



SONG SEARCH TOOL

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DECLARATION

No portion of the work referred to in this report has been submitted in support of an application for another degree or qualification of this or any other university or institution of higher learning.



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ABSTRACT

With the significant change of technology, various types of application are put into the market every day. These applications are tailored for some specific purposes. Searching tool is developed for searching files whereas media player is for playing songs. There is no application that can perform both the search and playback function.

Song Search Tool is developed to provide the user a tool that can be used for searching song files in the hard disk, playback the selected songs list as well as managing song files. Data obtained from the students in the university campus and developer's experience are the main stimulus to plan and develop the 'Song Search Tool'. The tool is designed and developed according to the user's need and the review of the existing search applications.

Apart from the main function mentioned, Song Search Tool also has other functions such as saving song list, loading saved list for playback, opening new Microsoft Office application such as Microsoft Word, Microsoft Excel, Microsoft PowerPoint and Microsoft Search and also executing the Internet browser.

The implementation of the Song Search Tool will definitely benefit the user. Simple but effective and high usability interface has also made the tool to be a user friendly tool.

ABSTRAK

Pelbagai aplikasi telah dihasilkan di pasaran setiap hari atas perkembangan teknologi yang ketara. Aplikasi-aplikasi ini kesemuanya dibina atas tujuan tertentu. Aplikasi pencari adalah dibina khas untuk mencari fail sahaja manakala pemain media adalah untuk memainkan lagu. Sehingga kini, tiada wujudnya satu aplikasi yang boleh melakukan kedua-dua fungsi cari dan main lagu.

“Song Search Tool” dibangunkan untuk dibekal kepada pengguna bagi tujuan mencari lagu yang disimpan dalam cakera padat, memainkan lagu yang dipilih disamping boleh mengurus fail-fail lagu. Maklumat-maklumat yang diperolehi dari pelajar-pelajar di kampus universiti serta pengalaman Pembina merupakan stimuli utama untuk merangka dan membina “Song Search Tool”. Aplikasi ini direka dan dibangun berdasarkan keperluan pengguna dan juga sorotan kajian atas beberapa aplikasi pencari yang sedia ada.

Selain daripada fungsi utama yang dijelaskan, “Song Search Tool” juga mempunyai fungsi-fungsi lain seperti menyimpan senarai lagu, membuka senarai lagu yang disimpan untuk dimainkan, membuka aplikasi baru bagi aplikasi Microsoft Word, Microsoft Excel, Microsoft PowerPoint, Microsoft Search serta berpaut ke antaramuka pelayar Internet.

Dengan terbangunnya “Song Search Tool” ini pasti akan memanfaatkan pengguna. Antaramuka yang ringkas tetapi efektif serta flexible dan mempunyai kegunaan yang tinggi telah menjadikan aplikasi ini satu aplikasi yang mesra pengguna.

CHAPTER 1 INTRODUCTION

1.1 Introduction

Over the age of 20th to 21st century, computer and information technology has advanced significantly. The quality of life has improved as well. As the demand for better quality products keeps increasing, song format has changed from the analog format to a variety of digital format. For example mp3 format, wav format, midi format, mpeg format etc. These changes were made to improve the sound quality of the songs and music.

By increasing the quality of the song from analog to digital form, the file size of the songs has enlarged indirectly. With the enlargement of the song's file size, bigger capacity storage is needed to store the collected songs. Generally, there are two song formats, i.e. audio song and video song. Audio songs in mp3 format, wav format or midi format are considerably small, usually not more than five megabyte (MB). However, songs in video mode for example avi format and dat format are huge. These digital video format songs are different in file size depending on their formats. Normally songs in avi format are larger and can be as large as 65 MB or more for one single song. As the song's size keeps growing and becoming massive, larger physical hard drive is required for song collections.

Over the years, data of all forms is becoming massive and hence the need for high storage increases. This applies mainly to songs in audio and video format. Nowadays, the storage capacity size of 40 GB (gigabyte) is commonly used. Some users even use bigger storage of 80 GB or above to store data. Hence, searching for a particular file in 40 GB storage is tedious and time consuming. This will decrease the effectiveness in searching and retrieving the file.

Windows Explorer is an application that comes with Microsoft Operating System. Windows Explorer is used by user to browse or search for files. The searching process is in a tree hierarchy structure meaning that it starts from the root directory's folders to sub directories' folders.

As Windows Explorer is only a useful application in searching for files, hence it cannot be used as song player to playback songs. This limitation has led to the development of the proposed project.

The proposed prototype Song Search Tool will work similarly with the Microsoft Windows Explorer especially in terms of the 'search' function. The additional function of the prototype search tool is that after searching the songs, user can select their favourite songs found in different folder to playback using the same interface. Besides searching the files, user can also open or execute the Internet Explorer or Google search engine, executing Microsoft Office applications such as Microsoft Word, Microsoft Excel and Microsoft PowerPoint from the same interface. The proposed search tool will be developed using Visual Basic (VB) Version 6.0 programming language. VB is a very powerful and flexible programming language, and has all the functions needed in developing the proposed application. The interface is easier to create and the most important of all is that it can work well under Microsoft environment.

1.2 Problem Statement

Currently, as all types of data are stored into one or more physical disks, hence searching and retrieving files and playing audio or video songs requires different tools or applications to

execute each of the function. For instance, Windows Explorer is used to search for files, while Media Player application is executed to playback an audio song in wav format. Therefore, different song formats will be executed using different applications. For example, Winamp is used for playing songs with mp3 format, PowerDVD is used for playing movie or video songs in dat format.

As for physical disk storage, Norton (2001) states that nowadays, user may have more than one hard disk storage which contains many folders to store valuable data. Hence, searching a file can be a tedious process especially when the user cannot remember the name or format of the file or where it is being stored.

Searching a file through the whole physical disk based on the filename or extension can be time consuming because thorough search is performed in a tree hierarchy manner from top to bottom, that is from root directory to sub directory in every single folders.

According to Nielsen (2001), users are not familiar with Windows Explorer's advance search function and hence it is seldom being used. The advance search function has the capability to search for files according to the file creation date and file size. Here, the proposed search tool will exclude these advance search functions, and will concentrate on the searching function on four commonly known audio and video format songs, i.e. mp3 format, wav format, dat format and avi format.

1.3 Objectives

The main objective of the project is to develop a Song Search Tool. This tool will be used by user for searching audio or video songs, selecting and playback the selected songs files. The sub objectives of the proposed project are as follows:-

- 1.3.1 To allow the user to execute Microsoft Office applications such as Microsoft Word, Microsoft Excel and Microsoft Powerpoint using the same interface;
- 1.3.2 To allow the user to search for different format files besides searching songs files such as *.doc format, *.ppt format and *.xls format;
- 1.3.3 To provide the user the link to internet searching using the Google search engine or the Internet Explorer;
- 1.3.4 To provide an interface which the user can manage files like copy files from one folder to another, delete files or rename files in a folder.

1.4 Project Scope

Conventionally, different song format require different applications to playback the songs. The Song Search Tool is therefore developed to allow the user to search and playback audio and video songs from one interface. The project will focus on mp3 audio format, wav audio format, midi audio format, dat video format and avi video format.

The selected different format songs from different folders can be played back using one interface. The song list or playlist can be saved and this playlist can later be loaded for playback as well.

Besides searching and playing of audio or video files, user can use the prototype tool to search for existing files of different formats such as .doc format, .xls format and .ppt format. User can also use the same interface to open new commonly used Microsoft Office application like Microsoft Word, Microsoft Excel, and Microsoft PowerPoint.

In addition, Internet Explorer browser and Google search engine can also be executed from the same interface by the user.

1.5 Significant of Project

The proposed search tool is an efficient tool in searching for files as well as executing audio or video applications and Microsoft files (such as Word, Excel and PowerPoint) in a single interface. Audio and video files saved in a playlist can be played continuously with an interface without opening other existing audio or video applications. Searching for songs file can be directed to a particular directory or folder. Hence, the searching process will be faster and the time required will be cut shorter.

The prototype tool also has a function to execute the Internet search engine using Google search engine. Here, user can also search for data through the Internet.

Apart from searching and executing audio or video files, there is also an additional function in which a user can open or execute new or existing Microsoft Office applications such as Microsoft Word, Microsoft Excel or Microsoft PowerPoint.

1.6 Project Plan / Schedule

The project activities have been carefully planned to ensure the prototype can be developed successfully. This project consists of five main phases: the project planning phase, analysis phase, project design phase, implementing project phase and presentation phase.

The proposed project will initially start with project planning phase at the beginning of July, 2004. In this phase, activities such as identifying project's problems, project's scope and collecting information through observations, literature reviews from books and the Internet are carried out. Necessary information gathered such as searching style of the application, interface design, strengths and weaknesses are studied and analyzed in the analysis phase. This includes the reviews and comparisons between the existing search systems to propose the search tool prototype's requirements. The next phase is the system design phase. The method use here will include work flow diagrams, data flow diagrams, and also the interface designs are all done in this phase. The design phase can run concurrently with the implementation phase. Here, all the required functions for the prototype will be developed. The final phase is presentation. The materials for presentation and the report will be prepared.

This project is estimated to be completed in the first week of February, 2005. The Gantt chart in Appendix A illustrates the development activities of this project.

1.7 Outline of Project Report

Chapter 1 presents the introduction of the proposed prototype Song Search Tool. The problem statements, the objectives, the project scope, the significance of research, and the schedule of the project are also explained in this chapter.

Chapter 2 reviews on the existing search tools available, the search algorithms used, the interface and the functions, and also the strengths and weaknesses in Microsoft Files and Folders Search (Microsoft Corporation, 2004), QuickSearcher (AKS Labs, 2004), Debugger Utilities Professional (ZG Financial Corp., 2002) and Effective File Search (SOW, 2004). These findings will be analyzed and a framework for the proposed prototype will be developed.

Chapter 3 explains the method to be used throughout the project, i.e. the Waterfall method.

Chapter 4 discusses on the proposed Song Search Tool requirements. The reviews from existing search tools as well as the software, hardware and user's requirements will be analyzed and presented in this chapter. The analysis includes the user's requirements analysis and proposed Search Tool requirements analysis.

Chapter 5 explains the system design of the prototyped. This includes the Work Flow Diagram, Context Diagram, Data Flow Diagram (DFD) Level 0 and Child Diagram Level 1 of the proposed search tool. The user interface design of the prototype will be shown in this chapter.

Chapter 6 presents the implementation stage of the prototype search application where the construction of the interface and the program coding is done in this chapter.

Chapter 7 is the testing stage of the project. In this chapter, the result will be analyzed and discussed.

Chapter 8 concludes the report and suggestions for further works to the Song Search Tool prototype.

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CHAPTER 2 BACKGROUND STUDY AND LITERATURE REVIEW

2.1 Introduction

This chapter describes the existing search tools or applications available. The existing search systems that will be included are the Microsoft Office (Microsoft Corporation, 2004), a freeware “QuickSearcher” (AKS Labs, 2004) application which can be downloaded from the Internet, the Debugger Utilities Professional (ZG Financial Corp., 2002) and the Effective File Search (SOW, 2004). The study on these applications will cover the tool’s utilities, effectiveness of the available functions, strengths and weaknesses of each application.

2.2 Search Algorithm used by the Search Tool

Search or Find program is an application that enables user to look for particular files through folders or subfolders in a system. Microsoft Windows Find feature or commonly known as the Window Explorer is one application that most users know and used for searching files. Users perform the search function by either using keyword or choose a category and the search results will be listed out for user’s action.

According to Vines R. (2002), the information is stored in the system’s hard disk in a tree-like structure, somewhat similar to Windows Explorer. *Master Your Computer* (1995) uses office filing cabinets as a metaphor to describe the hierarchical structure in which the individual drawers are the disk drives which are divided into folders or subfolders, with the files. Norton (2001) further explains that by default, the search begins at the specified drive’s root folder and continues to search the drive’s subfolders.

The operating system performs the search function in a tree-like hierarchy from folders to folders and in top-down manner for a file or group of files. Figure 2.1 shows an example of folders arranged in the tree-like structure. If the user knows the exact location where the specific files are stored, it can reduce the amount of searching time.

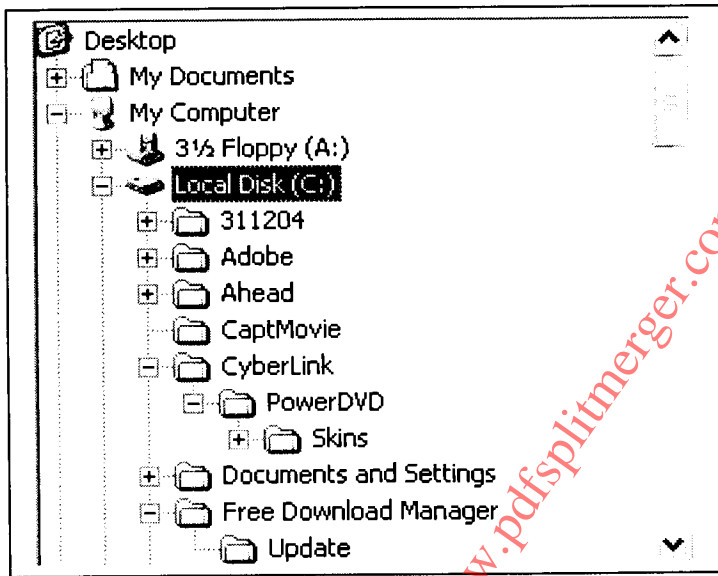


Figure 2.1 Folders arranged in tree-like structure

As the technology continues to advance, songs format developments have gone through many changes which normally increases the sound quality but not the size. From ordinary analog sound waves system to different digital sound format like MP3, wav, Midi, etc. Followed by these changes, a variety of players were developed to suit the need for playing these songs. The “Song Search Tool” (SST) is a prototype search application that can be used to search for files based on the filename extension such as “*.mp3”, “*.wav”, “*.avi” and etc. The main objective of developing this prototype Song Search Tool is to ease user in searching and/or locating specific song files through an interface.