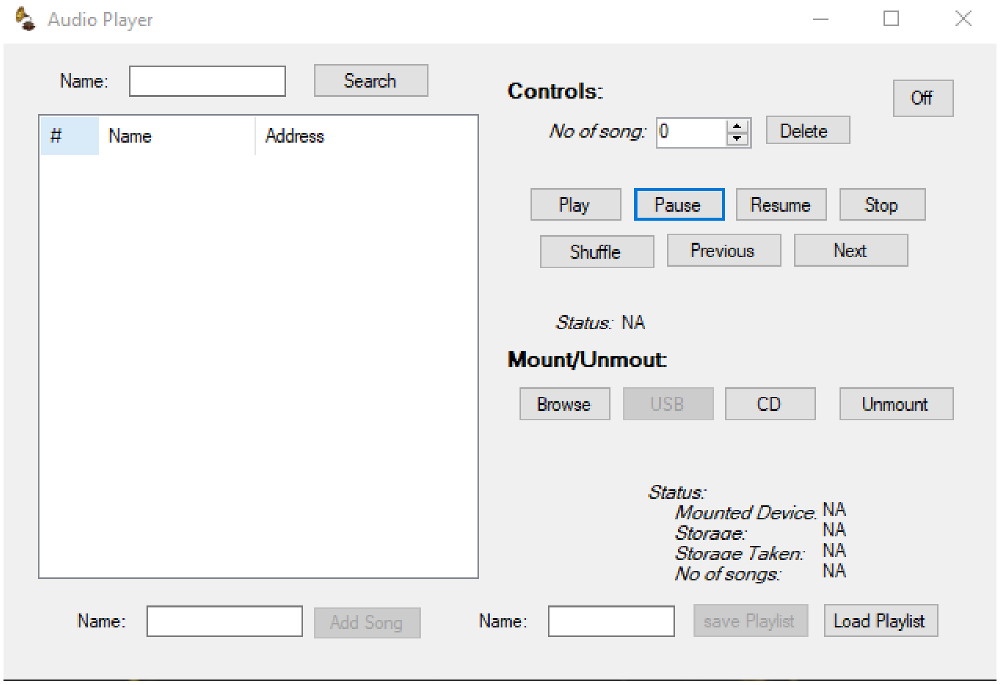


No of song: 0

Status: NA

Status:
Mounted Device: NA
Storage: NA
Storage Taken: NA
No of songs: NA

Output:

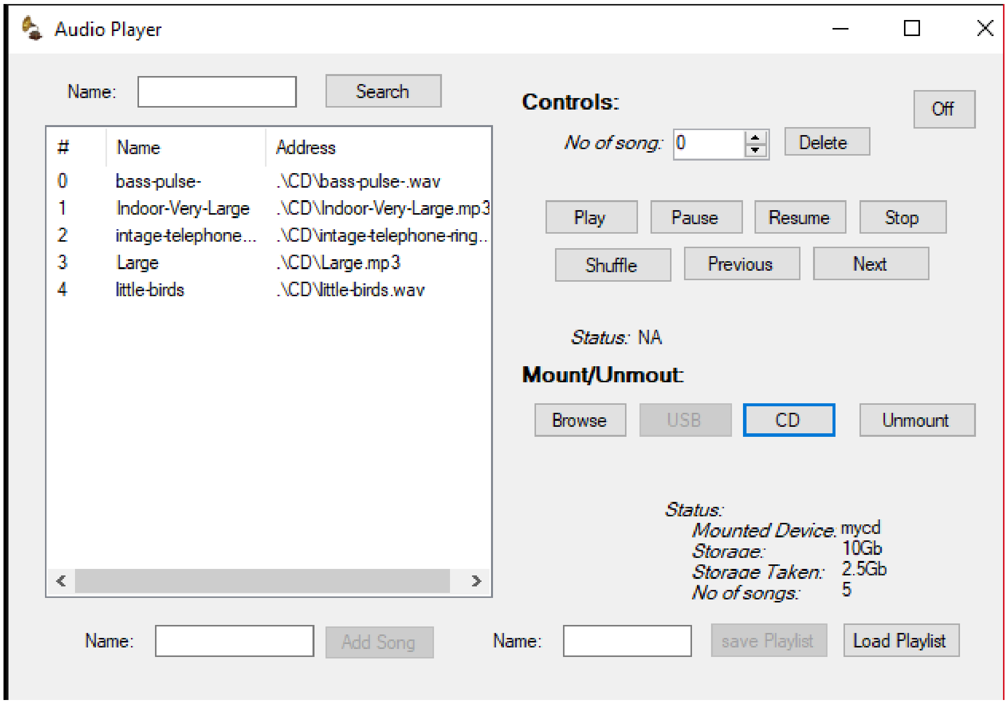


No of song: 0

Status: NA

Status:
Mounted Device: NA
Storage: NA
Storage Taken: NA
No of songs: NA

- **Mount CD:**



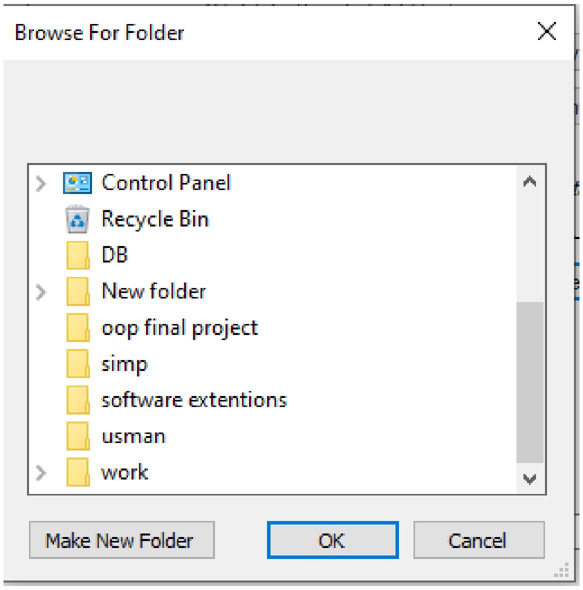
#	Name	Address
0	bass-pulse-	.\CD\bass-pulse-.wav
1	Indoor-Very-Large	.\CD\Indoor-Very-Large.mp3
2	intage-telephone...	.\CD\intage-telephone-ring..
3	Large	.\CD\Large.mp3
4	little-birds	.\CD\little-birds.wav

No of song: 0

Status: NA

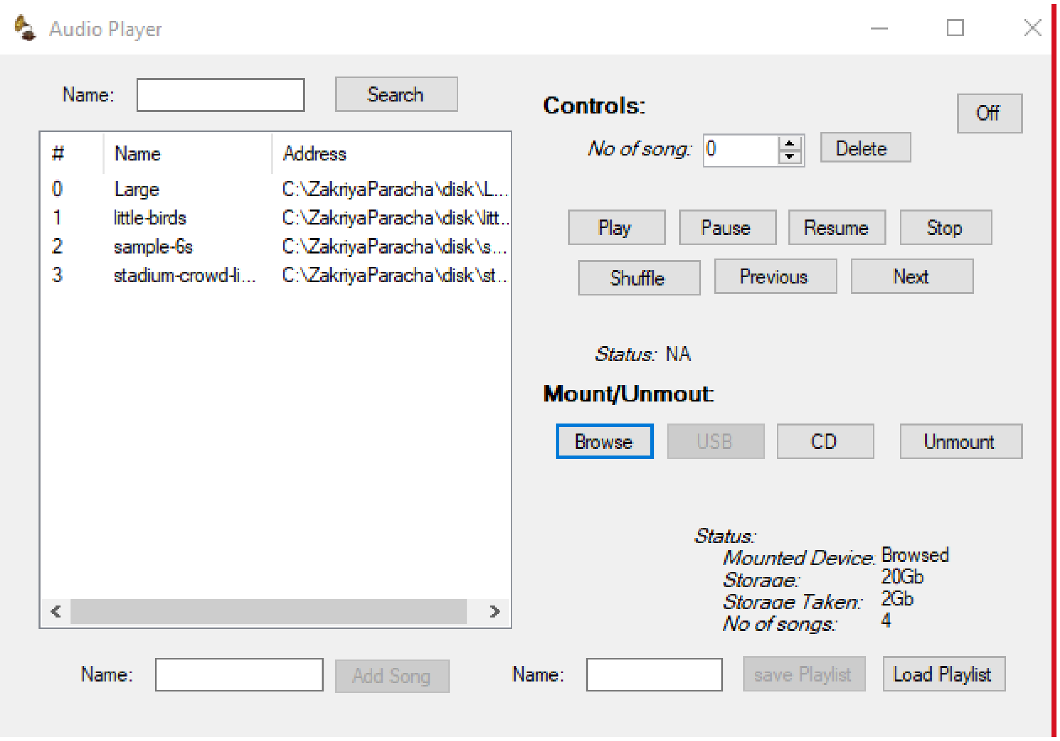
Status:
Mounted Device. mycd
Storage: 10Gb
Storage Taken: 2.5Gb
No of songs: 5

- **Mount Browse:**



Browse For Folder

- Control Panel
- Recycle Bin
- DB
- New folder
- oop final project
- simp
- software extentions
- usman
- work



Audio Player

#	Name	Address
0	Large	C:\ZakriyaParacha\disk\L...
1	little-birds	C:\ZakriyaParacha\disk\litt...
2	sample-6s	C:\ZakriyaParacha\disk\s...
3	stadium-crowd-li...	C:\ZakriyaParacha\disk\st...

Controls:

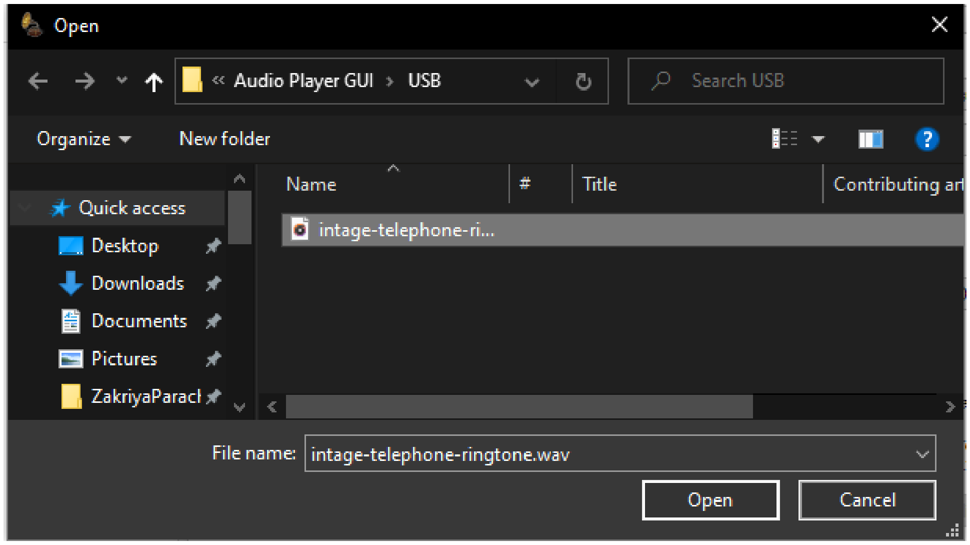
No of song: 0

Status: NA

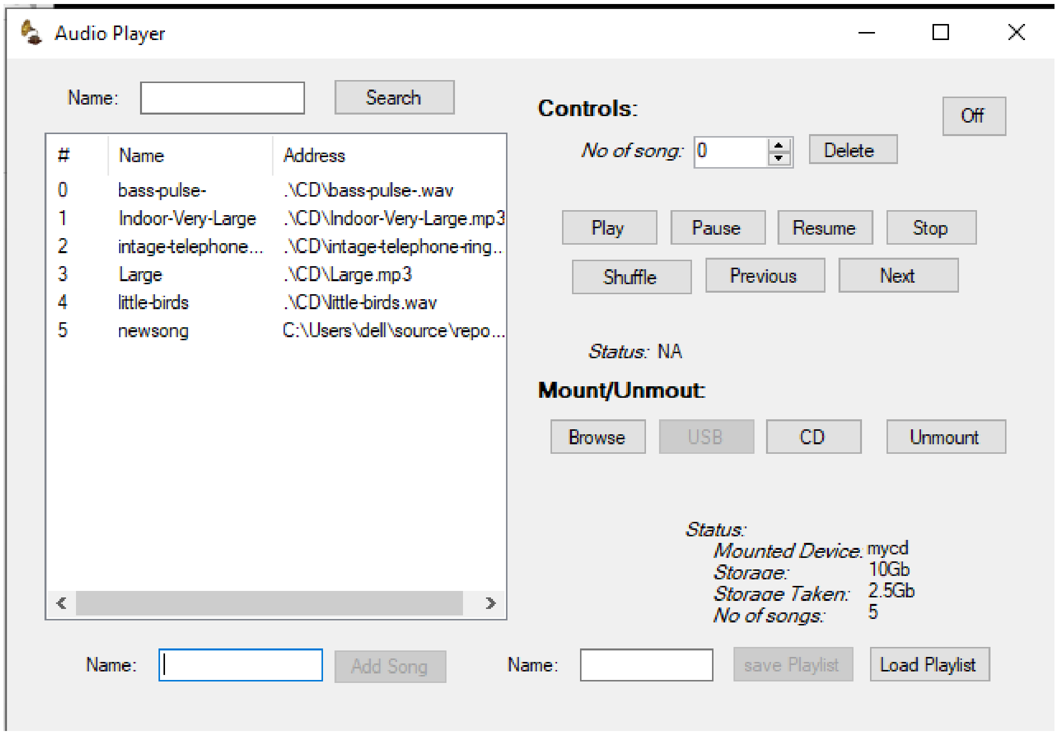
Mount/Unmout:

Status:
Mounted Device: Browsed
Storage: 20Gb
Storage Taken: 2Gb
No of songs: 4

- **Add songs:**



File name: intage-telephone-ringtone.wav



#	Name	Address
0	bass-pulse-	.\CD\bass-pulse-.wav
1	Indoor-Very-Large	.\CD\Indoor-Very-Large.mp3
2	intage-telephone...	.\CD\intage-telephone-ring...
3	Large	.\CD\Large.mp3
4	little-birds	.\CD\little-birds.wav
5	newsong	C:\Users\dell\source\repo...

No of song: 0

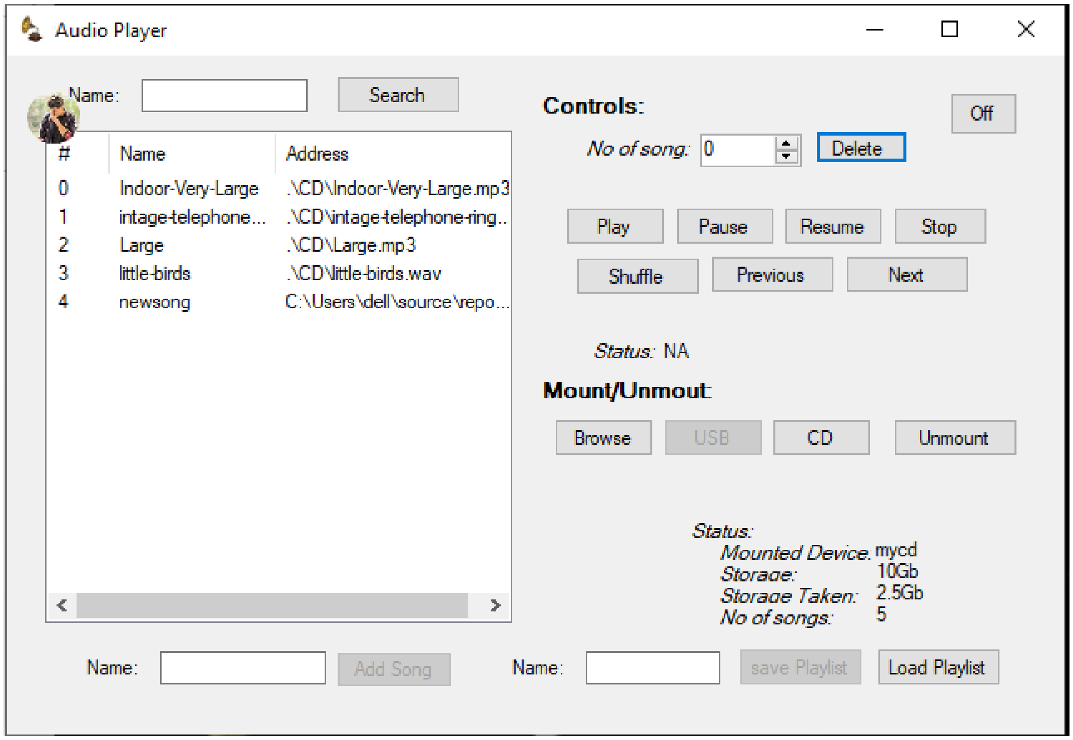
Status: NA

Status:
Mounted Device: mycd
Storage: 10Gb
Storage Taken: 2.5Gb
No of songs: 5

Name:

Name:

- **Delete songs:**



Name:

No of song: 0

#	Name	Address
0	Indoor-Very-Large	.\CD\Indoor-Very-Large.mp3
1	intage-telephone...	.\CD\intage-telephone-ring...
2	Large	.\CD\Large.mp3
3	little-birds	.\CD\little-birds.wav
4	newsong	C:\Users\dell\source\repo...

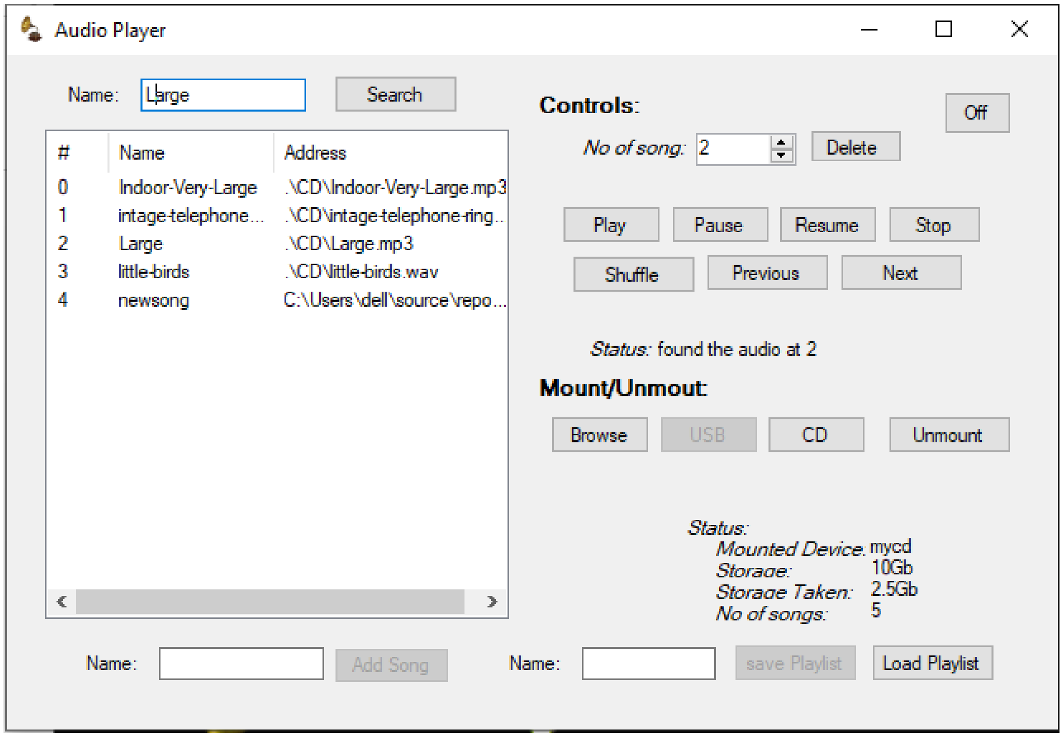
Status: NA

Status:
Mounted Device: mycd
Storage: 10Gb
Storage Taken: 2.5Gb
No of songs: 5

Name:

Name:

- **Search songs:**



Name: Large

No of song: 2

#	Name	Address
0	Indoor-Very-Large	.\CD\Indoor-Very-Large.mp3
1	intage-telephone...	.\CD\intage-telephone-ring...
2	Large	.\CD\Large.mp3
3	little-birds	.\CD\little-birds.wav
4	newsong	C:\Users\dell\source\repo...

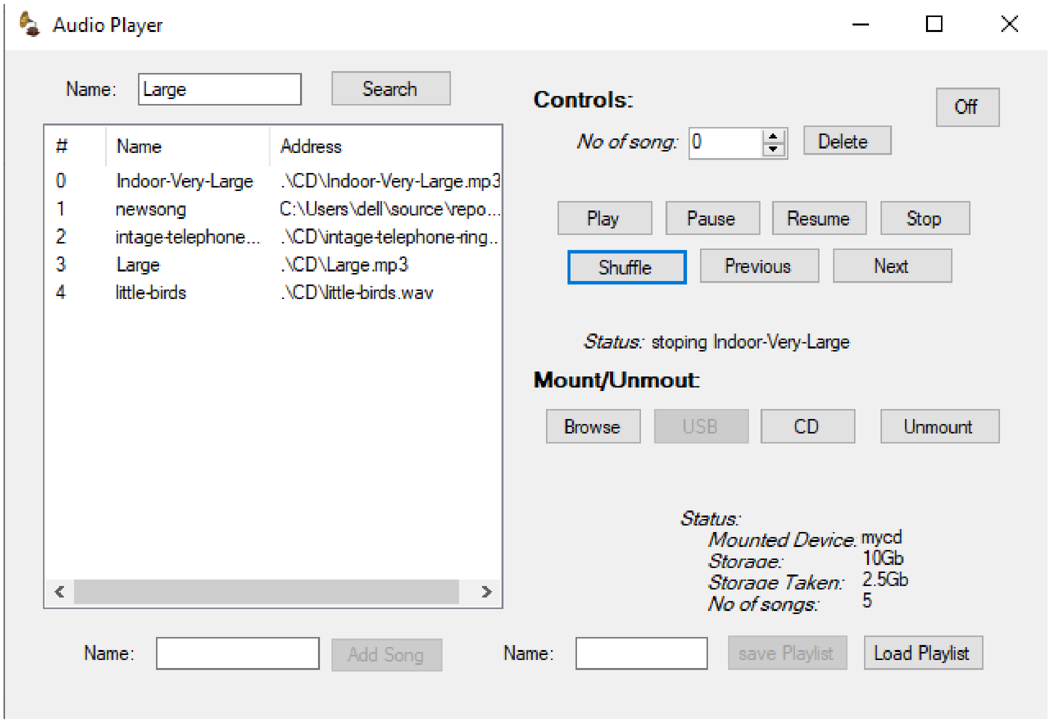
Status: found the audio at 2

Status:
Mounted Device: mycd
Storage: 10Gb
Storage Taken: 2.5Gb
No of songs: 5

Name:

Name:

- **Shuffle songs:**



Name: Large

#	Name	Address
0	Indoor-Very-Large	.\CD\Indoor-Very-Large.mp3
1	newsong	C:\Users\dell\source\repo...
2	intage-telephone...	.\CD\intage-telephone-ring..
3	Large	.\CD\Large.mp3
4	little-birds	.\CD\little-birds.wav

No of song: 0

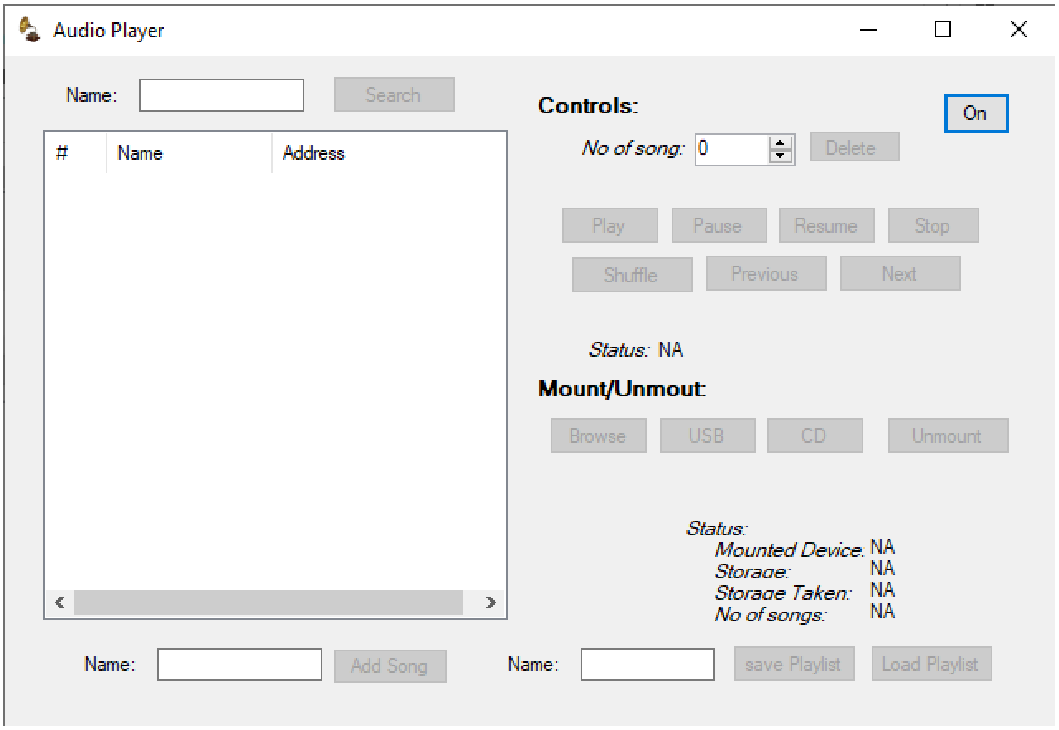
Status: stoping Indoor-Very-Large

Status:
Mounted Device: mycd
Storage: 10Gb
Storage Taken: 2.5Gb
No of songs: 5

Name:

Name:

- **Power Off:**



Name:

#	Name	Address

No of song: 0

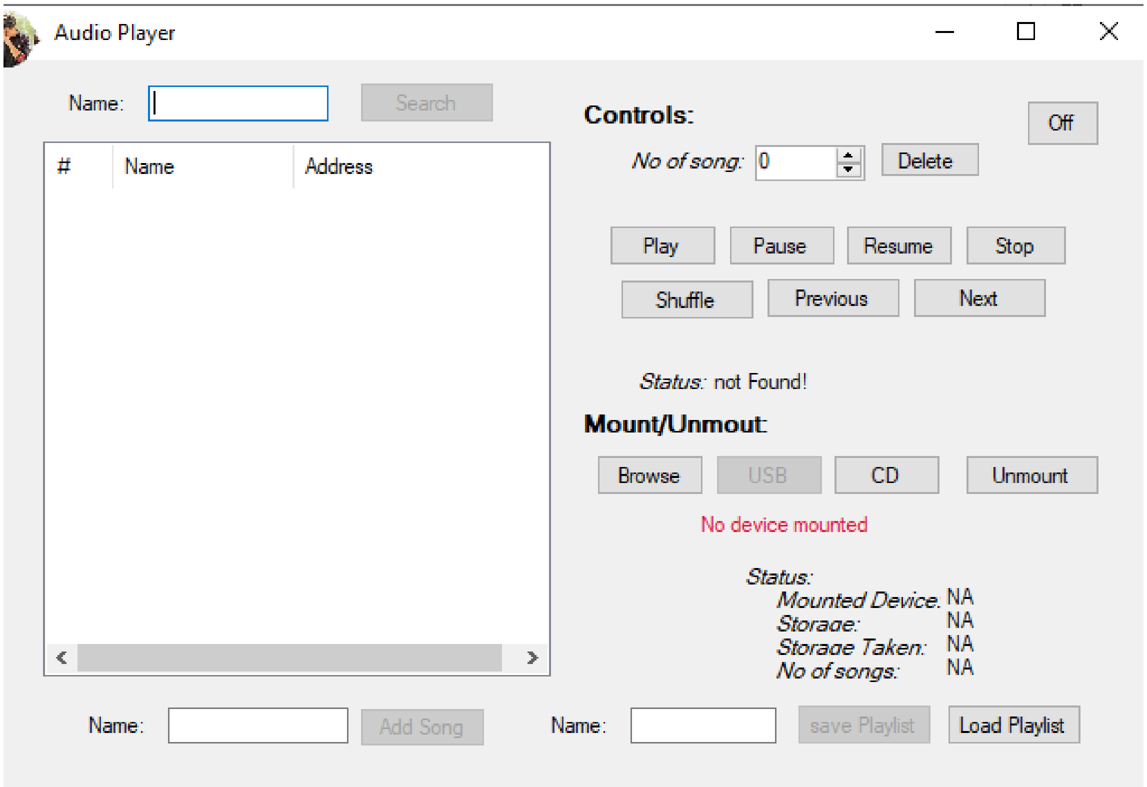
Status: NA

Status:
Mounted Device: NA
Storage: NA
Storage Taken: NA
No of songs: NA

Name:

Name:

Error messages:



Audio Player

Name:

#	Name	Address

Controls:

No of song: 0

Status: not Found!

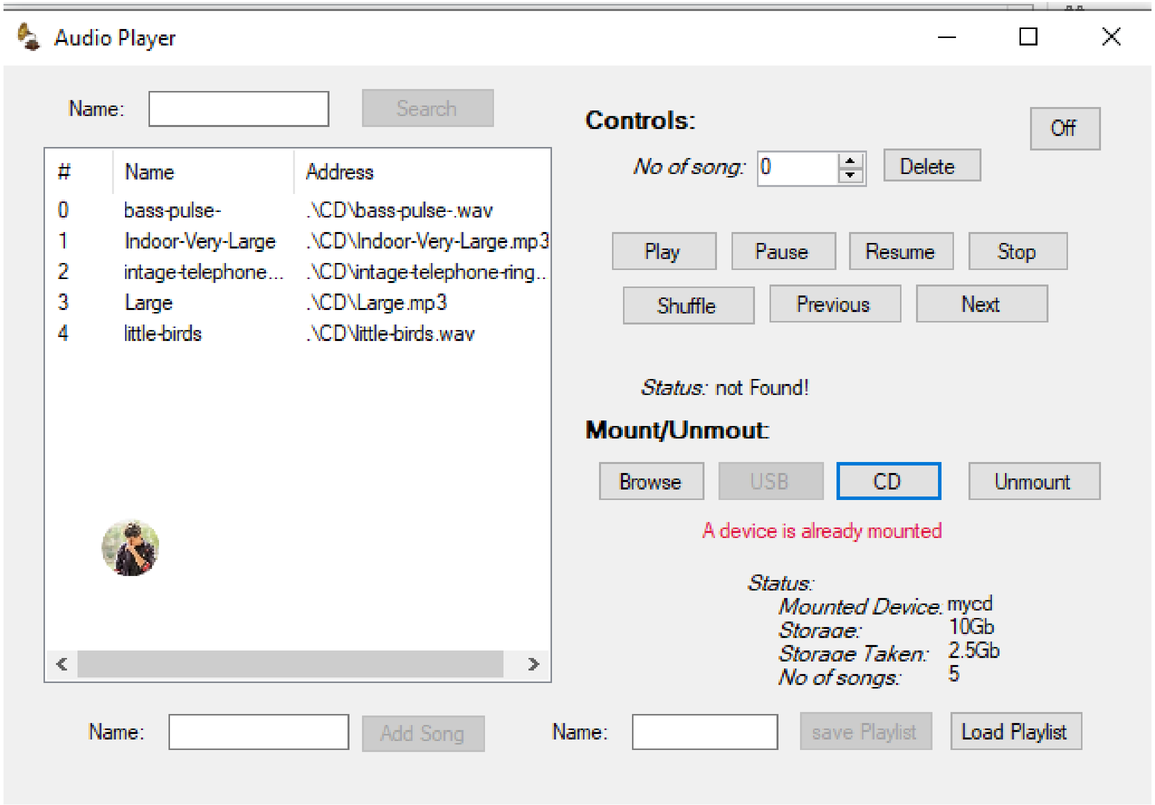
Mount/Unmout:

No device mounted

Status:
Mounted Device: NA
Storage: NA
Storage Taken: NA
No of songs: NA

Name:

Name:



Audio Player

Name:

#	Name	Address
0	bass-pulse-	.\CD\bass-pulse-.wav
1	Indoor-Very-Large	.\CD\Indoor-Very-Large.mp3
2	intage-telephone...	.\CD\intage-telephone-ring...
3	Large	.\CD\Large.mp3
4	little-birds	.\CD\little-birds.wav

Controls:

No of song: 0

Status: not Found!

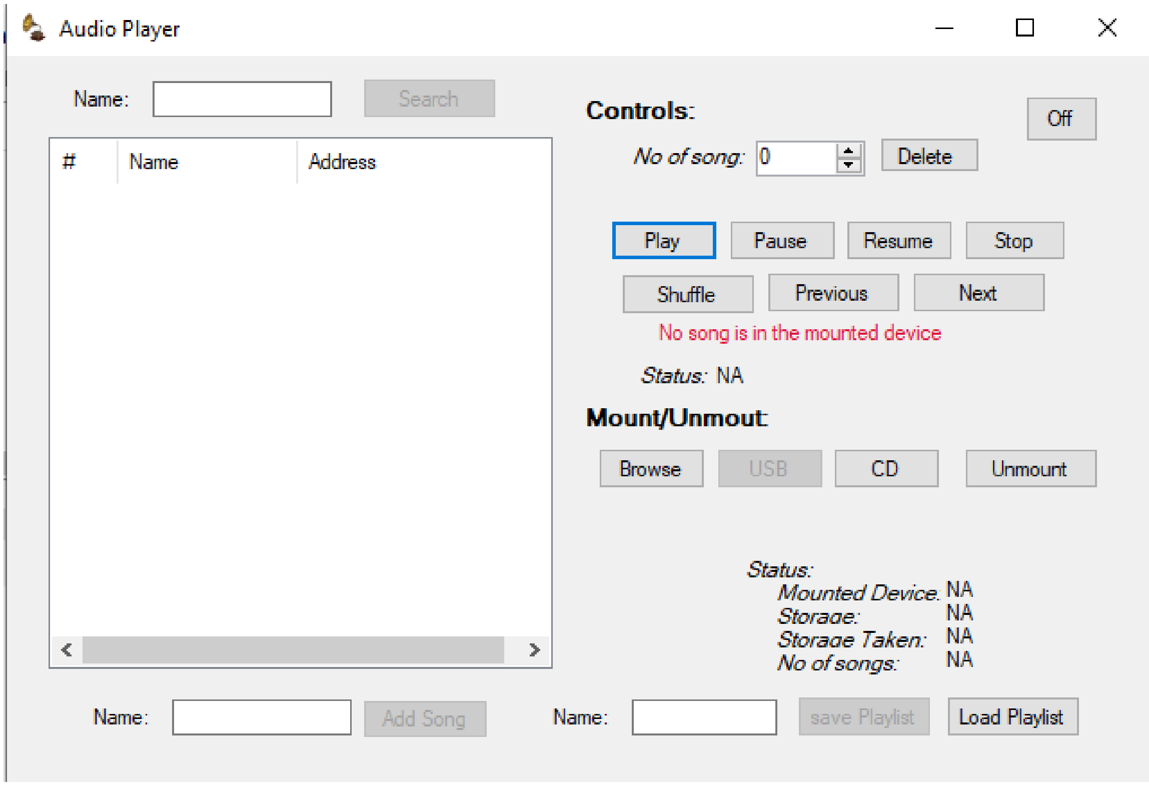
Mount/Unmout:

A device is already mounted

Status:
Mounted Device: mycd
Storage: 10Gb
Storage Taken: 2.5Gb
No of songs: 5

Name:

Name:



#	Name	Address

No of song: 0

No song is in the mounted device

Status: NA

Status:
Mounted Device: NA
Storage: NA
Storage Taken: NA
No of songs: NA