MADHAV INSTITUTE OF TECHNOLOGY & SCIENCE, GWALIOR

(A Govt. Aided UGC Autonomous & NAAC Accredited Institute Affiliated to RGPV, Bhopal)

Project Report

on

Py-Music: Python Based Music System

Submitted By:

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DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

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A project report submitted in partial fulfillment of the requirement for the degree of

BACHELOR OF TECHNOLOGY

in

COMPUTER SCIENCE AND ENGINEERING

Submitted by:

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Submitted to:

DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

MADHAV INSTITUTE OF TECHNOLOGY & SCIENCE
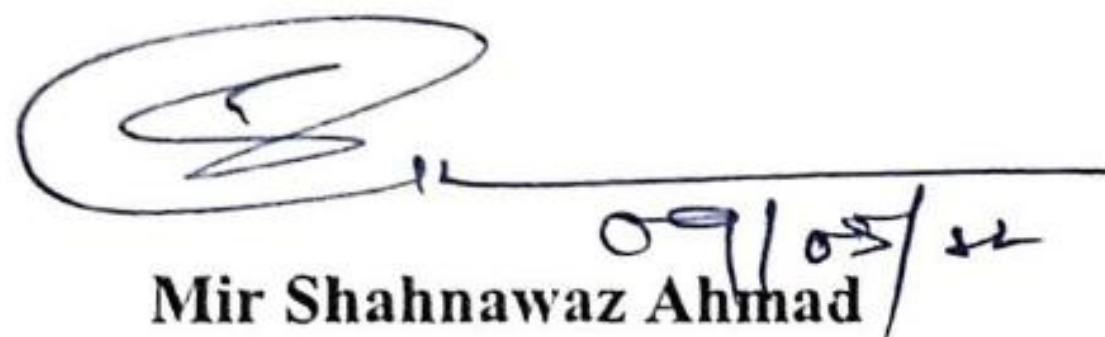
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CERTIFICATE

This is certified that **Vaidik Goyal (0901CS191134)** has submitted the project report titled
Py-Music: Python Based Music System under the mentorship of in partial fulfilment of the requirement
for the award of degree of Bachelor of Technology in Computer Science and Engineering from Madhav
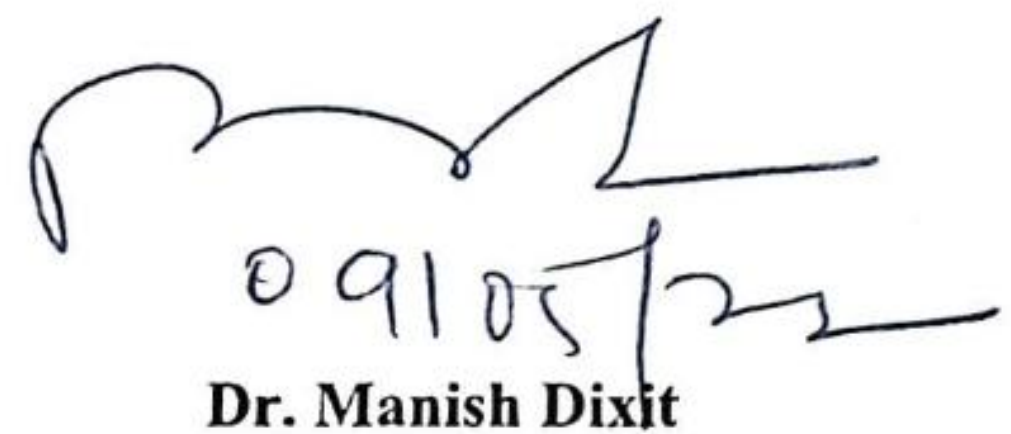Institute of Technology and Science, Gwalior.

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DECLARATION

I hereby declare that the work being presented in this project report, for the partial fulfilment of requirement for the award of the degree of Bachelor of Technology in Computer Science and Engineering at Madhav Institute of Technology & Science, Gwalior is an authenticated and original record of my work under the mentorship of **Mir Shahnawaz Ahmad** Department of Computer Science and Engineering

I declare that I have not submitted the matter embodied in this report for the award of any degree or diploma anywhere .

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III Year(VI Sem)

Computer Science and Engineering

II

MADHAV INSTITUTE OF TECHNOLOGY & SCIENCE, GWALIOR

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ABSTRACT

Audio is an important source of communication and is just as important today as text. We know that audio files are digital files. So, you need a tool to run the digital files, or in other words to play the files. Without this tool or player, we can never listen to music, movies or the contents of an audio file. So, we need music players. This project is about the mp3 music player application development. The biggest difference between the music player and existing applications is that it is completely free for users to use. It will integrate the advantages of existing music players on the market, as far as possible to mining out the existing music players' function, and then do the filtering in order to eliminate function that not practical or low cost-effective.This device is used to play music and other digital audio files. You can do it yourself, without having to download and install premium music players. The music player GUI project idea tries to emulate the physical music player. This program allows you to play songs, music and all music files on your desktop or laptop. Using Python is a basic programming application built using the Python programming language. It is a GUI program created using. the Python Tkinter, Pygame libraries. The music player application must be able to play a song, create and display a playlist, pause, and resume a long song.

In a nutshell, the methodology for developing the mp3 music application used in this project is the agile development cycle. The agile development cycle consists of six phases, which is requirements analysis, planning, design, implementation or development, testing, and deployment. Due to the iterative and flexible nature of this approach, it is able to effectively adapt to users with changing requirements.

Keyword: Music, Python, GUI, MP3

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सार

ऑडियो संचार का एक महत्वपूर्ण स्रोत है और आज भी उतना ही महत्वपूर्ण है जितना कि टेक्स्ट। हम जानते हैं कि ऑडियो फाइलें डिजिटल फाइलें हैं। तो, आपको डिजिटल फ़ाइलों को चलाने के लिए, या दूसरे शब्दों में फ़ाइलों को चलाने के लिए एक उपकरण की आवश्यकता है। इस टूल या प्लेयर के बिना, हम संगीत, मूवी या किसी ऑडियो फ़ाइल की सामग्री को कभी नहीं सुन सकते हैं। इसलिए, हमें म्यूजिक प्लेयर्स की जरूरत है। यह प्रोजेक्ट एमपी3 म्यूजिक प्लेयर एप्लिकेशन डेवलपमेंट के बारे में है। म्यूजिक प्लेयर और मौजूदा एप्लिकेशन के बीच सबसे बड़ा अंतर यह है कि यह यूजर्स के इस्तेमाल के लिए पूरी तरह से फ्री है। यह बाजार पर मौजूदा संगीत खिलाड़ियों के लाभों को एकीकृत करेगा, जहां तक संभव हो मौजूदा संगीत खिलाड़ियों के कार्य को खनन करने के लिए, और फिर उस फ़ंक्शन को समाप्त करने के लिए फ़िल्टरिंग करेगा जो व्यावहारिक या कम लागत प्रभावी नहीं है। इस उपकरण का उपयोग किया जाता है संगीत और अन्य डिजिटल ऑडियो फ़ाइलें चलाने के लिए। प्रीमियम म्यूजिक प्लेयर को डाउनलोड और इंस्टॉल किए बिना आप इसे स्वयं कर सकते हैं। म्यूजिक प्लेयर GUI प्रोजेक्ट आइडिया फिजिकल म्यूजिक प्लेयर का अनुकरण करने की कोशिश करता है। यह प्रोग्राम आपको अपने डेस्कटॉप या लैपटॉप पर गाने, संगीत और सभी संगीत फ़ाइलों को चलाने की अनुमति देता है। पायथन का उपयोग करना एक बुनियादी प्रोग्रामिंग एप्लिकेशन है जिसे पायथन प्रोग्रामिंग भाषा का उपयोग करके बनाया गया है। यह एक GUI प्रोग्राम है जिसका उपयोग करके बनाया गया है। पायथन टिंकर, पायगम पुस्तकालय। म्यूजिक प्लेयर एप्लिकेशन को एक गाना चलाने, प्लेलिस्ट बनाने और प्रदर्शित करने, एक लंबे गाने को रोकने और फिर से शुरू करने और गाने को बदलने में सक्षम होना चाहिए। पिछला या अगला गाना बजाएं।

संक्षेप में, इस परियोजना में प्रयुक्त एमपी3 संगीत अनुप्रयोग को विकसित करने की पद्धति चुस्त विकास चक्र है। चुस्त विकास चक्र में छह चरण होते हैं, जो आवश्यकता विश्लेषण, योजना, डिजाइन, कार्यान्वयन या विकास, परीक्षण और तैनाती है। इस दृष्टिकोण की पुनरावृत्ति और लचीली प्रकृति के कारण, यह बदलती आवश्यकताओं के साथ उपयोगकर्ताओं को प्रभावी ढंग से अनुकूलित करने में सक्षम है।

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1.1 Introduction

We need an application that will allow us to play or listen to digital audio files. The music player is the device for playing MP3 and other digital audio files. The music GUI program application attempts to emulate the physical music player. This program allows you to play songs, music and all music files on your desktop or laptop. The main goal of this project is to enable users to play music and digital audio files. In order to be attractive to users, the application must have a simple but beautiful user interface. Music Player has options to play, pause and stop. We can have an interface to list the music files available. You can also allow users to list other digital audio files that are not music. Users are also waiting for the music player. have an interface that displays information about the file being played. Python has libraries that can play audio files, such as: Pygame, which allows you to work with media files in just a few lines of code. Recently, music has become popular with this generation. Most software companies develop so many types of players that they can support MP3 files.

1.2 Objective

The objective of this thesis is to propose development that to Make it with a simple feature and run smoothly By using this mp3 music player will make users fell comfortable and relaxed because it will pay more attention to the features commonly used by users, excluding some rarely used features that occupy a large of system processors, making the music player lightweight, simple, but also has powerful basic features.

1.3 Highlight of What Have Been Achieved

The main highlight of the project is to make the proposed application become a high learnability application without too many complex features, enhance the interaction between the user and the media control so that the user can have a better experience to achieve real pressure relief.

1.4 Report Organization

The project report is divided into six chapters. Chapter 1 is about the Introduction of the application, objectives to solve the problem statement, and highlighting of proposed applications that have been achieved. Chapter 2 contains Background Information, System Analysis and Software Architecture Chapter 3 is the system design including the GUI module Name and Description, Design Details and Flowchart. Chapter 4 is about software design methodology, tools used . Chapter 5 is about Algorithm, Libraries used and Output. Chapter 6 is the conclusion and the future improvement

CHAPTER 2: LITERATURE REVIEW

2.1 Background Information

In modern society, people live a fast-paced life, and pressure is constantly present in lives. Due to the wide use of mobile phones, music has become the daily essential spiritual food, everyone's mobile phone inside there must be a music player. An application like MP3 music players is used to balance stress and happiness. It accompanies people anytime, anywhere and anyplace such as when people taking the bus and exercising.

The mobile MP3 music player application is designed to allow users to listen to music in a more convenient and comfortable way without too much restriction. Moreover, it can play the music properly without interference from advertisements and offline.

Since many developers realize that modern urbanites are living in a stressful situation, they have captured the commercial opportunity, therefore many similar applications have emerged in the market. These applications have easy-to-use interfaces and features that make the user experience better.
However, these existing music players blindly pursue fancy appearance and huge features, resulting in the high utilization rate of users' mobile phones, such as CPU and memory. Whereas, for most normal users, these kind of huge and many features are meaningless. Therefore, this project is designed to dedicate to MP3 music player to optimize performance and simplify to meet user needs.

2.2 System Analysis

2.2.1 System Objectives

In our daily life, we see every person has a hobby and that is listening to music. So, in order to listen to music, they all need a Music player (hardware or software) where they can play their favourite songs. And we have to install this music player on our computer, based on the Operating system i.e., Windows, Macintosh, Android, Linux, etc. Then we can listen to our favourite songs.

2.2.2 System Architecture

Music players are media software that are specifically designed to play audio files. These tools support a wide range of music formats, including MP3. Such applications help you to organize your song library with ease.

2.3 Software Architecture

2.3.1 Architecture Overview

This application uses Python language. Front end is designed in python with the help of Spyder. In Spyder we have used different libraries Tkinter, PYgame, Filedialog.

Libraries Used

1. Pygame: to play, pause, load, stop, and resume music.
2. Tkinter: to develop GUI.

2.3.2 Software Process Model

"**Agile process model**" refers to a software development approach based on iterative development. Agile methods break tasks into smaller iterations, or parts do not directly involve long term planning. The project scope and requirements are laid down at the beginning of the development process. Plans regarding the number of iterations, the duration and the scope of each iteration are clearly defined in advance.

CHAPTER 3: PRELIMNARY DESIGN

3.1. System Design Detail

3.1.1 GUI Module Name and Description

Interactive user interface is provided by the software. In Spyder we have used different libraries Tkinter, Pygame, Filedialog.

3.1.2 Design Details

Processing within module We have to develop the user interface for the application through which the user interacts with the application.

3.2 Flow Chart

Figure 3.2.1 Flow Chart

CHAPTER 4: METHODOLOGY AND TOOLS

4.1 Methodology

In this project, the agile development cycle will be used to guide the development process. The reason for using agile methods is that mobile applications have a short software life cycle and rapidly changing technologies, so users will constantly change their requirement and needs in response to technological changes. Therefore, the agile development cycle are more suitable for android application development because of iterative and flexible, so it can adapt effectively to changing customers.

Figure 4.1.1 Agile Development Cycle

The agile development cycle contains 6 phrase which is requirement analysis, planning, design, implementation or development, testing, and deployment.

4.1.1 Requirement Analysis

At this stage, we will review existing MP3 music players on the market. After the review, we will find out what current users need and idea to improve the existing music players and collect their comments and suggestions for further analysis.

4.1.2 Planning

In the planning stage, we should first try to explore out the features that the music player can have. Next, we will eliminate the features that users feel no really useful or low cost-effective. Finally, each feature is prioritized and assigned to an iteration.

4.1.3 Design

The design stage is prepared according to the requirements of users. Since there are many details and problems encountered during development to be considered for each feature. Therefore, we will discuss and formulate solutions and test strategies to verify the product at this stage.

4.1.4 Implementation Or Development

To ensure the success of the system the implementation step is carried out. If the system is not properly implemented the well-defined system can fail. To transform information system to operational system implementation activities are used.

Hardware Software and Services: The hardware and software used in the web application is:

1. Hardware: HP, Dell, asus PC etc.

2. Software: Microsoft Windows, Python etc.

Maintenance: When the system is fully implemented, its maintenance is done. System maintenance is done to check whether the software system is performing well or not. If there is any error, then we have to remove it

4.1.5 Testing

Testing of program is done to find error in the given program. It is one of the major steps in the software development process. It is the final step in the software development lifecycle

4.1.5.1 Testing Objectives

Testing of program is done to find error in the given program. It is one of the major steps in the software development process. Various type of testing includes system testing, integration testing, unit testing. Each of the testing process test some specific features of the software.

4.1.5.2 Integration Testing

We have multiple modules in the application after combining them we complete testing of the module and do the integration testing. It checks the coordination between various modules of the application.

4.1.5.3 System testing

System testing is to test the execution of whole software. It answers

''Is whole software is running & performing well''.

System testing is usually coming with verification and validation. Verification is the checking of items, including software, for conformance and consistency with the associated specifications. Software testing is just like verification, and also uses the techniques such as reviews, analysis, inspections and walkthroughs. Validation is the process of checking that what user actually wants.

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Validation: Are the job which is being done is right?

Verification: Are we performing the right job? There are three different types of system testing which are:

1. Logical Testing: In this type of testing, we check our software with the extreme cases.

2.Functional Testing: In this testing we check whether the web service application is functional.

Deployment In this final phase, we will begin to deliver this application to the customer. For instance, we will upload this MP3 music player application in the Google Play Store, or posting download links on Utar Confession which is on Facebook in order to allow UTAR students to use it. In addition, we will anticipate that users will encounter unpredictable problems when using the player in this process, so we will solve these problems in a future version.

4.2 Tools

4.2.1 Hardware Specifications

Since the hardware's are the important part while developing a web project, its necessary to find hardware requirements.

Processor- System type 32-bit operating system, x32-based processor.

RAM– For higher speed of the processing, it also depends on the memory. Therefore, for better performance minimum RAM should be 4 GB.

Hard disk– In modern days, there is a vast amount of data is generated daily from the internet platforms. So, a good size of hard disk is required for the storage of the processed data

Cache Memory– Access time of the operation tasks mainly depends on the cache memory. Therefore, the recommended cache memory is 4 mb

4.2.2 Software Specification

Our system should meet following minimum specifications

OS - Windows 8, 10

We will be using Python technologies and we also need an application such as Spyder. It is necessary to have python installed on the system and modules of python such as Tkinter, Pygame and filedialog installed on it.

CHAPTER 5: FINAL ANALYSIS AND DESIGN

5.1 Algorithm

1.Import the libraries.

2. Create an object of the tkinter and Pygame libraries.

3. Create a window using Tkinter object.

4. Add buttons that provide different functionalities.

- Add a song
- Play the song
- Pause the song
- Play previous song
- Play next song

5. Add a song button when pressed should open a dialog box to browse and choose the file.

6. Add label to display the song's information.

- Name
- Singer
- Duration
- Size of the file, etc.

7. Display screen will display the details of the entire playlist. 8. Close button will automatically clear the song list and will stop playing.

5.2 Libraries Used:

5.2.1 Tkinter:

We already told you in the title of this page that we will be using the Tkinter library, a standard library for GUI creation. The Tkinter library is the most popular and easiest to use and contains many widgets (these widgets help create attractive GUI applications). Also, Tkinter is a very lightweight module and useful for building cross-platform applications (so the same code can be easily used on Windows, macOS, and Linux.

5.2.2 Pygame Module:

Pygame is a Python module that works with computer graphics and sound libraries and designed with the power of playing with different multimedia formats like audio, video, etc

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5.2.3 OS Module :

The OS module in Python provides functions for interacting with the operating system. OS comes under Python's standard utility modules. This module provides a portable way of using operating system-dependent functionality
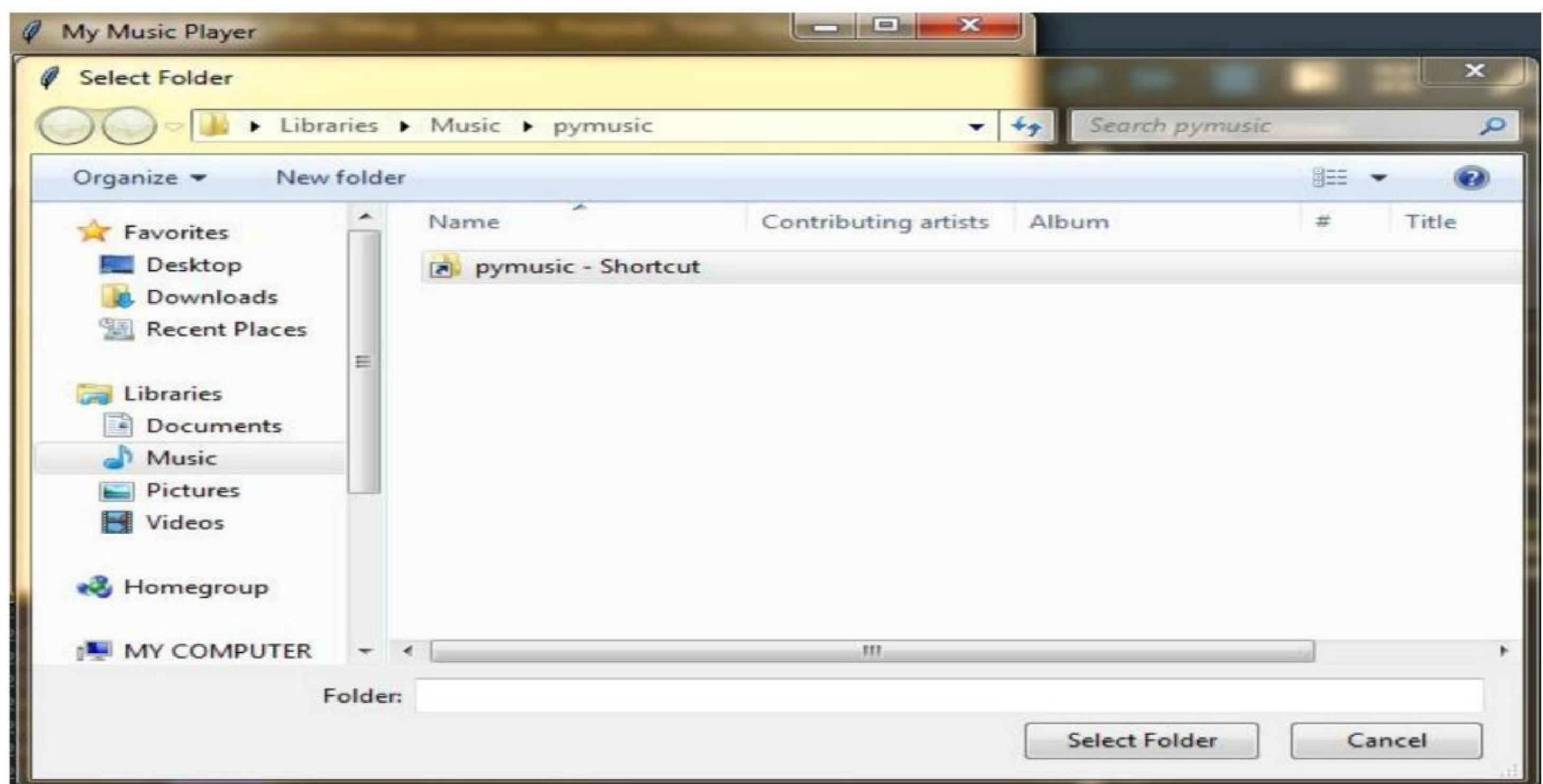
5.3 Output :

Figure 5.3.1 File Dialog

Figure 5.3.2 Music System

CHAPTER 6: CONCLUSION AND FUTURE SCOPE

6.1 Conclusion

The MP3 player is a device for playing and listening to digital audio files, which can be MP3 files or other audio files. The player was created in Python language. A GUI implementation of the application has been developed that is simple and easy to use. The application gives the user five options: add a song to a playlist, play the song, pause, or resume the song. The player can also add multiple tracks to the playlist at the same time. It has a large display area in which the playlist is visible. Once a track has been selected and played, we can listen to it and view details, the song is at the top of the screen. This information includes details about the song,

6,2 Future Scope

- Create Playlist
- Previous , Next Song
- Song Slider
- Shuffle Song
- Song/Artist Description

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