

EXTENDING THE WINDOWS OPERATING SYSTEM FEATURES

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ABSTRACT

File identification is a basic component of an operating system's function. It is a prelude to the process of opening files, which is an essential function of any computing machine. Problems encountered with the identification of the file would pose a problem on opening that said file. In the Windows OS, file identification relies on the file extension, which is external and prone to changes.

The usual way of interacting with the computer system is through the graphical user interface. However, with the increasing number of softwares, applications and files in the system, the usual GUI proves insufficient to open and launch applications and files. Audio interface adds to the efficiency of a system by providing shortcuts to applications or files.

Finally, Windows registry provides options of changing features that may otherwise be left unexplored. However, changing entries in the Windows registry through Windows Registry Editor poses system damage if handled inappropriately especially among inexperienced users.

This paper provides opportunities on improving the Windows operating system by improving the file identification scheme, allowing voice-activated shortcuts and simplifying the modification of the Windows registry.

Chapter 1

Introduction

1.1 Background of the Study

Common users nowadays want to have control over the programs or systems that they are using. The current trend in software development is that users are granted enough freedom and ease in implementing their operations as well as modifying features as deemed fit by the users themselves. These modifications, however, should not affect the system's performance. In an effort to provide ease and control for the users, there are means that the features of an operating system can be extended to suit the user's preference.

The Windows Operating System is one of the most popular and widely used operating systems in the world. As an operating system, it communicates with the hardware, provides user interface and interprets commands so a user can communicate with the hardware. Despite its popularity, the different features of the Windows OS need improvements and even suggest opportunities for enhancements. In particular, the file identification scheme can be evaluated and improved, the usage of voice as input for user interface can also be considered and the use of the Windows registry functions can be simplified.

The Windows file identification scheme is based on the extension of a file. This feature proves unreliable since file extensions may be changed or lost as a result of transfers or downloads. Moreover, any user can easily change the file extension itself. An inaccurate file extension would mean an incorrect

association with the application set to open or execute the file. This leads to failure of the OS to properly identify and open the file. However, changes to the file extensions do not affect the file contents as most files are embedded with file signatures that uniquely identify them.

The Windows Registry can be manipulated in a number of ways to produce modifications which are useful to the users. However, manipulating the registry is not safe as it may lead to system crashes especially for inexperienced users. The registry editor that comes with the Windows OS, Regedit.exe, does not provide an inexperienced user the ability to implement registry tweaks in a secure and safe manner. A mediator application can be developed between the system and the user to provide secure registry tweaks.

Aside from the customary way of opening files using the mouse or keyboard shortcuts, the use of audio technology as user interface can also add to the ease of using computers. Voice technology provides a new option for users to interact with the operating system.

Improved file identification, voice activated program shortcuts and Windows registry utility are useful Windows operating system extensions.

1.2 Statement of the Problem

This study sought to answer the following general problem: How can the features of the Windows operating system be extended?

Specifically, the proponents aimed to answer the following questions:

- What are the current file identification schemes?
- How can an improved file identification scheme be implemented for the Windows operating system?
- How can voice activated shortcuts be implemented for the Windows operating system?
- What are the capabilities of the Windows registry?
- How can a secured mediator application be developed for the Windows registry?

1.3 Objectives of the Study

The general objective of this research is to extend the features of the Windows operating system.

The specific objectives are:

- To identify the different file identification schemes
- To develop a framework for a new file identification scheme
- To implement and demonstrate the new scheme by developing a file identification prototype
- To develop voice activated program shortcuts
- To develop a secure mediator application to simplify the Windows registry interface

1.4 Scope and Limitation of the Study

The study has led to the development of a framework for an improved file identification scheme for Windows. The framework for the improved scheme was implemented and demonstrated using a file identification prototype that works for the Windows OS. At least three categories of files were used in the actual implementation. Three types of files were used for each category.

Moreover, this study also produced a working prototype of an audio interface that will allow opening of certain executable files through the verbal input of the user using a microphone. A stand-alone application that served as a mediator between the user and the operating system registry was also created. The tweak functions of this application will cover useful aspects of the Windows OS excluding those that may violate system security.

1.5 Significance of the Study

This study is significant to all Windows users as the new feature secures their files from name corruption and file type conflicts. This is highly advantageous to users who constantly download files from the internet that may cause some changes to the file name. Through the usage of this new scheme, opening and recognition of the file will be highly improved. Any changes to the file name or extension would not affect the accessibility of the file. A file would be efficiently recognized using its internal properties thus opening it with the proper application.

Another significance of the study would be the possible elimination or reduction of file type conflicts. There are a limited number of extension names that can be appended to a filename so conflicts happen when two distinct applications produce files, which unintentionally have the same extension names. The success of this study would mean a possible innovation in the current method of file identification.

Moreover, this study would provide another form of interface to the users. This is using voice interface. The registry will now be used to the computer's means of operation according to the wishes of the user without causing hazards to the system as a whole. Users will now have the opportunity to optimize the performance of their system by changing the registry safely and easily.

The developed framework will serve as a basis for system developers and designers for modeling or improving operating systems which would address the issues identified in this paper. Developers and designers of operating systems can make use of the different extensions to help them improve functionality of the OS. Researchers can also make use of this study as a basis for further improvements of the different features of operating systems to simplify user interface.