

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

GOOGLE LLC
Petitioner

v.

ADVANCED CODING TECHNOLOGIES, LLC,
Patent Owner.

Case No. IPR2025-XXXXXX
U.S. Patent No. 8,230,101

**DECLARATION OF JUNE ANN MUNFORD
IN SUPPORT OF PETITION FOR *INTER PARTES* REVIEW
OF U.S. PATENT NO. 8,230,101**

I. Introduction

1. My name is June Ann Munford. I am over the age of 18, have personal knowledge of the facts set forth herein, and am competent to testify to the same.

2. I have been retained by Petitioner Google LLC (“Petitioner”), as an independent expert in this proceeding before the Patent Trial and Appeal Board (“PTAB” or “Board”). I understand that Petitioner is requesting that the Board institute an *inter partes* review (“IPR”) proceeding of U.S. Patent No. 8,230,101 (“’101 patent”) (Ex.1001), currently assigned to Advanced Coding Technologies, LLC (“Patentee”).

3. I have been retained on behalf of the Petitioner to provide assistance in the above-illustrated matter in establishing the authenticity and public availability of the documents discussed in this declaration. I am not and have never been an employee of Petitioner. I am being compensated for my services in this matter at the rate of \$200.00 per hour plus reasonable expenses. My statements are objective, and my compensation does not depend on the outcome of this matter.

A. Qualifications

4. I earned a Master of Library and Information Science (MLIS) from the University of Wisconsin-Milwaukee in 2009. I have over ten years of experience in the library/information science field. Beginning in 2004, I have served in various positions in the public library sector including Assistant Librarian, Youth Services

Librarian and Library Director. I have attached my Curriculum Vitae as Appendix CV.

5. During my career in the library profession, I have been responsible for materials acquisition for multiple libraries. In that position, I have cataloged, purchased and processed incoming library works. That includes purchasing materials directly from vendors, recording publishing data from the material in question, creating detailed material records for library catalogs and physically preparing that material for circulation. In addition to my experience in acquisitions, I was also responsible for analyzing large collections of library materials, tailoring library records for optimal catalog search performance and creating lending agreements between libraries during my time as a Library Director.

B. Background of Library Records

6. I am fully familiar with the catalog record creation process in the library sector. In preparing a material for public availability, a library catalog record describing that material would be created. These records are typically written in Machine Readable Catalog (herein referred to as “MARC”) code and contain information such as a physical description of the material, metadata from the material’s publisher, and date of library acquisition. In particular, the 008 field of the MARC record is reserved for denoting the date of creation of the library record itself. As this typically occurs during the process of preparing materials for public

access, it is my experience that an item's MARC record indicates the date of an item's public availability.

7. Typically, in creating a MARC record, a librarian would gather various bits of metadata such as book title, publisher and subject headings among others and assign each value to a relevant numerical field. For example, a book's physical description is tracked in field 300 while title/attribution is tracked in field 245. The 008 field of the MARC record is reserved for denoting the creation of the library record itself. As this is the only date reflecting the inclusion of said materials within the library's collection, it is my experience that an item's 008 field accurately indicates the date of an item's public availability.

8. With respect to periodicals, the MARC record typically indicates the date of public availability of the first issue of the periodical (e.g., a journal). It is my experience that the 008 field of the MARC record for a periodical may not be modified upon the library receiving new issues of a periodical. However, MARC records are still pertinent to whether a periodical is publicly available at a particular library. Additionally, it is my experience that, for periodical in a library's catalog, new issues are regularly received by the library and made available to interested readers very soon after the library receives those issues, as that is one of the primary purposes of libraries — to make available information to interested patrons on a timely basis.

C. Rathbone

9. I have reviewed Exhibit 1009, TiVo for Dummies by Andy Rathbone.

10. Attached hereto as Appendix RATHBONE01 is a true and correct copy of the MARC record for TiVo for Dummies as held by the Penn State University Library. Based on my experience, the Penn State University Library public catalog would have had a similar search functionality in 2007; by that time, most universities had digitized their catalogs and made them available to electronically search over the Internet, or at the very least, electronically search within the library itself. I secured this record myself from the library's public catalog. The MARC record contained within Appendix RATHBONE01 accurately describes the title, author, publisher, and ISBN number of TiVo for Dummies.

11. Attached hereto as Appendix RATHBONE02 is a true and correct copy of TiVo for Dummies as held by the Penn State University Library. These scans were secured from the library's collection. In comparing Exhibit 1009 to Appendix RATHBONE02, it is my determination that Exhibit 1009 is a true and correct copy of TiVo for Dummies by Andy Rathbone.

12. The 008 field of the MARC record in Appendix RATHBONE01 indicates the date of record creation. The 008 field of Appendix RATHBONE01 indicates the Penn State University Library first acquired TiVo for Dummies as of May 6, 2004. Considering this information, it is my determination that TiVo for

Dummies was made available to the public shortly after its initial acquisition as of May 6, 2004.

D. Rou

13. I have reviewed Exhibit 1015, "Online File Storage System" by T.K. Rou, et al as published in Proceedings of the 2002 Student Conference on Research and Development.

14. Attached hereto as Appendix ROU01 is a true and correct copy of the MARC record for Proceedings of the 2002 Student Conference on Research and Development as held by the Rochester Institute of Technology Libraries. Based on my experience, the Penn State University Library public catalog would have had a similar search functionality in 2007; by that time, most universities had digitized their catalogs and made them available to electronically search over the Internet, or at the very least, electronically search within the library itself. I secured this record myself from the library's public catalog. The MARC record contained within Appendix ROU01 accurately describes the title, publisher and ISBN number of Proceedings of the 2002 Student Conference on Research and Development.

15. Attached hereto as Appendix ROU02 is a true and correct copy of "Online File Storage System" as published in Proceedings of the 2002 Student Conference on Research and Development from the publisher's website at <https://ieeexplore.ieee.org>. In comparing Exhibit 1015 to Appendix ROU02, it is my

determination that Exhibit 1015 is a true and correct copy of "Online File Storage System" by T.K. Rou, et al as published in Proceedings of the 2002 Student Conference on Research and Development.

16. The 008 field of the MARC record in Appendix ROU01 indicates the date of record creation. The 008 field of Appendix ROU01 indicates the Rochester Institute of Technology Libraries first acquired Proceedings of the 2002 Student Conference on Research and Development as of December 3, 2002. Considering this information, it is my determination that Proceedings of the 2002 Student Conference on Research and Development and therefore "Online File Storage System" was made available to the public shortly after December 3, 2002.

II. CONCLUSION

17. In signing this Declaration, I recognize that the Declaration will be filed as evidence in a contested case before the Patent Trial and Appeal Board of the United States Patent and Trademark Office. I also recognize that I may be subject to cross-examination. If cross-examination is required of me, I will appear for cross-examination during the time allotted for cross-examination.

18. I reserve the right to respond to any declarations that are submitted by Patentee's expert witnesses or to any testimony by Patentee's fact or expert witnesses, whether at deposition or at trial.

19. I declare under penalty of perjury that the foregoing is true and correct.

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code.

Dated: 6/30/2025

A handwritten signature in black ink, appearing to read 'June Ann Munford', with a stylized flourish at the end.

June Ann Munford

APPENDIX CV

June A. Munford
Curriculum Vitae

Education

University of Wisconsin-Milwaukee - MS, Library & Information Science, 2009
Milwaukee, WI

- Coursework included cataloging, metadata, data analysis, library systems, management strategies and collection development.
- Specialized in library advocacy, cataloging and public administration.

Grand Valley State University - BA, English Language & Literature, 2008
Allendale, MI

- Coursework included linguistics, documentation and literary analysis.
- Minor in political science with a focus in local-level economics and government.

Professional Experience

Researcher / Expert Witness, October 2017 – present
Freelance ● Pittsburgh, Pennsylvania & Grand Rapids, Michigan

- Material authentication and public accessibility determination. Declarations of authenticity and/or public accessibility provided upon research completion. Experienced with appeals and deposition process.
- Research provided on topics of public library operations, material publication history, digital database services and legacy web resources.
- Past clients include Alston & Bird, Arnold & Porter, Baker Botts, Fish & Richardson, Erise IP, Irell & Manella, O'Melveny & Myers, Perkins-Coie, Pillsbury Winthrop Shaw Pittman and Slayden Grubert Beard.

Library Director, February 2013 - March 2015
Dowagiac District Library ● Dowagiac, Michigan

- Executive administrator of the Dowagiac District Library. Located in

Southwest Michigan, this library has a service area of 13,000, an annual operating budget of over \$400,000 and total assets of approximately \$1,300,000.

- Developed careful budgeting guidelines to produce a 15% surplus during the 2013-2014 & 2014-2015 fiscal years while being audited.
- Using this budget surplus, oversaw significant library investments including the purchase of property for a future building site, demolition of existing buildings and building renovation projects on the current facility.
- Led the organization and digitization of the library's archival records.
- Served as the public representative for the library, developing business relationships with local school, museum and tribal government entities.
- Developed an objective-based analysis system for measuring library services - including a full collection analysis of the library's 50,000+ circulating items and their records.

November 2010 - January 2013

Librarian & Branch Manager, Anchorage Public Library ● Anchorage, Alaska

- Headed the 2013 Anchorage Reads community reading campaign including event planning, staging public performances and creating marketing materials for mass distribution.
- Co-led the social media department of the library's marketing team, drafting social media guidelines, creating original content and instituting long-term planning via content calendars.
- Developed business relationships with The Boys & Girls Club, Anchorage School District and the US Army to establish summer reading programs for children.

June 2004 - September 2005, September 2006 - October 2013

Library Assistant, Hart Area Public Library

Hart, MI

- Responsible for verifying imported MARC records and original MARC

cataloging for the local-level collection as well as the Michigan Electronic Library.

- Handled OCLC Worldcat interlibrary loan requests & fulfillment via ongoing communication with lending libraries.

Professional Involvement

Alaska Library Association - Anchorage Chapter

- Treasurer, 2012

Library Of Michigan

- Level VII Certification, 2008
- Level II Certification, 2013

Michigan Library Association Annual Conference 2014

- New Directors Conference Panel Member

Southwest Michigan Library Cooperative

- Represented the Dowagiac District Library, 2013-2015

Professional Development

Library Of Michigan Beginning Workshop, May 2008

Petoskey, MI

- Received training in cataloging, local history, collection management, children's literacy and reference service.

Public Library Association Intensive Library Management Training, October 2011

Nashville, TN

- Attended a five-day workshop focused on strategic planning, staff management, statistical analysis, collections and cataloging theory.

Alaska Library Association Annual Conference 2012 - Fairbanks, February 2012

Fairbanks, AK

- Attended seminars on EBSCO advanced search methods, budgeting, cataloging, database usage and marketing.

Depositions

2019 ● Fish & Richardson

Apple v. Qualcomm (IPR2018-001281, 39521-00421IP, IPR2018-01282 and 39521-00421IP2)

2019 ● Erise IP

Implicit, LLC v. Netscout Systems, Inc (Civil Action No. 2:18-cv-53-JRG)

2019 ● Perkins-Coie

Adobe Inc. v. RAH Color Technologies LLC (Cases IPR2019-00627, IPR2019-00628, IPR2019-00629 and IPR2019-00646)

2020 ● O'Melveny & Myers

Maxell, Ltd. v. Apple Inc. (Case No. 5:19-cv-00036-RWS)

2021 ● Pillsbury Winthrop Shaw Pittman LLP

Intel v. SRC (IPR2020-1449)

2022 ● Perkins-Coie

Realtek v. Future Link (IPR2021-01182)

2023 ● Fish & Richardson

Neuroderm Ltd. v. Abbvie, Inc (Case No. PGR2022-00040)

2023 ● Fish & Richardson

Nearmap US Inc. v. Pictometry International Corp. (IPR2022-00735)

Limited Case History & Potential Conflicts

Alston & Bird

- Ericsson
 - v. Collision Communications (IPR2022-01233)
- Nokia
 - v. Neptune Subsea, Xtera (Case No. 1:17-cv-01876)

Arnold & Porter

- Ivantis
 - v. Glaukos (Case No. 8:18-cv-00620)
- Samsung
 - v. Jawbone (Case No. 2:21-cv-00186)

Benesch Friedlander Coplan & Aronoff

- Voyis
 - v. Cathx (Case No. 5:21-cv-00077-RWS)

Erise I.P.

- Apple
 - v. Ericsson Inc. (IPR2022-00715)
 - v. Future Link Systems (IPRs 6317804, 6622108, 6807505, and 7917680)
 - v. INVT (Case No. 20-1881)
 - v. Navblazer LLC (IPR2020-01253)
 - v. Qualcomm (IPR2018-001281, 39521-00421IP, IPR2018-01282, 39521-00421IP2)
 - v. Quest Nettech Corp (Case No. 2:19-cv-00118-JRG)
 - v. Telefonaktiebolaget LM Ericsson (IPR2022-00275)

- Fanduel
 - v. CGT (Case No. 19-1393)
- Garmin
 - v. Phillips North America LLC (Case No. 2:19-cv-6301-AB-KS)
- Netscout
 - v. Longhorn HD LLC (Case No. 2:20-cv-00349)
 - v. Implicit, LLC (Civil Action No. 2:18-cv-53-JRG)
- Sony Interactive Entertainment LLC
 - v. Bot M8 LLC (IPR2020-01288)
 - v. Infernal Technology LLC (Case No. 2:19-CV-00248-JRG)
- Unified Patents
 - v. GE Video Compression (Civil Action No. 2:19-cv-248)

Fish & Richardson

- Apple
 - v. AliveCor (3:21-cv-03958)
 - v. LBS Innovations (Case No. 2:19-cv-00119-JRG-RSP)
 - v. Koss Corporation (IPR2021-00305)
 - v. Masimo (IPR 50095-0012IP1, 50095-0012IP2, 50095-0013IP1, 50095-0013IP2, 50095-0006IP1)
 - v. Neonode (Case No. 21-cv-08872-EMC)
 - v. Qualcomm (IPR2018-001281, 39521-00421IP, IPR2018-01282, 39521-00421IP2)
- Dell
 - v. Neo Wireless (IPR2022-00616)

- Dish Network
 - v. Realtime Adaptive Streaming (Case No. 1:17-CV-02097-RBJ)
 - v. TQ Delta LLC (Case No. 18-1798)
- Evapco Dry Cooling
 - v. SPG Dry Cooling (IPR2021-00688)
- Genetec
 - v. Sensormatic Electronics (Case No. 1:20-CV-00760)
- Huawei
 - v. Bell Northern Research LLC (IPR2019-01174)
- Kianxis
 - v. Blue Yonder (Case No. 3:20-cv-03636)
- LG Electronics
 - v. Bell Northern Research LLC (Case No. 3:18-cv-2864-CAB-BLM)
- Metaswitch
 - v. Sonus Networks (IPR2018-01719)
- Microsoft
 - v. Throughputer Inc (IPR2022-00757)
- MLC Intellectual Property
 - v. MicronTech (Case No. 3:14-cv-03657-SI)
- Nearmap Inc
 - v. EagleView Technologies (IPR2022-01009)
- Neuroderm Ltd.
 - v. Abbvie, Inc (Case No. PGR2022-00040)
- Realtek Semiconductor
 - v. Future Link (IPR2021-01182)

- Quectel
 - v. Koninklijke Philips (Case No. 1:20-cv-01710)
- Samsung
 - v. Aire Technology (IPR2022-00877)
 - v. Bell Northern Research (Case No. 2:19-cv-00286-JRG)
 - v. Communication Technologies Inc (IPR2022-01221)
 - v. Jawbone Innovations (IPR2022-00865)
 - v. MemoryWeb LLC (IPR2022-00885)
 - v. Telefonaktiebolaget LM Ericsson (IPR2021-00615)
- Texas Instruments
 - v. Vantage Micro LLC (IPR2020-01261)
- Xilinx
 - v. Sentient Sensors LCC (Case No. 1:22-cv-00173)

Irell & Manella

- Curium

O'Melveny & Myers

- Apple
 - v. Maxell (Case No. 5:19-cv-00036-RWS)

Perkins-Coie

- Heru Industries
 - v. The UAB Research Foundation (IPR2022-01148)
- Realtek Semiconductor
 - v. Future Link (IPR2021-01182)

- Twitter Inc

- v. VOIP-Pal.com (Case No. 3:20-cv-02397-JD)

- TCL Industries

- v. Koninklijke Philips NV (IPR2021-00495, IPR2021-00496 and IPR2021-00497)

Pillsbury Winthrop Shaw Pittman

- Intel

- v. FG SRC LLC (Case No. 6:20-cv-00315)

- Gravel Rating Systems

- v. Costco (Case No. 4:21-cv-149)

- v. Lowe's Home Centers (Case No. 4:21-cv-150)

- v. T-Mobile USA (Case No. 4:21-cv-152)

- v. Kohl's Inc. (Case No. 4:21-cv-258)

- v. Under Armor (Case No. 4:21-cv-356)

APPENDIX RATHBONE01



Keyword

Search...

Search

Advanced search Start Over

Share

Bookmark

Report an Issue

MARC View

LEADER 02079cam a2200421la 4500

001 3938865

003 SIRSI

005 20151215121053.0

006 m d

007 cr cnu---unuuu

008 040506t20042004njua s 001 0 eng d

019 a | MARS

020 a | 0764572962 (electronic bk.)

040 a | N\$T c | N\$T d | OCLCQ d | UtOrBLW

050 1 4 a | TK6679.3 b | R38 2004eb

082 0 4 a | 621.388/33 2 | 22

100 1 a | Rathbone, Andy.

245 1 0 a | TiVo for dummies h | [electronic resource] / c | by Andy Rathbone.

264 1 a | Hoboken, N.J. : b | Wiley Pub., c | [2004]

264 4 c | ©2004

300 a | xviii, 306 pages : b | illustrations ; c | 24 cm.

336 a | text b | txt 2 | rdacontent

337 a | computer b | c 2 | rdamedia

338 a | online resource b | cr 2 | rdacarrier

490 1 a | --For dummies

500 a | Includes index.

536 a | This netLibrary electronic book is provided through the Access Pennsylvania Database project, a statewide library union catalog funded by the Pennsylvania Legislature and administered by the Pennsylvania Department of Education, Office of Commonwealth Libraries, Bureau of Library Development.

650 0 a | Interactive television.

650 0 a | Television x | Equipment and supplies x | Automatic control.

650 0 a | Video recordings x | Computer programs.

655 7 a | Electronic books. 2 | local

710 2 a | NetLibrary, Inc.

776 1 c | Original z | 0764569236 w | (DLC) 2004101958 w | (OCoLC)54998999

856 4 3 | Bibliographic record display u | https://ezaccess.libraries.psu.edu/login?url=http://www.netLibrary.com/urlapi.asp?action=summary&v=&bookid=107286 z | Click here to access this electronic book provided through the Access Pennsylvania Database project.

830 0 a | --For dummies.

533 a | Electronic reproduction. b | Boulder, Colo. : c | NetLibrary, d | 2004. n | Available via World Wide Web. n | Access may be limited to NetLibrary affiliated libraries.

590 a | AVAILABLE ONLINE TO AUTHORIZED PSU USERS.

949 a | Electronic resource w | ASIS c | 1 i | 3938865-1001 I | ONLINE m | ONLINE r | Y s | Y t | ONLINE u | 8/24/2007 o | .STAFF. 20060823 NetLibrary



Copyright ©2019 The Pennsylvania State University. All rights reserved. Except where otherwise noted, this work is subject to a Creative Commons Attribution 4.0 license. Details and exceptions.

[Legal Statements](#) | [PSU Hotlines](#)

PENN STATE UNIVERSITY LIBRARIES

[Libraries Home](#)

(814) 865-6368

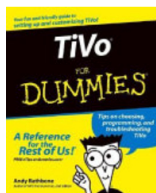
[Libraries Intranet \(Staff Only\)](#)
[Accessibility Help](#)
[Website Feedback](#)
[Policies and Guidelines](#)
[Staff Directory](#)

CONNECT WITH PENN STATE UNIVERSITY LIBRARIES

[Facebook](#)
[Twitter](#)
[Instagram](#)

Keyword

Search...

Search [Advanced search](#) [Start Over](#)[Share](#)[Bookmark](#)[Report an Issue](#)

TiVo for dummies [electronic resource] / by Andy Rathbone

Author

[Rathbone, Andy](#)

Published

Hoboken, N.J. : Wiley Pub., [2004]

Copyright Date

©2004

Physical Description

xviii, 306 pages : Illustrations ; 24 cm.

Additional Creators

[NetLibrary, Inc](#)


Access Online

 Bibliographic record display: ezaccess.libraries.psu.edu , Click here to access this electronic book provided through the Access Pennsylvania Database project.

[Search inside at Google Books](#)

Series

[--For dummies](#)

Subject(s)

[Interactive television](#)[Television—Equipment and supplies—Automatic control](#)[Video recordings—Computer programs](#)

ISBN

0764572962 (electronic bk.)

Note

Includes index.

AVAILABLE ONLINE TO AUTHORIZED PSU USERS.

Reproduction Note

Electronic reproduction. Boulder, Colo. : NetLibrary, 2004. Available via World Wide Web. Access may be limited to NetLibrary affiliated libraries.

Funding Information

This netLibrary electronic book is provided through the Access Pennsylvania Database project, a statewide library union catalog funded by the Pennsylvania Legislature and administered by the Pennsylvania Department of Education, Office of Commonwealth Libraries, Bureau of Library Development.

[View MARC record](#) | catkey: 3938865

APPENDIX RATHBONE02



Searching: eBook Collection (EBSCOhost)

Search

eBook

TiVo for Dummies

Published in: --For Dummies, 2004
Database: eBook Collection (EBSCOhost)
By: Rathbone, Andy

Access Now (eBook)

Download

Table of contents

Cover

TiVo For Dummies

Permissions

Available

1 of 1 copies remaining.

Chapter download, print, email & save
60 pages allowed.

Your fun and friendly guide to
setting up and customizing TiVo!

TiVo®

FOR DUMMIES®

**A Reference
for the
Rest of Us!®**

FREE eTips at dummies.com®

Andy Rathbone

Author of MP3 For Dummies, 2nd Edition

*Tips on choosing,
programming, and
troubleshooting
TiVo*



Table of Contents

Introduction..... 1

What's in This Book?	1
How to Use This Book	2
Don't Read These Parts	2
How This Book is Organized	3
Part I: Before Buying Your TiVo	3
Part II: Using the TiVo	3
Part III: The Home Media Option	4
Part IV: Upgrading and Fixing Your TiVo	4
Part V: The Part of Tens	4
Icons Used in This Book	5
Where to Go from Here	5

Part 1: Before Buying Your TiVo 7

Chapter 1: Knowing the TiVo 9

Pausing Live TV	9
Controlling Your Own Instant Replays	10
Putting Your Television to Work	12
Zippping Past the Commercials	13
TiVo's Sweet Little Gifts	15
TiVo and Your Home Computer	15
Saving Shows to VCR or DVD Burner	16
Just What Does TiVo Look Like?	16

Chapter 2: Buying the Right TiVo Model 19

What Your TiVo Needs	19
Paying for the TiVo Service	20
How the TiVo Service works its magic	23
How can I steal the TiVo Service?	24
The TiVo Box	24
Standalone TiVo	25
DirecTV TiVos	26
DVD Player/Recorder TiVos	27
Choosing the Right TiVo for You	28

Chapter 3: Setting Up Your TiVo 29

Throwing in the Towel and Calling a Professional Installer	29
The Three Steps to Installing TiVo	30
Identifying Your Cables and Connectors, and Choosing the Highest Quality	32
Placing TiVo Near Your TV Set	35
Connecting TiVo to Your Phone Line	35
Connecting TiVo to Your Television Signal	37
Hooking Up TiVo without a Satellite or Cable Box	38
Connecting TiVo with a Cable or Satellite Box	39
Letting TiVo change channels on a cable or satellite box	39
Routing the sound and video to TiVo and your TV	42
Connecting TiVo's Sound to Your Stereo	44
Connecting a VCR and Other Accessories between TiVo and Your TV	45
Recording One Show While Watching Another Live Show	47

Part II: Using the TiVo 51**Chapter 4: TiVo's Remote and the Guided Setup 53**

Preparing for TiVo's Guided Setup	54
Knowing Your Remote	54
Completing Onscreen Guided Setup	58
Agreeing to TiVo's terms	60
Activating the service	61
Telling TiVo about your location	62
Letting TiVo make its first setup call	64
Choosing your dial-in number	65
Telling TiVo your television setup	66
Telling TiVo about your box and connections	69
Letting TiVo make its first Program Call	72
Fine-tuning TiVo's Remote	73
Making TiVo's remote control the power, volume, and mute switch of your TV (or stereo)	74
Searching for remote codes	75

Chapter 5: Watching and Recording Live TV 77

Turning On and Watching Live TV	77
Recording Live TV	79
Pausing and Restarting Live TV	81
Instant Replays and Slow Motion	82
Finding Your Place in the Status Bar	82
Viewing Information about the Show You're Watching	84

Changing Channels	87
Viewing and Recording through the Channel Guide	88
Weaning Yourself from Live TV	91
Live TV Remote Shortcuts	92
Chapter 6: Recording and Watching Favorite Shows	95
Creating a Season Pass to Record a Series	96
Entering Letters and Numbers Using the Remote	102
Creating WishLists to Record Favorite Things	103
Handling Scheduling Conflicts with the Season Pass Manager	107
Managing Your Recording Space	109
Checking TiVo's List of Upcoming Recordings	109
Manually Recording by Time, Day, and Channel	110
Finding Interesting Shows to Record	112
Recording movies you missed at the theater	113
Making WishLists work for you	113
Browsing TiVo!ution Magazine for shows	114
Watching Recorded TV with TiVo	115
TiVo's Now Playing list	116
Understanding the Now Playing list's green, yellow, and exclamation point icons	118
Using the Status Bar in recorded shows	119
Saving recorded shows to a VCR	120
TiVo's Suggestions and Your Thumbs Up and Thumbs Down Buttons	122
Recorded TV Remote Shortcuts	123
Chapter 7: Fine-Tuning Your TiVo	125
Finding TiVo's Settings and Preferences Menu	126
Turning Off the Remote's Beeps	126
Weeding Out Unwanted Channels and Adding the Favorites	128
Reading TiVo's Messages	129
Changing TiVo's Phone Number and Dialing Options	131
Blocking Content with Parental Controls	132
Customizing the Channel Banner Display	137
Changing the Default Video Recording Quality	138
Making TiVo Stop Recording Suggestions	139
Part III: The Home Media Option	141
Chapter 8: Setting Up the Home Media Option	143
Understanding the Home Media Option	144
Knowing What Home Media Option Requires	145

Setting Up a Home Network and Connecting TiVo	147
To wire or not to wire: Choosing between a wired or wireless network	147
Buying and installing the right network adapters	148
Placing a router at the network's center	150
Connecting TiVo to the home network	152
Purchasing the Home Media Option	156
Installing TiVo Desktop on Your Computer	158
Troubleshooting the Home Media Option	158
Chapter 9: Putting TiVo's Home Media Option to Work	161
Scheduling Recordings through the Web	162
Publishing Music and Photos to TiVo	166
Viewing Digital Photos on TiVo	170
Playing MP3s on TiVo	174
Sharing Shows between Two TiVos	175
Tips and Shortcuts for Music and Photos	176
Chapter 10: Fancy Home Media Option Tricks	179
Organizing Your Computer's Files for TiVo	180
Organizing your own music files	181
Tagging your files	182
Creating your own playlists	185
Organizing photos	187
Enhancing TiVo Publisher with Other Programs	187
MoodLogic for TiVo	188
J. River Media Center	189
Java Home Media Option (JavaHMO)	190
Adobe Photoshop Album 2.0 and Picasa	192
Part IV: Upgrading and Fixing Your TiVo	193
Chapter 11: When Things Go Wrong	195
Fixing Wrong Channel Lineups	196
TiVo doesn't list my channels correctly	196
TiVo doesn't list the right show descriptions for my channel	197
TiVo records the wrong show	198
Controlling Your TV's (And/Or Stereo's) Power and Volume with TiVo's Remote	199
Fine-Tuning TiVo's Suggestions	199
Troubleshooting Video Problems	201
TiVo doesn't display any video	201
The video looks grainy	202
Troubleshooting Sound Problems	203

Channel Changing Problems	204
Keeping TiVo from changing channels during live TV	204
Sometimes TiVo won't change channels on my cable box!	205
Examining the Recording History	206
Solving Phone Problems	208
Forcing TiVo to make a phone call	208
Keeping TiVo from calling long-distance numbers	209
I Need More Storage Space!	210
Gathering Information about Your TiVo	211
TiVo's network IP address and signal strength	212
Checking TiVo's recording history	213
Checking TiVo's available storage space	213
Setting Up TiVo When You Move	214
Restarting or Resetting TiVo, or Starting from Scratch	215

Chapter 12: Adding More Storage Space to Your TiVo 219

Understanding Your Upgrade Options and Risks	220
Buying a Hard Drive Upgrade Kit	220
Opening Your TiVo	222
Removing the Old Drive	224
Adding the New Drive	226
Replacing TiVo's Case	227
Making Sure TiVo Works	227

Chapter 13: Finding More TiVo Information on the Web 229

TiVo's Own Web Site	229
Web Links to TiVo Fan Sites	232
TiVo Community Forum	232
TiVo FAQ (www.tivofaq.com)	233
PVR Blog (www.pvrblog.com)	233
TiVo Hacking Sites	234
The Unofficial TiVo Hackers site	234
TiVo Web Project	235
Jeff Keegan's "Hacking TiVo" support site	235
Links to Upgrade Kit Vendors	236
WeakKnees	236
9th Tee Enterprises	237
PTVupgrade	237

Part V: The Part of Tens 239

Chapter 14: Tips for Watching Live TV 241

Keeping Away from Live TV	241
Recording Live Shows On-the-Fly	242

Recording a Short Portion of a Live Show	243
Cutting Commercials from Live TV	243
Returning to a Paused Show	243
Recording Digital Cable Music Stations	244
Toggling between Two Live Shows	244

Chapter 15: Tips for Watching Recorded TV 247

Letting Shows Scroll Off Naturally	247
Fast-Forwarding 30 Seconds at a Time	248
Repeating Missed Dialogue	249
Creative Uses for Closed Captioning	249
Playing or Deleting Saved Shows Quickly	249
Saving Recorded Shows to a VCR	250

Chapter 16: Tips for Recording Shows 251

Finding Interesting Shows to Record	251
Making Sure TiVo Doesn't Miss the Very End (Or Beginning) of Your Shows	252
Automatically Recording TV Premieres	252
Avoiding Overflows from TV Show Marathons	253
Navigating Menus More Quickly	253
Recording Movies or Shows with Forgotten Names	253
Setting Up TiVo for Vacations	254
Recording Sports Events	254

Chapter 17: Tips for Sharing TiVo with Family or Roommates 257

Sharing TiVo with a Roommate	257
Saving Space When Recording Long Shows	258
Buy a Second Remote	259
Setting Parental Controls Appropriately	259
Scheduling Children's Shows	260
Adding Current Schoolwork to WishLists	260
Hiding the Remote from Children and Guests	260

Chapter 18: Ten Warning Screens and Their Cures 263

The Show Is Currently Being Recorded	264
The TiVo DVR Needs to Change the Channel	265
The Recorder Is Not Getting a Video Signal	266
The DVR Cannot Display Live TV	267
Please Activate Service	267
A Problem Occurred While Accessing the Server	268
Read New TiVo Messages and Setup	268
Press Thumbs Up to Record	270
Error Code: Error #32	270
Black Screen	271

Chapter 19: Ten Differences between TiVo and Generic DVRs . . . 273

TiVo Automatically Searches for Shows	274
TiVo Offers a Season Pass	274
TiVo Offers a WishList	274
A Standalone TiVo Won't Record in Dolby 5.1 Sound	275
TiVo's a Time-Tested Technology	275
You Own TiVo	275
The DVR Lets You Watch One Show Live and Record Another Simultaneously	276

**Chapter 20: Ten Big Differences between Series 1
and Series 2 TiVos . . . 277**

Differences in the TiVo Central Menu	278
Differences in the Now Playing Menu	279
Differences in the System Information Screen	282
Limitations of Series 1 TiVos	283

Glossary* 285**Index* 289**

APPENDIX ROU01

[↺ Start Over](#)[📄 Save Records](#)[💻 Regular Display](#)[🔍 Another Search](#)

```
LEADER 00000cam a2200553 a 4500
001 IEEES1113685
006 m o d
007 cr |||||
008 021203s2002 njua ob 101 0 eng d
020 0780375653
020 9780780375659
040 HNK|beng|epn|cHNK|dWUW|dOCLCQ|dSTF|dOCLCQ|dCOO|dOCLCQ
|dOCLCF|dOCLCQ|dOCLCO|dOCL|dOCLCO|dOCLCQ|dVT2|dIAS|dLIP
|dOCLCQ|dREB|dCEF|dAU@|dWYU|dLVT|dOCLCQ|dHS0|dUWK|dERF
|dUHL|dUKBTH|dUKSSU|dSNU|dUK7LJ|dLDP|dEQF|dSXB|dOCLCQ
|dOCLCO|dOCLCQ|dOCLCO|dOCLCL|dOCLCO
049 RVEU
050 4 TK7885.A1|bS78 2002
082 04 621.381
099 ELECTRONIC|aRESOURCES
111 2 Student Conference on Research and Development|d(2002 :
|cShah Alam, Selangor)
245 10 2002 Student Conference on Research and Development :
|bSCORed2002 : proceedings : globalizing research and
development in electrical and electronics engineering :
July 16-17, 2002, Grand Blue Wave Hotel, Shah Alam,
Malaysia /|cjointly organized by Faculty of Electrical
Engineering, Universiti Teknologi MARA & IEEE Malaysia
Section
246 30 Globalizing research and development in electrical and
electronics engineering
246 30 SCORed2002
260 Piscataway, N.J. :|bIEEE,|c02002
300 1 online resource (xi, 522 pages) :|billustrations
336 text|btxt|2rdacontent
337 computer|bc|2rdamedia
338 online resource|bcr|2rdacarrier
490 0 Proceedings of the IEEE
490 0 IEEE Xplore All Conference Proceedings
500 "IEEE Catalog Number: 02EX598"--Title page verso
504 Includes bibliographical references and index
506 Access is limited to RIT students, faculty and staff
538 MODE OF ACCESS: World Wide Web
546 English
588 0 Print version record
590 Subsequent record output
650 0 Computer engineering|vCongresses
650 0 Telecommunication|vCongresses
650 0 Power electronics|vCongresses
655 7 Electronic books.|2local
710 2 Universiti Teknologi MARA.|bFaculty of Electrical
Engineering
710 2 IEEE Malaysia Section.|1https://id.oclc.org/worldcat/
entity/E39QQPVP7XTbKytV3DxYbqmqGR
740 0 Research and Development, 2002, SCORed 2002, Student
Conference on
776 08 |iPrint version:|aStudent Conference on Research and
Development (2002 : Shah Alam, Selangor).|t2002 Student
Conference on Research and Development.|dPiscataway, N.J.
: IEEE, 02002|w(DLC) 2002107075
856 40 |zIEEE Electronic Books|uhttps://ezproxy.rit.edu/
login?url=https://ieeexplore.ieee.org/servlet/
opac?punumber=8033
```

[Contact Us](#) | [InterLibrary Loan](#)

[Start Over](#)[Save Records](#)[MARC Display](#)[Another Search](#)

Record number

Entire Catalog

[Search](#)☐ Limit search to available items[Permanent Link](#)

Author **Student Conference on Research and Development (2002 : Shah Alam, Selangor)**

Title **2002 Student Conference on Research and Development : SCORed2002 : proceedings : globalizing research and development in electrical and electronics engineering : July 16-17, 2002, Grand Blue Wave Hotel, Shah Alam, Malaysia / jointly organized by Faculty of Electrical Engineering, Universiti Teknologi MARA & IEEE Malaysia Section**

Publisher Piscataway, N.J. : IEEE, ©2002

Available electronically:

IEEE Electronic Books

ISSN/ISBN 0780375653

9780780375659

Descript 1 online resource (xi, 522 pages) : illustrations

Content text

Media computer

Carrier online resource

Call No. TK7885.A1 S78 2002

Series **Proceedings of the IEEE**

IEEE Xplore All Conference Proceedings

Notes "IEEE Catalog Number: 02EX598"--Title page verso

Includes bibliographical references and index

Print version record

English

Access is limited to RIT students, faculty and staff

MODE OF ACCESS: World Wide Web

Subsequent record output

Subject **Computer engineering -- Congresses**

Telecommunication -- Congresses

Power electronics -- Congresses

Electronic books. local

Alt Author **Universiti Teknologi MARA. Faculty of Electrical Engineering**

IEEE Malaysia Section.

Alt Title Globalizing research and development in electrical and electronics engineering

SCORed2002

Included Work **Research and Development, 2002, SCORed 2002, Student Conference on**

APPENDIX ROU02

Online File Storage System

Teh Kai Rou¹, Khalid Suliman Al-Tahat², and Zainuddin Bin Hassan²

¹*Genting Sanyen Power Sdn Bhd,
Head Office,
22nd Floor, Wisma Genting, Jalan Sultan Ismail,
50250 Kuala Lumpur, Malaysia*

²*Computer Science and Information Technology Department,
College of Engineering, Universiti Tenaga Nasional*

Abstract - As computers become an increasing part of our lives at work, at home, and even while traveling, the growth of Internet has brought about revolution to our daily lives with sophisticated online applications that provide us with tremendous ease of communication. Internet offers a number of services ranging from mail server, list server to web-based workgroup tool. With the increasing need to transfer and store digital data, web-based file storage options has become popularize among web communities. A variety format of storage opportunities is available over the net, from free web page servers to online photo galleries and online personal storage space. These storage options generally allow the storage and retrieval of data online. While most of these sites continue to focus on offering free web site and homepages, we have developed an online virtual space file storage system. This system is particularly customized to university and college communities. The file storage system helps people from different domains (e.g. students and lecturers) to manage, access, share and backup their files online, easily, efficiently and reliably. This paper describes some of the features implemented in this system as a solution to juggling floppies, storage limitation and unreliable copies of data.

Keywords: Internet Applications, Online File Storage System

1. INTRODUCTION

The Internet is exploding like wildfire, with the Web doubling in size every few months, making it the fastest growing service on the global Internet. Internet is defined as a worldwide interconnection of tens of thousands of computer networks linking tens of millions of computers, peripherals such as printers and large hard disk assemblies, as well as communications equipment, including wiring, satellites, routers, repeaters and switches [1]. The Internet was originally developed to provide easy communication and transfer of information among academic and government agencies. Over time, the Internet has expanded into a universal information utility that provides a myriad of sophisticated and powerful services. [2].

As online files become more sophisticated, web-based file storage options has become popularize

among web communities. There are many free online storage services in a variety of formats. Oldest of all are the free Web page servers, such as Xoom, Tripod and Geocities, which allow the hosting of organization or individual web pages for business objective or personal interest. The online photo gallery facilitates the uploading of pictures from digital cameras or previously scanned image to their own sites. And recently, the general online storage options that accept the storage of any type of file format, has gradually reached out to most web communities [3].

While most people are familiar with the usage of floppies to transfer and store data, nevertheless such traditional way of transferring data by means of floppy disks has posed a lot of disadvantages, such as limited storage capacity, vulnerability to virus attack and unreliable and inconvenient retrieval of files. As one way to solve these problems, we have developed an online file storage system called UniFile, customizing particularly to university and college communities.

UniFile is a system that can assist people from different domains, for example students and lecturers, to manage, access, share and backup their files online, efficiently and reliably. Both students and lecturers can leverage the use of the Internet to save their files in the remote server and to use the system to access their files without any hassles or limitations from absolutely anywhere.

The technologies used in developing UniFile are Microsoft Active Server Pages and Microsoft SQL Server 7.0 as the tools to develop UniFile. The server side requirements for UniFile are Windows NT4 or 2000 running IIS, Microsoft Data Access Component (MDAC) 2.5 + and SQL Server. Whereas for the client side requirements, Internet Explorer 5.0 + is required with javascript and cookies enabled.

In the section 2 paper, we will describe the features of the online system, highlighting its usefulness and flexibility. An overview of the application will be presented and the design and implementation process of UniFile development will be touched briefly. In section 3, we would like to relate the lessons learnt and experience gained throughout the research and development process. Eventually, we will give a conclusion to this paper in section 4.

space the user has used and how much it is remaining, a Drive Space Meter is designed at the left hand corner of the screen (see figure 2) to serve the purpose of monitoring the utilization of the space in each user virtual drive. On top of that, the system supports the viewing and editing of files with certain extensions. Files that can be viewed from within the web browser include those with the extensions of gif, jpg, jpeg, png, bmp, jpe, htm, html, doc, ppt, xls, txt and swf. Whereas file extensions that are accepted for editing include htm, html, asp, asa, txt, inc, css, aspx, js, vbs, shtm, shtml, xml, xsl and log.

A student and lecturer domain in UniFile have slight distinction in terms of two aspects, the interface and the space allocated. In general, the page for Lecturer has similar functionality and features as with the student's except that lecturer has one privilege over student: Lecturer owns larger storage space as compared to student's. Aside that, the interface of Lecturer page is relative simple and uses technology color. Whereas, the student page's interface is brighter and livelier in colors.

Many people have the general conception that an online file storage system is basically used for the storage and retrieval of personal files. Nevertheless, nowadays, web communities are about sharing information. Thus, in UniFile application, we have incorporated several file sharing features, which we named it as websharing.

Every UniFile user can webshare their files in their personal folder. Webshared files are files to be shared by all UniFile members. All webshared files posted will be displayed in a page for view by all users. Pagination and sorting function are included for easier viewing. Brief description for each file is provided and UniFile member are free to download any files they want. User can also view the properties of any file, or view the contents for certain files. A search function is located at the top corner of the page to facilitate the user in search for any webshare file.

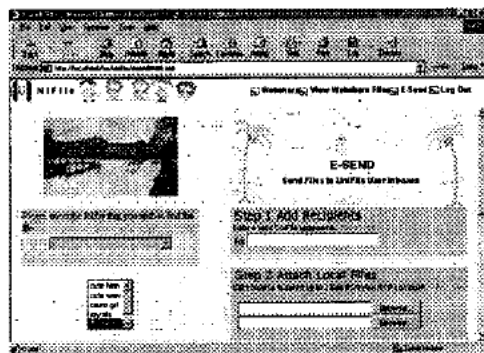


Fig. 5. Esend Page – transferring files to other UniFile

With UniFile, students no longer need to submit their assignments by floppies to their respective lecturers, instead they can send the file to the lecturer's inbox from within their UniFile remote folder or from local drive. This special function is called E-send (see figure 5), a function to facilitate the user in sending remote or local files to other UniFile users' inboxes. A whole listing of all the folders and files in the user's

remote folder is displayed in the left pane of the screen for user selection. Addressing the intended recipient is done through entering the recipient's username. Before hitting the E-send button, user can choose whether to leave a message to the recipient in the message column.

Some students would have prefer to share their files within a group or small circle of peers. Thus, a folder sharing function is allocated to allow user to share any folder in their personal storage space with any friends they wish to add into their sharing lists.

As a student, we constantly need to be reminded of certain important events, such as the date of submission for assignments and projects, quizzes, tests or date of final examinations. Thus, in UniFile we create an easy-to-use personal calendar which can act as an online organiser to UniFile users. The calendar is divided into two types, namely basic calendar and advance calendar. The calendar will allow the students to view upcoming events ranked by importance or date or color coded in calendar format. By frequently checking and maintaining an accurate calendar, user will be constantly reminded of their deadlines or appointments, thus minimizing the chance of missing any events.

Besides storing, and sharing files, we include some online activities to complement the usage of UniFile members. These activities, though not directly related to Online File Storage System, however are indeed useful for web communities. In a student community, we like to post up message or questions for discussions and look forward to receive answers and feedbacks from others. So by hosting a message board, UniFile members can assign his or her own boards for discussions or post up any upcoming news or society announcements.

To send a quick mail to other UniFile members can be done through a simple mail function created using JMail. HTML format of email message is supported and user can choose to attach a local file to his message.

Finally, for security concern, a log off button is provided for the user to close their connection to the UniFile server when he or she has finished with his current session. This prevents another user from accessing his or her account, if the user is working on a shared computer. A security feature is further added to automatically log off UniFile when the user remains idle for a period of 30 minutes.

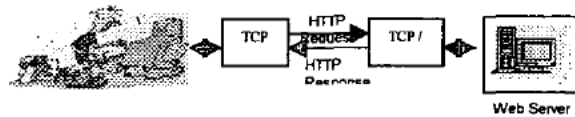
2.1 System Design

In this section, we will describe the system architecture and design of UniFile.

The World Wide Web is based on the Hypertext Transfer Protocol (HTTP). This protocol defines how a client browser will request a document from a web server once it has connected via sockets [4]. Figure 6 shows the protocol layers used in an HTTP request.

Before a user (client) can access the UniFile website, he must first have the connection to the Internet to fire up his web browser. A client browser connects to a web server using TCP/IP on port 80. When the client enters the UniFile's URL, the user's

browser then makes a connection to the domain name service (DNS) and if the address is entered correctly, the client's browser will then request a socket connection to the HTTP "host".



Client Browser Fig. 6. Connecting to UniFile web server

Once the socket connection is successfully established, the client's browser communicates with the web server using HTTP. When the web server receives the page request, for example default.htm from the client browser, it returns a HTTP response.

For UniFile, we have chosen ASP and SQL Server as our development technology. ASP is one of the powerful site-server technologies and is a solution to providing a framework for building dynamic HTML pages that enable UniFile application to be interactive. SQL Server is chosen as the database solution for UniFile instead of Microsoft Access due to its high performance and capability in supporting high volume transaction processing as well as its full integrity with Microsoft's Internet Information Server.

2.2 System Implementation

The implementation of UniFile commences with setting up the development environment for UniFile. A server to hold the files is allocated and the IIS server is configured to host the site for UniFile. We create the SQL database for UniFile and make the connection to SQL server through ODBC in order to access the database from within the Active Server Pages.

Base on the conceptual data model constructed during database design, we create the respective tables to hold all data and information of the UniFile's users and files. The modules for UniFile are then coded. We use the File Access Component to work with files and to gain control of the file system of the file server. This component uses objects like FileSystemObject, TextStream, File, Folder and Drive. The FileSystemObject is used to deal with the creation and maintenance of a file or folder and it includes a number of methods for working with files and folders, such as CreateFolder, CreateTextFile, DeleteFile etc.

The uploading function for UniFile is developed using pure ASP instead of using any upload components that is currently available in the market. It has one advantage over any upload components, as it will work on any web server that supports ASP since no components are required to be installed.

3.0 EXPERIENCES AND DIFFICULTIES

In all ways, it has been a valuable experience in developing the Online File Storage System. Many lessons were learned and knowledge gained throughout both the research and development phases. We have strengthened and deepened our skills in ASP programming by having a greater insights into the

features and complexities of Active Server Pages, especially in dealing with the file system. Nevertheless, there are times where problem and dilemma are encountered. It is rather a tough time to determine the best features for the application and deciding the suitable techniques and application programming to be used, sometimes we face difficulties while coding and integrating the modules.

4.0 CONCLUSION

The Online File Storage System (UniFile) is initiated by the problems faced by students in university and colleges while utilizing the computer laboratory and transferring the files back home using floppy disks. We sought to overcome the problem by having an online file storage system which allows them to store and retrieve their file. Besides orienting to the student's requirements, UniFile is suitable for usage of lecturers, as well as any other web communities.

The development of UniFile will continue to expand from time to time, with more functionality to add-on as the needs of the web communities continue to grow and differ. The security aspect of the system has yet to be strengthened and taken care of. It is always a concern for students whether their files stored in the remote server are secured and whether the security of their virtual drive is not being breached by unauthentic hackers. On top of that, new and enhanced file-sharing features will be included from time to time to further facilitate the UniFile users in their file sharing activities.

Last but not least, it is hoped that the new system will fully benefit all users in terms of remote access, file sharing and online backup, and thus bringing satisfaction and productive results to all web communities.

5.0 REFERENCES

- [1] [The] Internet. 1996. Internet.
http://www.its.bidrdoc.gov/fs-1037/dir-019/_2832.htm
- [2] Varhol, Peter. 1997. *Evaluating Server Technologies for Internet and Intranet Applications*, South Carolina U.S.A, Computer Technology Research Corp
- [3] Web Wanderings Online Storage Opportunities. December 2000. Internet.
<http://www.ecmag.net/ec2000/web12.html>
- [4] A simple web server for Microsoft Windows. 2001. Internet.
<http://www.acm.org/crossroads/xrds6-4/charlotte.html>