

Global Information Gatherer: Helping Students Manage Information

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ABSTRACT

Students in higher education today need access to better tools that allow them to gather and assimilate information that comes to them from a wide variety of sources. This work presents a unique software application that assists students with these tasks and reduces fragmentation issues. With the Global Information Gatherer students can open, edit, and save files of different types from within a single application and maintain a set of notes tied to specific folders on their system.

ACM Classification: H5.2 [Information interfaces and presentation]: User Interfaces. - Graphical user interfaces.

General terms: Design, Human Factors

Keywords: Information management, notetaking, students in higher education, prototype development

INTRODUCTION

Jones et al. offer the following description of information fragmentation: “Even on a single computer, information may be scattered across separate organizations of files, email, web references, notes, etc. so that the assembly of information needed to complete a task is time consuming and error-prone.” [2, p.681] Finding solutions to problems associated with fragmentation is of particular interest for students in higher education, who are expected to manage an increasingly diverse and substantial pool of information. Some of this information comes in the form of class handouts, but most of it is in a multitude of electronic formats.

While software applications designed to help students with their notetaking activities do exist, few contain solutions for information fragmentation. For example, Microsoft’s OneNote has revolutionized the way people take electronic notes, and eClass [1] and Ubiquitous Presenter [4] both help improve in-class lectures. These applications represent important steps towards improving the utility of technology in the modern classroom, but they do not address larger issues of information management.

To help students better manage their activities, a new way to handle information is necessary. Students need software that will allow them to work with most of their class materials from within a single application. The Global Information Gatherer, or GIG, addresses these challenges by allowing students’ access to multiple file formats from within a single interface and by providing a notetaking environment that is tied to the directory level.

GIG: GLOBAL INFORMATION GATHERER

The GIG prototype is unlike most other applications in that it acts primarily as a wrapper program. GIG was designed as a C# .NET application to run on Microsoft Windows. This architecture allows GIG to open and edit certain Microsoft Office files through the use of an ActiveX control. A .NET web browser is included as a component of GIG to allow for the opening of PDFs, web documents, and other files. A text editor allows users to handle standard text documents with minimal overhead. Users move from folder to folder using a treeview structure; a file preview pane displays the contents of a selected folder using standard Windows icons.

To manage these features, GIG’s interface is divided into four main areas (see Figure 1). The treeview that appears on the left-hand side is comprised of a tab control containing two tabs: one for a local directory and one for a remote directory. Document preview is located along the bottom of the application and provides users with visual recognition cues so they can easily tell what format a given file is in. The main area of the interface is taken up by the application pane in the center and the directory-linked notes pane on the right. The application pane is a .NET container that houses a web browser, ActiveX control and simplified text editor. Across the top of the application pane is a toolbar that allows users to create new Microsoft Word, Excel, and PowerPoint documents along with plain text documents. The notes control pane is an advanced rich text box that gives the user a basic notetaking interface.

Assisting with Information Management

One of the main causes of information fragmentation is the multitude of file formats that require unique applications for access. GIG resolves this problem by allowing multiple formats—PDFs, certain Microsoft Office documents, web pages, and images—to be opened in a single application. Without GIG, students need to launch a new application to access each type of document. By allowing users to either

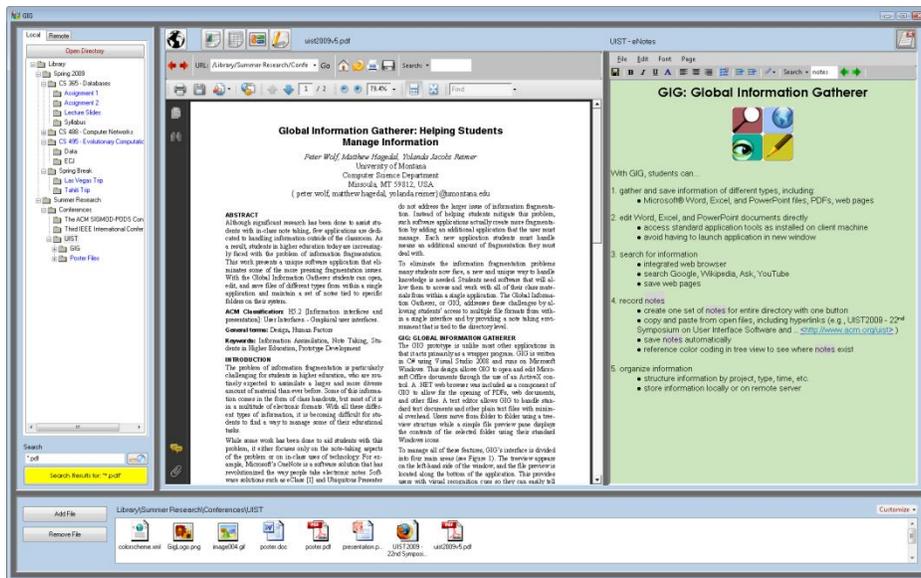


Figure 1: The main interface of GIG

edit existing documents or create new ones within an already open program, GIG decreases the amount of time and attention students must spend managing applications and moving from one window to another. To further enhance efficiency, GIG provides direct access to the system folder structure. This allows users the ability to access additional files without having to shift focus away from the current application. These two features combined go a long way toward helping students manage fragmentation issues because much of the information they need for their academic tasks can be easily accessed from within a single application.

GIG also provides an intuitive way for students to assimilate information they gather into a single form. In GIG, the notes users create are tied to the folder level—that is, each folder has a single notepad associated with it. This feature allows the user to gather relevant information from a series of documents into a single location, the value of which can be seen when we consider how students write research papers. Typically, they gather a series of documents and then go through them, picking out the most important pieces. Using the GIG notepad, students can do exactly this while simultaneously viewing the gathered files; this can limit the fragmentation issues that might develop otherwise.

Related tools

GIG is unique among other tools that seek to assist with information management in that it does not divide the user's attention between multiple outside software applications. Project management systems like the Personal Project Planner [2] and UMEA [3] allow users to organize and maintain collections of related files. While these applications share a common goal with GIG, they still require users to create, view, and edit files in their own separate programs. GIG, however, actually hosts a core set of programs—web browser, Microsoft Office applications, note-taking system, and file management tools—in a single win-

dow. Students using one of these other systems to write a paper or create a presentation will likely find themselves shifting frequently from window to window.

CONCLUSIONS

Students in higher education encounter a multitude of new materials on a daily basis, and it is critical that they be able to manage this new information effectively and efficiently. While many comparable tools address large amounts of information with a “do one thing and do it well” philosophy, GIG seeks to do many things well. In this respect GIG is unique; it represents an attempt to address many problems commonly associated with information management instead of one particular issue.

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