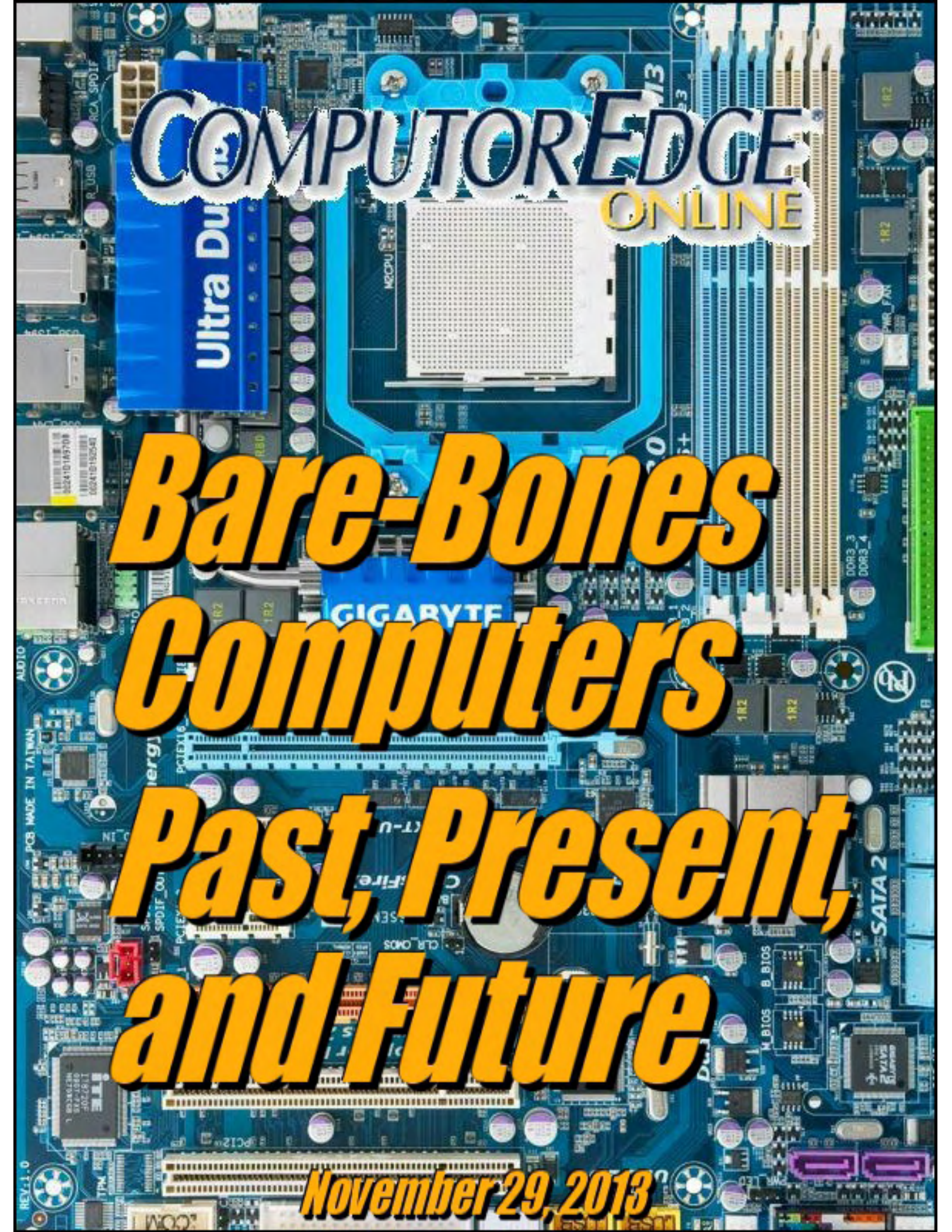
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Bare-Bones Computers Past, Present, and Future
November 29, 2013

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Bare-Bones Computers of the Past, Present, and Future

It all starts with the inner workings and hidden mechanisms of our computers.

Magazine Summary

List of *ComputorEdge* Sponsors

Digital Dave

by Digital Dave

Digital Dave answers your tech questions.
Android Emulator; Open/Save Navigation Bug; Printer Error When Printing Web Pages.

Stripped Bare: Motherboards, Bare-Bones and Mini-PCs

by Marilyn K. Martin

A Historical Look at the World of Bare-Bones Computers
How Altair Inspired Apple; Back to Basics; Acorns and Raspberries—Micros with a Mission; Other Micro-Minis, Beagles to Roboards; Companies Jump into Bare-Bones/Mini Computer Manufacturing; Where to Buy Bare-Bones or Motherboard-Only DIY Computers; Even a Bare-Bones Computer for Your Car!; Do Personal Supercomputers Come in Bare-Bones?; The Future of Bare-Bones Micro Computers?

Windows Tips and Tricks: RAMMap for Viewing What's Inside

by Jack Dunning

RAMMap is a Tool for Checking Out What Occupies Your Computer's Random Access Memory
Sysinternals' RAMMap is probably a tool for people who know much more about computers than the average person. But, anyone can use it to take a peek inside the computer's memory.

Building a Recipe Book with AutoHotkey, Part I

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Wally Wang's Apple Farm

by Wally Wang

Doing Amazing Things

Doing Amazing Things; The Difference Between Microsoft and Apple; Katie Couric Going From TV to the Internet; A Unique Language Learning Tool; Customize Your Toolbar in iWork.

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Digital Dave

"Digital Dave answers your tech questions." by *Digital Dave*

Android Emulator; Open/Save Navigation Bug; Printer Error When Printing Web Pages.

Android Emulator

Dear Digital Dave:

Can you tell me where to download a good Android emulator that is safe and easy to install.

Thanks very much.
John
San Diego, CA

Dear John,

I'm certainly not an expert on Android emulators. Since Android is an alternative operating system, running Android apps on a PC or Mac requires either an emulator or Android loaded in a virtual machine. As a rule, emulators run a little slower and tend to be buggier and less complete since everything needs to run through the host operating system. If you use a virtual machine the host operating system functions are handled consistently as if the new operating system is running directly.

It appears that a couple of the most used emulators are BlueStacks (free) and YouWave (free to try, then $15 or $20 depending upon version). Read any reviews that you can find. Also, I'm certainly open to comments from anyone who has more knowledge of Android emulators than I do.

If I were planning to run Android apps, I would lean toward installing a virtual machine on my computer, then adding Android as the operating system. That way rather than emulation, I would be running the actual operating system. The article "How to Create an Android Emulator in Windows" gives step-by-step instruction on how to first load VirtualBox virtual machine (free software which runs on Windows, Linux, Macintosh, and Solaris hosts), then load the current version of Android-x86. That should give the full Android experience. This may be a little more involved than installing an emulator, but if you're serious about Android, it

is probably worth it.

Digital Dave

Open/Save Navigation Bug

Dear Digital Dave:

I've got another strange situation on my aging Windows XP machine, this time regarding folder navigation during Open and Save As type activities and while using only Microsoft applications software.

The problem: If I go to Open or Save As (my most common uses) and click on the "Look In:" dropdown box to navigate to another folder location the program appears to lock-up and for a time and takes "forever" to get to the next step of displaying the clicked on folder's contents. "Forever" is defined as anywhere from 30 seconds to five minutes as the problem's length is highly variable. The problem is present on each subsequent click as I attempt to navigate to the desired folder making it very painful to save or open a file in any location other than the default one used when the program was launched. When the program appears locked-up Task Manager says that it is "Not Responding." However, if I wait it out, eventually the program works again and the Task Manager message disappears.

I just checked and the problem is common to all Microsoft applications software I have on my computer including all MS Office applications (Word, Excel, PowerPoint) as well as Non-Office Microsoft applications including Front Page, Expression Web 4, and MS Publisher. All Non-Microsoft applications I use work fine so the problem is clearly Microsoft associated. I note that both Windows Explorer and my aftermarket file manager work fine.

Any suggestions?

Thanks,
Ted
Louisville, CO

Dear Ted,

This Microsoft Support page suggests that the problem may be caused by a non-existent mapped drive on a network or a virtual drive. It sounds like the Microsoft programs are conducting an interminable search through drives and folders it can't find. Of course if you have no mapped drives on a disconnected network, pointing at a deleted folder, looking for a missing thumbdrive, or anything else, then this is not likely to be the problem.

In that case, Microsoft office may be corrupted and need repairing. This would be done through Add or Remove Programs. You don't say which version of Office you're using, but these instructions apply to Office 2010.

If you use the Norton Office Anti-virus Plugin, then here is another possible solution.

Here is a post of a number of possible solutions to slow Open and Save As in Office. Most of them seem to relate to the original thought about disappearing drives.

Digital Dave

Printer Error When Printing Web Pages

Dear Digital Dave,

My printer started giving me a script error and will not print from Web sites. When asked if I want to continue anyway I click "Yes" and nothing happens. I unchecked debugging per my search for answers, but I still cannot print from Web sites. What do I try now?

Thank you again!
Lynne Legare
Magnolia, Texas

Dear Lynne,

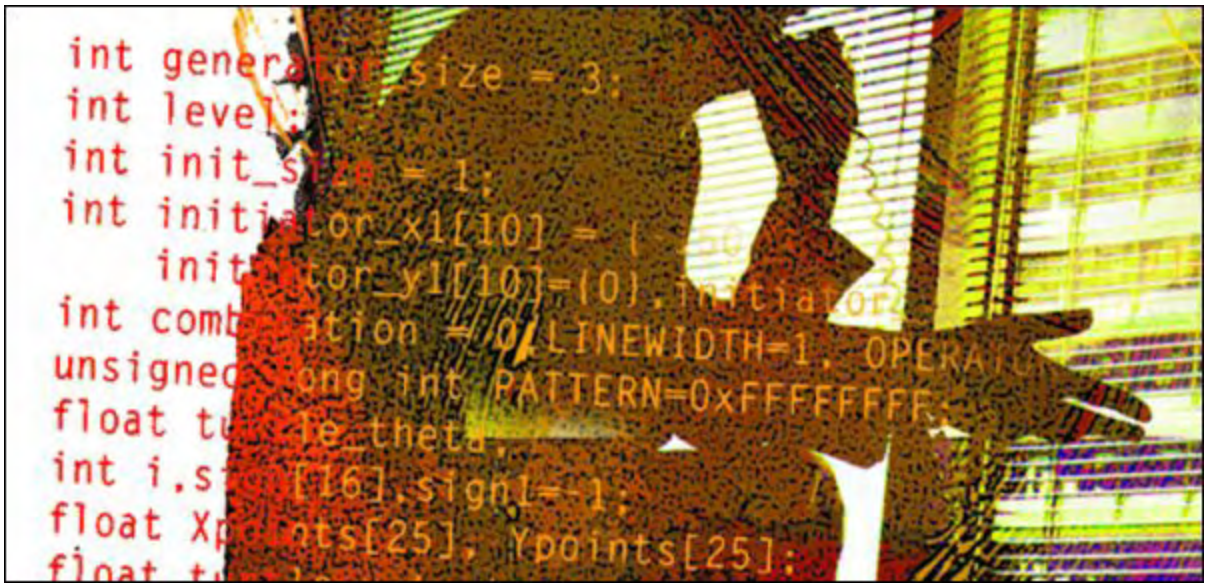
You say that you can't print from Web sites, so I assume that you have tested printing from other sources such as your word processor or other programs. This is important because many recommendations start with updating printer drivers. But if you can print from other applications, then it is unlikely that you have a driver problem—although old drivers may conflict with some newer versions of a program. Also, at times newer printer drivers can cause problems with programs which worked prior to the driver upgrade.

I would also check printing with other browsers such as Google Chrome and Mozilla Firefox (if you're using Internet Explorer). If the printing works in the other browsers, then you know the problem exists with the original browser. If so, then I would try disabling recent add-ons or, if it is a recent upgrade, rolling back to an earlier version of the software.

Sometimes uninstalling and reinstalling the printer will do the job.

These can be some of the toughest problems to diagnose. If you're using Internet Explorer, Microsoft has a support page devoted to the topic. I would try some these suggestions. If it is another browser, check out the associated support pages.

Digital Dave



Stripped Bare: Motherboards, Bare-Bones and Mini-PCs

"A Historical Look at the World of Bare-Bones Computers" by Marilyn K. Martin

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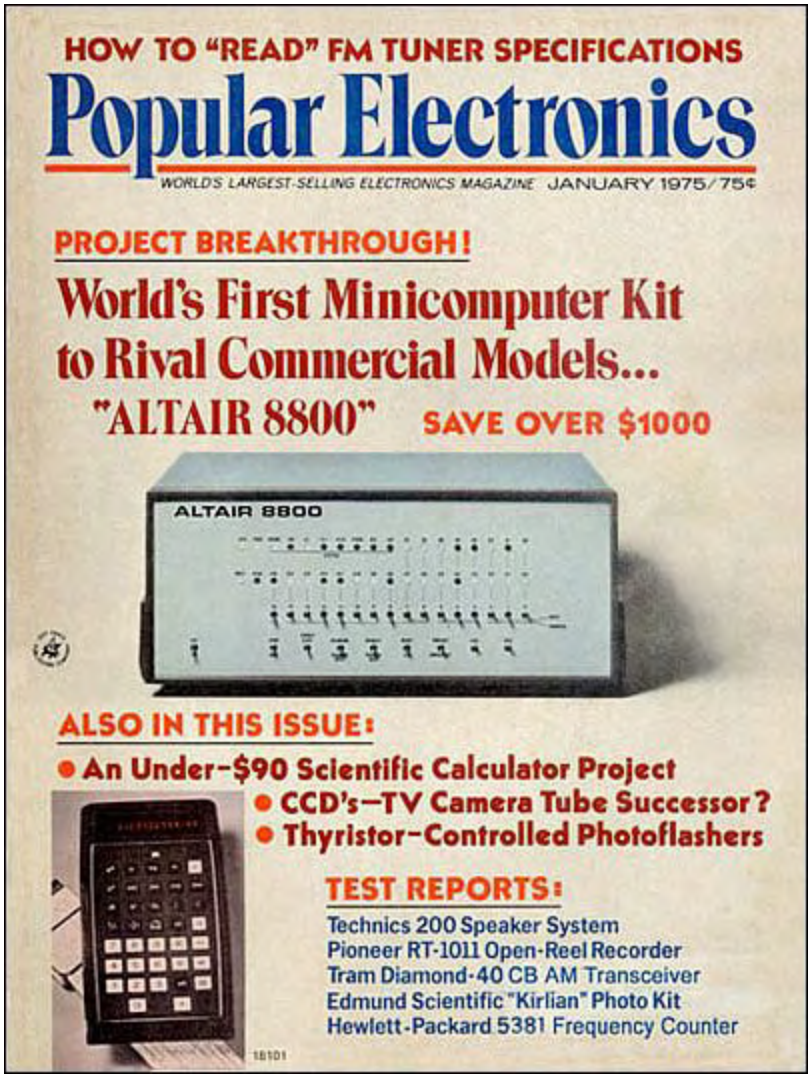
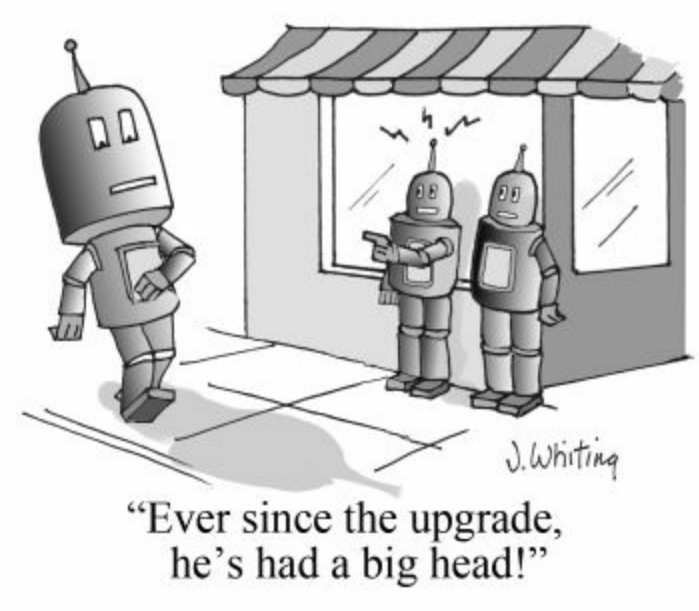
In the history of Computer NerdLife, 1975 was a magical year. Inventor H. Edward Roberts was ready to release the world's first personal computer, the Altair 8800, made by his New Mexico calculator company. And after Popular Electronics put the simple $400 box (no monitor, keyboard, mouse or printer) on the cover of its January 1975 edition, the world was changed forever.



Mr. Roberts predicted he'd sell 800 of his Altair 8800s in the first year. The first month, however, they received 250 orders a day. And within months of that introduction, the Homebrew Computer Club was formed, its various branches collecting a small army of excited tech-geeks to discuss, exchange tips and hack-talk about this very first bare-bones PC.



Steve Jobs and Steve Wozniak were early members of the Bay Area's Homebrew. And Bill Gates dropped out of Harvard to journey to New Mexico and help develop Altair's first operating system, Microsoft Basic, with Paul Allen. By the late 1970s Roberts sold his company, and part of the deal was that he agreed to stay out of computers for five years. He moved to Georgia to become a physician, and never returned to Silicon Valley.

How Altair Inspired Apple

The Woz (Steve Wozniak) attended Homebrew meetings religiously, while Steve Jobs attended only occasionally. The idea that someone could build and own their own computer was mind-boggling for twenty year-olds like Jobs and Woz. Jobs liked tinkering with programming, while Woz was already a hard-core gamer on Atari's "Gran Track." He came up with a computer terminal with a video screen on it, then bought a microprocessor to hook up to the terminal. They worked out the circuit board together and—Viola!—the Apple 1 was born.

By 1976, Steve Jobs was 21, and an early photo shows his bedroom at his parents' home, boxes of bare-bones Apple 1s stacked against the wall, with his first monitor, a soldering iron and spool of wire nearby. Their Apple 1s went on sale in July 1976 as fully assembled circuit boards, instead of just kits, for $666.66—mainly because Jobs and the Woz like repeating digits. Today, just eleven of the Apple 1 motherboards still exist, and one sold at auction in May 2013 for an astounding $671,400.

Back to Basics

The high tech computer industry evolved quickly, and soon "buying a home computer" was a package-deal, where it was taken for granted that a monitor, keyboard and mouse were included with the computer "brains," and maybe a deal on a printer too. Later would come speakers, Webcams and downloadable digital cameras, as well as gamer specifics like backlit keyboards with programmable hotkeys and towers with polar-cooling for hours of hot global gaming.

But as all these peripherals and specialty hardware helped created computer dynasties, there arose a small back-to-basics movement of DIY (do-it-yourself) hobbyists. For some techies it was simple economics; they wanted a new and better computer but didn't have thousands of dollars to spend on the latest computer-bundle. Or they wanted to choose what software to install, without having to track down and remove trialware added by a manufacturer. If they possessed the requisite electronic know-how, they could buy a motherboard and other parts piecemeal, or buy a bare-bones computer "kit" for hundreds of dollars, instead of thousands.

Sites like BareBonesLaptopReviews appeal to users who want to configure a laptop to their own specifications for people who work in specialized fields. Or who want to install their own upgrades without having to buy a new computer. Another site, BuildABarebone, offers helpful DIY articles for the bare-bones hobbyists and pros. While MarketingTechBlog offers a

cautionary tale about building a bare-bones computer, and getting tangled up in PayPal confirming-confirmations. And while a stylish case was all snap-together components, the processor had no fan.

Acorns and Raspberries—Micros with a Mission

In December 1981, the British Broadcasting Corporation (BBC) wanted a micro-computer for their "Computer Literacy Project." Acorn Computers won the bid, and introduced the Proton —soon renamed the BBC Micro. It was an 8-bit home computer designed as a computer education tool, and was soon adopted by most schools in the UK.

Inspired by the Acorn's BBC Micro, the UK's Raspberry Pi Foundation summoned teachers, academics and computer enthusiasts in 2006, to devise a bare-bones educational computer that would inspire children to learn how to write computer code, and hopefully reverse the lack of programming skills in the UK. A palm-sized motherboard Raspberry Pi computer went on sale in February 2012 for about $35. Demand was immediate and overwhelming, crashing the Web site of one supplier (Premier Farnell).

The little bare-bones Pi runs on open-source Linux, with ports to hook up a monitor, keyboard, and other peripherals, as well as an Ethernet port to connect to high-speed internet. The hope is that enthusiasts will eventually find new uses for, and write new software for the Raspberry Pi. In November 2012, the Raspberry Pi Foundation announced a hackathon for UK hackers on December 1, 2012. The competition gave entrants 24 hours to build a Pi-based system, write the code and get it all working to impress the judges. Raspberry Pi News reported on December 3, 2012 that a "virtual board game" won the hack contest. Four adults developed a board game offering customization abilities, which encourages players to experiment with programming, and included original artwork and music.

In the US, Amazon sells Raspberry Pi kits, finished models ($40), and peripherals and cases. And eBay lists the Pi computers and accessories, some new from Chinese manufacturers, most for under $100. Other retailers sell the Raspberry Pi too, although they tend to sell out quickly, with incoming supply a questions mark.

Other Micro-Minis, Beagles to Roboards

When the Raspberry Pi was introduced there were already other motherboard/bare-bones computers available, like the BeagleBoard, which sells for about $125. UK's Omnima also sells circuit-board products like a Mini EMB Wi-Fi and a STM 32 Expander. Robosavvy is another online store in the UK, who sells circuit-board computer kits and other products with a robotics slant, as well as some BeagleBone products.

In the US, Adafruit Industries specializes in "learning electronics," and sells everything from

Raspberry Pi's to BeatleBones, including tools and parts, and even offers free tutorials. The Chicago Electronic Distributors also sells a variety of "educational bundles and kits." And ZagrosRobotics also sells "learning electronics" with a robotic slant, like a RedBoard StarterKit for Arduino. And Barebone-Kits, based in New York, has a large selection of barebones/MiniPC kits.

Companies Jump into Bare-Bones/Mini Computer Manufacturing

Intel has been offering bare-bones industry servers for some time. But in November 2012, Intel announced that it was launching a range of bare-bones PCs, as part of their Next Unit of Computing (NUC) range. They initially released three devices, sold as kits or just printed circuit boards. It had been noted that in emerging countries like Malaysia and Thailand, there was a fast-growing need for small and simple computers that were fast enough to handle digital signage.

So Intel built their NUCs to appeal to system integrators creating digital signage solutions, with mounting brackets to mount the NUC to the back of the monitor deployed in digital signage equipment. And it wasn't long before bare-bones distributors picked up on these "Intel based core kits" (or bare-bones computers) for sale to the rest of the world.

Today, Apple sells a boxy little MacMini for about $600. As well as a MacMini with OS X Server they advertise as "the do-it-yourself, fits-on-a-shelf server," for about $1,000.

Smaller computer companies who specialize in the manufacture of bare-bones computers (or MiniPCs), mostly foreign, were ranked in 2011 on Top5-Top10. Shuttle, AOpen and Asus were the top three. ExpertReviews also listed 12 Shuttle products (including their #1 and #2) out of 30 bare-bones computers, in reviews from 2007-2011.

Where to Buy Bare-Bones or Motherboard-Only DIY Computers

Today, companies like PCsForEveryone let you package an Intel Processor, motherboard, memory and chassis—choosing from a small selection of each—for $240 up, with even an option to let them assemble it for you for another $12.60. PortaTech has categories for Complete Systems, Ready Systems, Barebones Computers, and Motherboard & CPU Combos, from about $100 to $1,200. Directron also offers "custom configured or preconfigured" bare-bones computers.

Similar barebones computers, some "customized," can be purchased from MagicMicro. Or "Intel based core kits" starting under $300 from TigerDirect. NewEgg offers just motherboards starting at $60. While Compare99 offers pricier bare-bones components with price comparisons.

Even a Bare-Bones Computer for Your Car!

CNET ran a review in 2006 (updated in 2013) about installing a VoomPC10000 PC Barebone Computer in your car. Although difficult to install, the reviewer was very happy with the results. A later model VoomPC-2 is available from Mini-Box, as well as the standard bare-bones retailers (Amazon, TigerDirect and NewEgg).

Do Personal Supercomputers Come in Bare-Bones?

In 1999, Steve Jobs introduced Apple's first "personal supercomputer," the Power Mac G4. Apple no longer makes the Power Mac G4 or G5, but they can be purchased as "legacyMacs-secondhand only" from MacBooty, among other retailers, although they are no longer called a

"personal supercomputer."

There continues to be a lot of interest in personal supercomputers, like this *Wired* story from 2009. And this 2011 article in *TechGig*. And this current site called Personal Supercomputers, lists all-built personal supercomputers like MainGear Shift and Tesla Personal Supercomputer. While some earlier personal supercomputers, like the Cray CX1, have disappeared.

Several years ago, the Shuttle XPC SK41G was being touted as a bare-bones supercomputer, and is still available at PriceMachine and Compare99. But the Asus ESC 1000 Barebone is current and being marketed as a supercomputer, selling for about $1,600. According to TechBuy, it comes with "No-CPU, No-RAM, No-HDD, No-GPU," but is advertised as "the latest GPUs solution for extreme parallel computing capability."

The Future of Bare-Bones Micro Computers?

Like regular computers, new bare-bones computers will be smaller and better, with new mobile and media specialties. And their to-be-added innards will be promoted as a way to "personalize" and "customize" your own inexpensive computer, with better internal and external "expansion capabilities." Here are a few brand new bare-bones computers you will probably be hearing more about in 2014:

Zotac is offering a Zbox AD04, which offers energy-efficiency and high performance that is "digital media friendly." Just add customized-internals, while the Zbox's USB 3.0 and 2.0 ports, and a 6-in-1 memory card reader, offer great external expansion capabilities. And Israeli CompuLab announced a "tiny, bare-bones computer" called the Utilite that will sell for $99 and up.

According to a *Mail&Guardian* article from April 2013, (http://), the Cotton Candy PC-on-a-Stick—the size of a flash-drive—is being marketed as the "world's smallest computer." Made by Norwegian start-up FXI Tech the stick contains a 1.2 GHz processor, 1GB of RAM and an operating system. Its prototype won the Last Gadget Standing contest at the 2012 Consumer Electronics Show (CES), but only began being offered for sale this year. A micro SD card that slips into the stick is loaded with an OS built on Google's Android 4.0, and it can connect to any monitor with a USB or HDMI port. Is a bare-bones version of this ultimate mobile-computer far away?

Marilyn is a freelance writer and humorist, with a special interest (besides computers and technology) in Science Fiction. Besides short stories published in various magazines, she also has some new e-books available on Amazon Kindle: Hunting Monster Aliens is an on-going series of novellas, about a wise-cracking team of ghost investigators who occasionally turn into alien-monster hunters. *Culture Crash! A California Yankee Transplanted to Texas* is a collection of humor essays chronicling her adventures in her new home-state.

Twelve months (July 2012 through June 2013) of Marilyn's Little Known High Tech series has been compiled into an almanac (with a complete index) available exclusively at Amazon. If you want a quick reference for the obscure or unusual in computers and the Internet over the last year, then check it out.

ComputorEdge E-Books has converted many of Marilyn's computer humor columns into four e-books. Now available in a four-book Kindle bundle from Amazon.com *The Best Computer and Internet Humor, Anecdotes, and Jokes Found on the Web*. Marilyn's collection of the funniest stories about our computing machines and how we use them at home, the office, and in cyber space. Save 25% off the individual book price!

Windows Tips and Tricks

Windows Tips and Tricks: RAMMap for Viewing What's Inside

"RAMMap is a Tool for Checking Out What Occupies Your Computer's Random Access Memory" by Jack Dunning

Sysinternals' RAMMap is probably a tool for people who know much more about computers than the average person. But, anyone can use it to take a peek inside the computer's memory.

One of the offerings from Microsoft's Sysinternals is RAMMap. It's a graphic tool for those of us who are curious about the inner workings of our computer—in particular the RAM (Random Access Memory) (see Figure 1). After downloading, extracting, and a double-click, the first tab "Use Counts" displays how the RAM is being used along the top bar. The largest area to the left is the Active RAM followed by the blue Standby RAM usage.

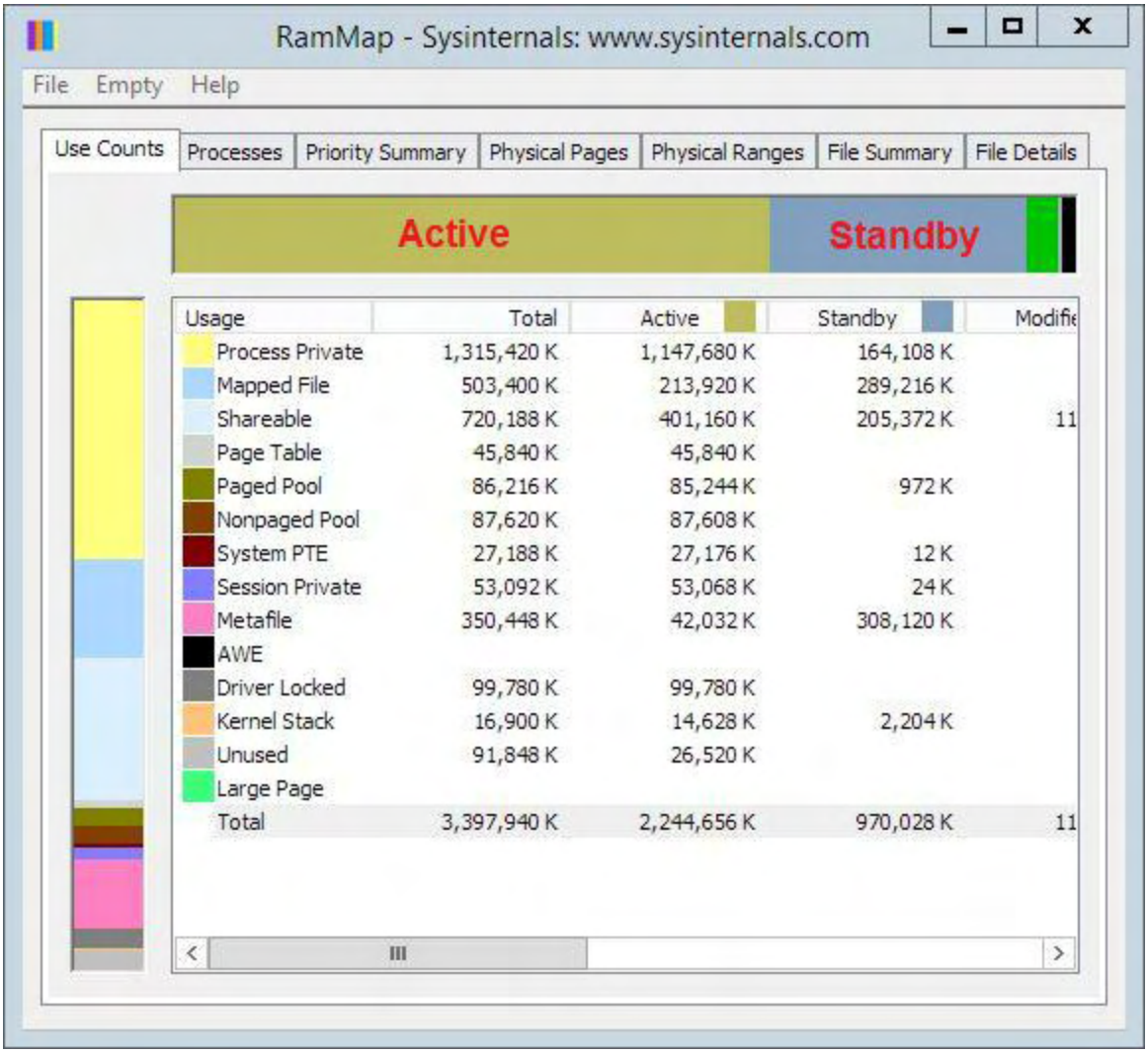


Figure 1. RAMMap gives you a peek inside your computer memory.

The vertical bar on the left shows the uses of the memory by a different set of categories. I admit that I am not familiar with most of these items, but you can get a short explanation of these in this "Introduction to the new Sysinternals tool: RAMMap."

Possibly of more interest is finding which programs are using up all your memory. The currently loaded processes can be viewed in the File Summary tab (see Figure 2). By clicking on the Total heading the processes are sorted by how much memory each occupies.

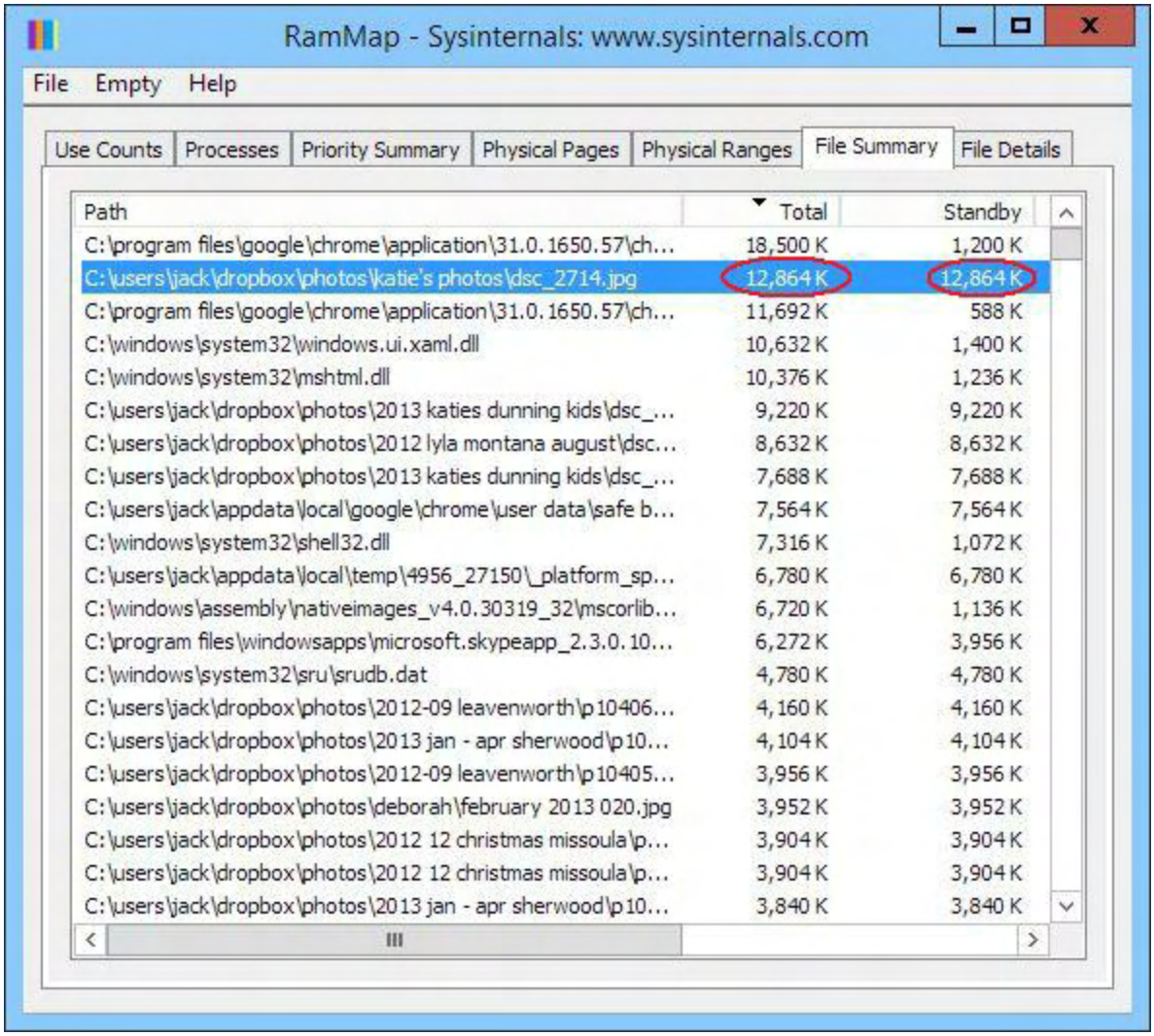


Figure 2. RAMMap tells you how much Total memory each programs uses and how much is in Standby until needed or dumped. The difference is the Active memory

As can be seen, the numerous Google Chrome tabs I have open are taking up the most RAM. One 12 MB JPG file looks like it's second in line, but as shown by the Standby column, it's just sitting in memory as a residue from a previous load. Rather than flushing everything from memory, Standby memory is left occupied just in case the same data is needed again. If something more important comes along, it's dumped.

Although RAMMap might be useful if you suspect that a bloated program is bogging down your computer, it is not a tool for everybody—unless you just want to pretend to someone else that you know what's going on inside your computer.

Jack is the publisher of ComputorEdge Magazine. He's been with the magazine since first issue on May 16, 1983. Back then, it was called The Byte Buyer. His Web site is www.computoredge.com. He can be reached at ceeditor@computoredge.com. Jack is now in the process of updating and compiling his hundreds of articles and columns into e-books.

Currently available:

Hidden Windows Tools for Protecting, Problem Solving and Troubleshooting Windows 8, Windows 7, Windows Vista, and Windows XP Computers.

Jack's *A Beginner's Guide to AutoHotkey, Absolutely the Best Free Windows Utility Software Ever!: Create Power Tools for Windows XP, Windows Vista, Windows 7 and Windows 8* and *Digging Deeper Into AutoHotkey*.

Our second compilation of stupid *ComputorEdge* cartoons from 2011 and 2012 is now available at Amazon! *That Does Not Compute, Too! ComputorEdge Cartoons, Volume II: "Do You Like Windows 8 or Would You Prefer an Apple?"*

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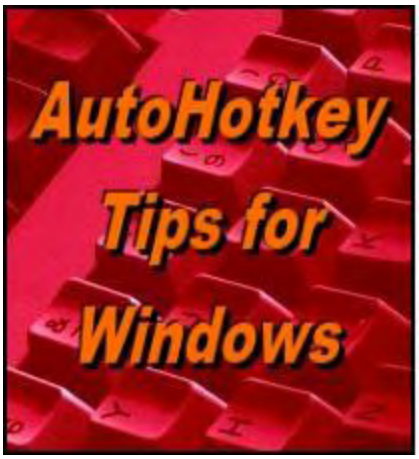
Sticking with Windows XP—or Not? Why You Should or Why You Should Not Upgrade to Windows 7,
and *That Does Not Compute!*, brilliantly drawn cartoons by Jim Whiting for really stupid gags by Jack about computers and the people who use them.



Yet, One More Reason to Use AutoHotkey Free Software!

Building a Recipe Book with AutoHotkey, Part I

"AutoHotkey Script Development with TreeView Control" by Jack Dunning

This time Jack starts the process of writing a recipe book app using the AutoHotkey TreeView control. But, rather than just giving code and explanations, Jack reveals his thoughts about script design and the code writing process.

Over the past number of months I've written and discussed numerous short AutoHotkey scripts demonstrating how various GUI (Graphic User Interface) controls work. I look for alternative ways to use the controls, rather than merely parrot the samples that exists in the online documentation. I've manage to come up with a number of simple apps that demonstrate the variety of ways that AutoHotkey GUI controls can be used to build useful tools and utility apps. I I take this approach to AutoHotkey both to demonstrate how each control works and, hopefully, stimulate even more ideas for readers on how AutoHotkey can be used.

Recently, I've been concentrating on the powerful *ListView* control to produce scripts for a to-do list, an address book, counting calories, and an AutoHotkey control center—which runs and controls various independent AutoHotkey apps. Next up is the *TreeView* AutoHotkey GUI control. *TreeView* operates just like the navigational part of Windows File Explorer. In fact the final example in the AutoHotkey documentation contains both *TreeView* and *ListView* showing the Programs Folder in a manner very similar to File Explorer (see Figure 1). (I use the term Windows File Explorer because Microsoft changed the name of Windows Explorer to File Explorer in Windows 8. This way I can address all versions of the same tool.)

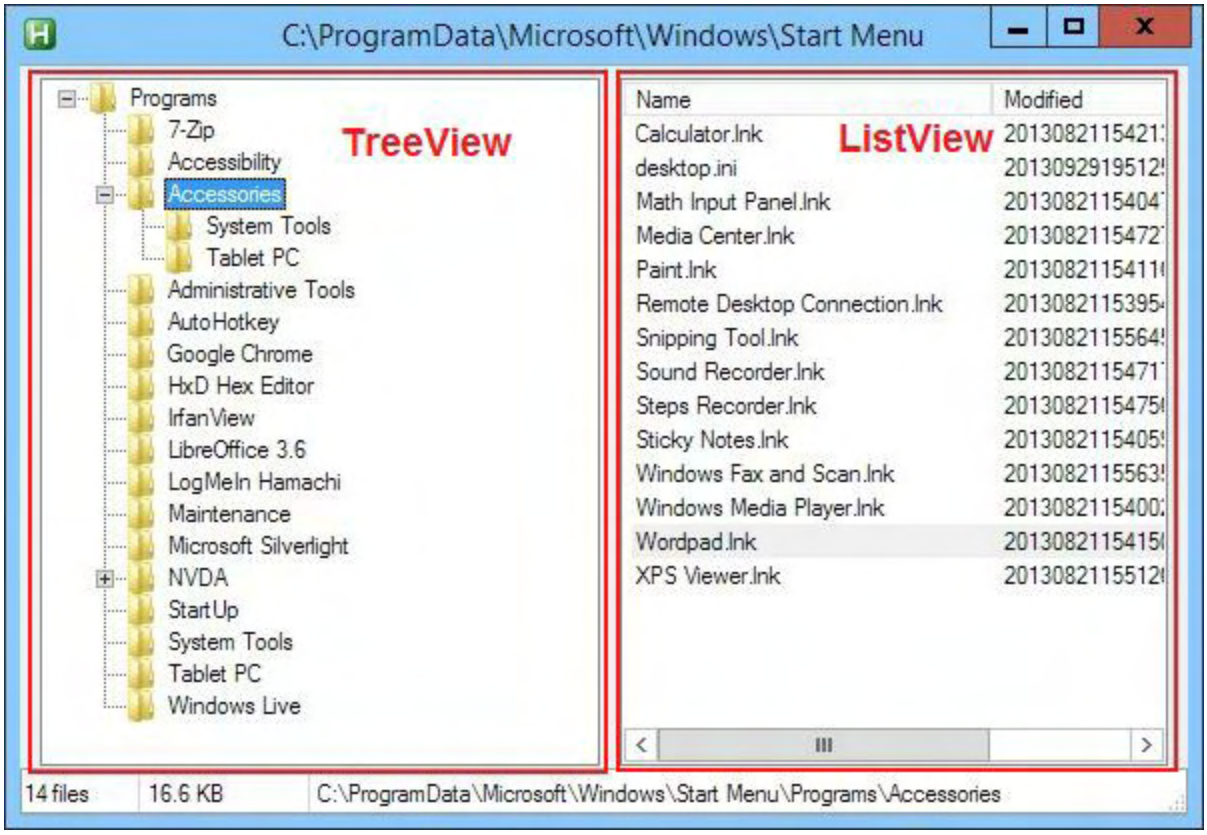


Figure 1. This TreeView example includes the AutoHotkey TreeView control on the left and the ListView control on the right.

While it was fairly easy to come up with potential apps for the *ListView* control, I found identifying interesting ideas using the *TreeView* control a little more challenging. *TreeView* is a natural for file and folder structure on a computer, but alternative uses are a little harder to see. I considered a family tree app, but, even though family trees have a similar structure, I would want something that goes both forward from one person and back into their past.

I finally settled upon a personal recipe book since the top level items could be the recipe names (or categories of recipes if there are too many recipes) and the next level would include the ingredients. Of course there would need to be instructions attached to each item in the tree so I decided that the tree branches would attach to an AutoHotkey *Edit* control reflecting important recipe information or steps associated with that ingredient.

I also decided that I would take a different approach to writing about this script. Rather than merely presenting the code and explaining how it works, I will dig a little more into the thought process of script design and writing. I know that almost every script writer takes a different approach to app design. Some people will sit down and do a detailed design with block diagrams before writing one snippet of code. Others just sit down and start coding. Which approach you take is entirely up to you, but the bigger the project the more likely you will want to do detailed planning—especially if other people are going to contribute to the effort.

I expect that this RecipeTree project will take a few weeks. It's not that I couldn't knock it out

in a couple of days, but I only have a limited amount of time that I can spend on it each week. Plus, I must write about it for *ComputorEdge*. This time around I will expose my thought process. I'm not saying that how I do it is the best approach. What will work best for you in app design and writing depends upon your skill level, how well you know the tools, and how your mind works. However, there is some commonality in all program design.

AutoHotkey Script Design

Almost all of my apps are simple enough that I can do most of the design in my head. However, even though I don't write down the design, there is substantial planning and design before I start. Often it takes the form of me lying in bed and thinking about what I want the final app to look like and do. I then consider which AutoHotkey tools will work the best. (In most of the recent scripts, I've been looking for apps that fit the tool.) Next is the data gathering phase which involves using the various tools to see what they do and how they can make the app work. As the individual problems (there will be problems) are solved, the app starts to take form. Sometimes it's necessary to change direction when either one approach gets too convoluted or an easier way is suddenly discovered. (This is why knowing your tools is important. While in any scripting language there are usually alternative ways to accomplish the same thing, if you know your commands and their individual strengths, you can often save a great deal of time in app development.)

The Vision

Regardless of whether it is written on paper or you hold it in your head, you need a vision of how the final product will look and operate. As someone once said, "If you don't know where you're going, you'll probably end up somewhere else." On more complicated projects, I might draw up how the various windows will look. I find that adding feature buttons and fields to a drawing sparks the concept. If I need to save data to a file, I may write down a list of those items which need to be saved and how they will interact. In this case the vision is fairly simple and very similar to the view in Figure 1, except that the *TreeView* on the left is a list of recipes and ingredients while the right-hand pane is an edit or text field containing instructions.

My vision of RecipeTree is that whenever you click on a recipe at the top level of the tree, a description and possibly some preliminary directions will appear in the right-hand editing pane. When this top level branch is selected, there will be editing capabilities in the right-hand pane for adding instructions and making changes. Also, at this top recipe level there will be an option for adding more ingredient (child) branches to the recipe—possibly through a right-click menu. The ingredients should appear in the order that they are encountered during the food preparation. That means the branch order is important and options for moving the ingredient branches are needed. When an ingredient is selected, preparation and/or recipe steps will appear in the right-hand pane—also editable.

All data in the *TreeView* and the associated *Edit* fields needs to be saved to a file. I was thinking that I may use an INI file since AutoHotkey has the read/write handlers for INI files built in. Otherwise, I will need to deal with all the file structure issue directly. However, there are serious limitations in the AutoHotkey INI file structure that will cause problems if data or the file gets too large. I do think that using an INI file in the beginning may be a useful exercise and give better understanding of how INI files work. I have other file reading and writing routines for Common Separated Values (CSV) files from previous scripts that will probably help.

For a starting point, I modified the first example in the TreeView documentation (see Figure 2).

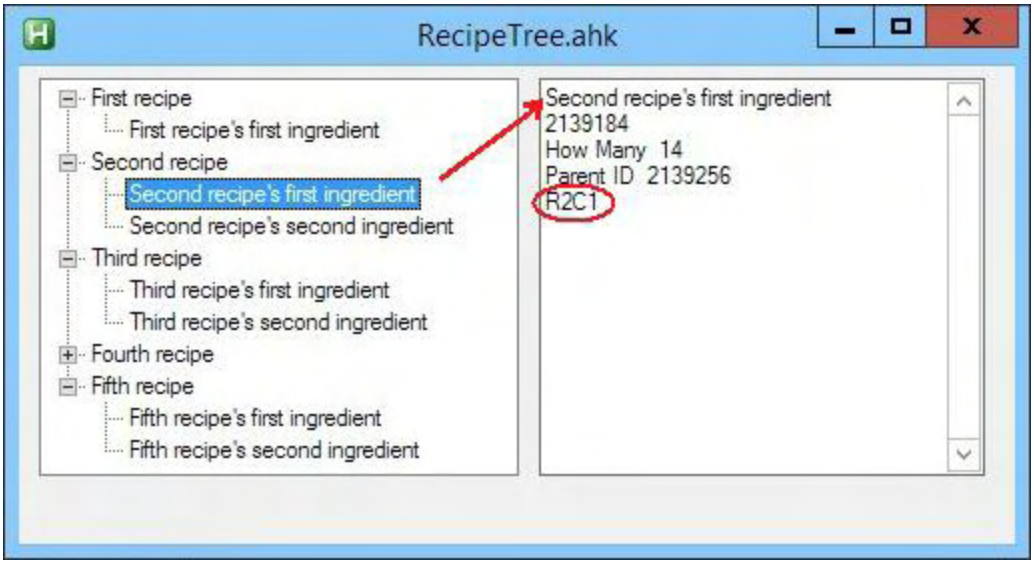


Figure 2. This is the initial vision of the RecipeTree app. In this RecipeTree script the TreeView control on the left is used to read data and place it in the Edit box on the left. This data will later be used to complete the design of the RecipeTree app.

There are two lines of code at the heart of this script using first the *TreeView* control, then the *Edit* control:

```
Gui, Add, TreeView, vMyTreeView gMyTreeView h400 AltSubmit
Gui, Add, Edit, ys vMyEdit w300 h400
```

If you add a *Gui, Show* line of code and the *MyTreeView:* label (subroutine with nothing in it) called out in the *TreeView* options, then the window will open with blank fields when you run the script. This is the first test to make sure that the windows is created.

Using pre-written snippets of code to get started is an excellent way to build apps. Although the final product may end up looking nothing like the original, the understanding you get from modifying and testing the code is what makes the ultimate goal possible. I prefer to take small pieces of code to start a project rather than writing every line. However, copying a long script for modification as a starting point may result in more work than starting from scratch. Trying

to decipher all the various pieces of an unknown script can cause more confusion than is necessary. As I will do here, when I want to add more features, I will steal code from earlier scripts that include the desired technique.

While I copied the code that loads the TreeView from the documentation, I modified it to look more like my final product with fake recipe labels:

```
R1 := TV_Add("First recipe")
R1C1 := TV_Add("First recipe's first ingredient", R1)  ; Specify R1 to be this item's
R2 := TV_Add("Second recipe")
R2C1 := TV_Add("Second recipe's first ingredient", R2)
R2C2 := TV_Add("Second recipe's second ingredient", R2)
R3 := TV_Add("Third recipe")
R3C1 := TV_Add("Third recipe's first ingredient", R3)
R3C2 := TV_Add("Third recipe's second ingredient", R3)
R4 := TV_Add("Fourth recipe")
R4C1 := TV_Add("Fourth recipe's first ingredient", R4)
R4C2 := TV_Add("Fourth recipe's second ingredient", R4)
R5 := TV_Add("Fifth recipe")
R5C1 := TV_Add("Fifth recipe's first ingredient", R5)
R5C2 := TV_Add("Fifth recipe's second ingredient", R5)
```

When this code is added between the above statements and the Gui, Show, the window takes on the look of the left side of Figure 2. The TV_Add() function is used to add the items to the tree. When the *TV_Add()* function is called it returns an *ItemID* which is a number that can be used to reference that tree branch. Each branch receives a unique number each time the script is run, but it changes on every reload. It is important to save that number in a variable which can be used to identify that branch and its level. *R1* is the first recipe on the first level. *R1C1* is the first ingredient in the first recipe. *R2C2* is the second ingredient in the second recipe.

Collecting Data

To make the vision of RecipeTree work, I need to see what data is available for reading and writing. For this purpose, I temporarily use the *Edit* control at the right to display available information when each tree branch is clicked. (Adding *AltSubmit* to the *TreeView* options makes the label option *gMyTreeView* trigger each time a branch is clicked with the mouse.) This label is used to display the data:

```
MyTreeView:
 TV_GetText(TreeText, TV_GetSelection())
 BranchName := TV_GetSelection()
 GuiControl, , MyEdit, % TreeText . "  `n" . TV_GetSelection() . "`nHow Many  "
 .  TV_GetCount() . "`nParent ID  " .  TV_GetParent(TV_GetSelection()) .  "  `n" . %Bı
Return
```

This subroutine includes the *TV_GetText()*, *TV_GetSelection()*, *TV_GetCount()*, and *TV_GetParent()* functions to extract important information from the *TreeView*. There are

more *TreeView* functions available, but these give me the starting point I need. The *GuiControl, , MyEdit* line is used to display the data in the *Edit* control.

Turning a Variable Value into a Variable

One of the reasons that I wanted to use the INI file structure is because I would be able to insert and edit portions of the data without needing to include code to rewrite the entire file whenever there is a Save action. But to do that, I will need a way to find the specific section name in the INI file. I can't use the *ItemID* from *TreeView* because it changes every time the script is reloaded. A possible solution is to convert the *UserID* into a variable which saves the settings used in the INI file.

For example, if *R1* is used for both the variable which contains the ItemID for the first recipe and the section name in the INI file, then it would be possible to save that name value with:

```
%R1% := "R1"
```

When you place the percent signs around a variable it returns the value of the variable. In this case *R1* equals the *ItemID* which might be "1223096" generated when the script loaded. By evaluating *R1* the above line of code effectively becomes:

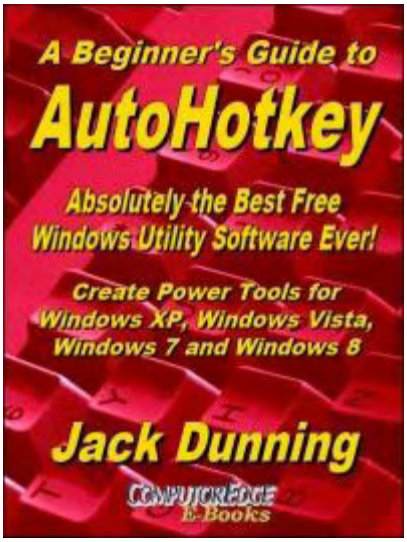
```
1223096 := "R1"
```

The variable *1223096* now contains the section name for the first recipe. We now have a way of directly accessing the INI file sections based upon the *ItemID* of the selected *TreeView* branch. (In Figure 2 above, note that the section name is shown for the branch in the bottom of the list on the right side.) There are still issues of what to do when something is deleted or moved in the list, but there are other *TreeView* functions which should help with that. (Although it is unlikely that an INI file structure will ultimately be used in this app, there will still be reason to identify the unique parent-child relationships between recipes and their ingredients.)

For testing purposes, I can easily construct a temporary INI file by hand which can be read for adding all the branches to the *TreeView*. (I will probably do that next time for testing purposes only.) Then, with the proper loops, I will be able to condense the lines of code above to respond to the contents of the file. This will add the needed flexibility since the *TreeView* contents will no longer be hardcoded into the script.

This is a normal first step in the script writing process, but next time I will need to start using a data file. There is no point in adding more data unless we can save and reuse it.

* * *



The new second edition with more chapters and an index to the AutoHotkey commands found in the book is available in e-book format from Amazon (and other formats—EPUB and PDF— at the ComputorEdgeBooks Web site linked below). Jack's *A Beginner's Guide to AutoHotkey, Absolutely the Best Free Windows Utility Software Ever!: Create Power Tools for Windows XP, Windows Vista, Windows 7 and Windows 8* offers a gentle approach to learning AutoHotkey.

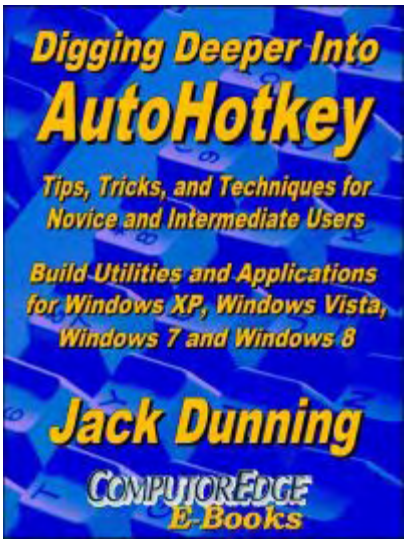
Building Power Tools for Windows XP, Windows Vista, Windows 7 and Windows 8, AutoHotkey is the most powerful, flexible, *free* Windows utility software available. Anyone can instantly add more of the functions that they want in all of their Windows programs, whether installed on their computer or while working on the Web. AutoHotkey has a universality not found in any other Windows utility—free or paid.

Based upon the series of articles in *ComputorEdge*, Jack takes you through his learning experience as he explores writing simple AutoHotkey scripts for adding repetitive text in any program or on the Web, running programs with special hotkeys or gadgets, manipulating the size and screen location of windows, making any window always-on-top, copying and moving files, and much more. Each chapter builds on the previous chapters.

For an EPUB (iPad, NOOK, etc.) version of A Beginner's Guide to AutoHotkey click here!

For a PDF version for printing on letter size paper for inclusion in a standard notebook of A Beginner's Guide to AutoHotkey click here!

* * *



Jack's latest AutoHotkey book which is comprised of updated, reorganized and indexed columns from *ComputorEdge* is now available at Amazon for Kindle hardware (or free software) users. Since the columns were not all written in a linear fashion, the book has been reorganized and broken up into parts by topic. The book is not for the complete beginner since it builds on the information in *A Beginner's Guide to AutoHotkey*. However, if a person is reasonably computer literate, they could go directly to this book for ideas and techniques without the first book.

For an EPUB (iPad, NOOK, etc.) version of Digging Deeper into AutoHotkey click here!

For a PDF version for printing on letter size paper for inclusion in a standard notebook of Digging Deeper into AutoHotkey click here!

Jack is the publisher of ComputorEdge Magazine. He's been with the magazine since first issue on May 16, 1983. Back then, it was called The Byte Buyer. His Web site is www.computoredge.com. He can be reached at ceeditor@computoredge.com. Jack is now in the process of updating and compiling his hundreds of articles and columns into e-books. Currently available:

Hidden Windows Tools for Protecting, Problem Solving and Troubleshooting Windows 8, Windows 7, Windows Vista, and Windows XP Computers.

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Our second compilation of stupid *ComputorEdge* cartoons from 2011 and 2012 is now available at Amazon! *That Does Not Compute, Too! ComputorEdge Cartoons, Volume II: "Do You Like Windows 8 or Would You Prefer an Apple?"*

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Wally Wang's Apple Farm

"Doing Amazing Things" by Wally Wang

Doing Amazing Things; The Difference Between Microsoft and Apple; Katie Couric Going From TV to the Internet; A Unique Language Learning Tool; Customize Your Toolbar in iWork.

When Apple first introduced the iPad in 2010, plenty of critics eagerly dismissed the iPad and tablet computers in general as completely useless with no chance of success. While some people simply hate everything Apple does (while happily buying and using products that look and work like Apple products), others simply failed to see how tablet computers could possibly succeed when they couldn't do everything exactly the same as netbooks, laptops, and desktop PCs.

Any time something different arrives, you can be certain plenty of critics will attack it without using any form of logic or rational thought whatsoever. Back in 2001, a boy living in Malawi, William Kamkwamba, decided he wanted to read at night. Unfortunately, his village lacked electricity because much of Malawi, like most of Africa and large parts of the world, lacked the infrastructure to generate and distribute electricity over expensive wires and towers around the country.

That's when William noticed that many villagers rode bicycles at night using generators that created electricity as the bicycle wheels spun around. Curious, William studied how to generate electricity in a library of old textbooks that the American government had donated to his village.

Given the lack of electricity, most people rely on kerosene lamps for light, wood for cooking, and batteries for powering portable radios. Of course, kerosene costs money and the smoke it gives off when burning damages your health. Constantly chopping down wood increases deforestation, and constantly buying batteries all the time costs money. So William decided he could solve many problems if he could generate his own electricity.

First he tried connecting his bicycle generator to a portable radio to provide power. It worked, but only as long as someone constantly pedaled. That's when William happened to find a picture of a windmill in one of his old American textbooks.

This textbook taught him the basics of how a windmill worked and how it could not only generate electricity, but also provide power for pumping water out of the ground. Since clean water is another scarce resource in many parts of the world, William decided he could build a windmill to both generate electricity and pump clean water out of wells.

Initially, many villagers thought William was crazy and even nicknamed him a madman for constantly scavenging parts from a junkyard to build his windmill. When a drought hit Malawi, causing crops to fail, many villagers angrily pointed to William's windmill as the problem because they thought the fans of his windmill kept blowing the rainclouds away. Much like all types of illogical critics, these angry villagers used irrational logic to reach a conclusion that they were convinced was right simply because they refused to look at any evidence that could prove that they were wrong.

Fortunately, William had enough friends and family members who convinced the other villagers that his windmill was not evil magic but based on sound scientific principles. To prove it, William hooked up his home-made generator to his home-made windmill and in front of all the villagers, he showed how it could generate enough electricity to light a bulb.

Suddenly many villagers started hanging around William's windmill to charge their mobile phones. William soon strung lights through his house so he and his family could read at night. Then William connected a pump to his windmill so he could provide his village with a constant source of clean water. Once villagers saw all the benefits that William's windmill gave them, they soon dropped their superstitious rants against William and his windmill. The frightening part is that their angry, irrational thinking had once threatened to stop William from creating his windmill in the first place, which goes to show you how damaging unthinking critics can be in halting progress in any form.

Eventually, William wrote a book about his experiences in creating a windmill called *The Boy Who Harnessed the Wind*. When you read about all the obstacles William had to overcome to build his windmill and all the opposition he faced from others who refused to even understand what he was trying to do, you can see that William accomplished much more than providing electricity.

With his windmill, William gave his village a sense of pride and hope while also showing much of Africa how they could use similar windmills to lift their country out of crippling poverty. Of course if William had listened to the irrational rantings of his numerous critics, there would have been no hope and no future for so many people, which is the type of world illogical critics tend to create for themselves and those around them.

By reading *The Boy Who Harnessed the Wind*, you can realize that if a boy with little education, growing up in the harsh world of Africa, can create a windmill based on books he read in a library, how much more can you do in life with all the advantages you have that William never had?

The Difference Between Microsoft and Apple

Here's another head scratcher from Microsoft. Microsoft is now selling anti-Google merchandise coffee mugs and T-shirts. While amusing, you have to ask yourself why?

Figure 1. An anti-Google coffee mug sold by Microsoft.

Microsoft earns billions of dollars a year, so selling coffee mugs and T-shirts seems like a trivial business to pursue. Even worse, why waste time directly attacking Google when they could use their time and resources developing products that people actually want to use and buy like an Xbox?

Figure 2. An anti-Google T-shirt sold by Microsoft.

For Microsoft to stoop to selling anti-Google merchandise seems beneath the dignity of a billion dollar company, but apparently this anti-Google merchandise program must have the blessing of Microsoft's executives all the way up to Steve Ballmer, the current CEO.

Does Microsoft think selling anti-Google merchandise will somehow make people want to switch to Microsoft products? If Microsoft really wants to attack Google, Microsoft should make Bing a search engine with obvious advantages over Google, make their Windows Phone mobile phone operating system dramatically better than Android for both consumers and

manufacturers alike, and make Windows 8/RT offer clear cut advantages over Android and ChromeOS for laptops and mobile devices.

Instead, Microsoft wastes time and energy selling anti-Google merchandise. For Microsoft's executives to approve this waste of resources indicates that these same executives have no clear idea how to compete against Google with compelling products. If this is the best Microsoft's executives can dream up to compete against Google, Microsoft should fire all of their top executives immediately and use their multi-million dollar salaries to pay the engineers and programmers who are doing the real work.

While Microsoft stoops to petty bickering against Google while never explaining why their own products are superior to Google's offerings, look at what Apple is doing to promote the iPad. Instead of wasting time, Apple recently posted a video of how different people have used the iPad.

Called Life on iPad, this short video shows the creative and useful ways scuba divers, coaches, surgeons, and windmill operators are using the iPad to make their lives easier and more productive.

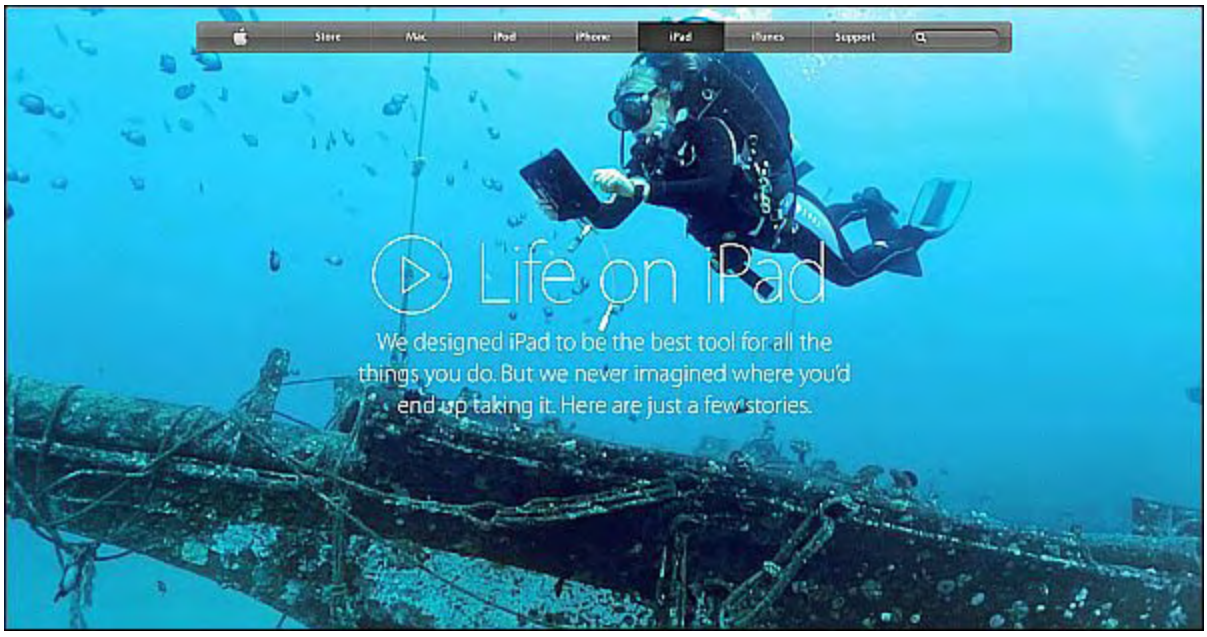

Figure 3. Apple offers their Life on iPad video to show the versatility of the iPad.

When you see how people of all walks of life can find creative ways to use an iPad, it sparks your imagination on how you might be able to use one too. When you see an anti-Google coffee mug, it likely won't inspire you to rush out and start using a Microsoft product instead of a similar Google product.

The reason Microsoft has lost their way has nothing to do with Apple or Google, but with their own incompetence that let their massive advantage in the computer market slip through their fingers. With Microsoft executives hauling in million dollar salaries for years by making

questionable decisions like Microsoft Bob, Zune, Windows RT, Vista, Windows 8, and Microsoft Kin, Microsoft's worse enemy are their own executives who suck money out of the company while doing nothing to lead the company to the future.

If Microsoft won't get rid of their high-priced executives, perhaps the company should just start selling merchandise attacking Microsoft's numerous executives who accept huge salaries without doing anything tangible in return to earn that money. At least anything that attacks overpaid corporate executives would be a product that many people would rush out and buy.

Katie Couric Going From TV to the Internet

At one time, Katie Couric took over the CBS news anchor position that venerated broadcaster Walter Cronkite once held. When ratings slipped, Katie Couric left CBS News to join ABC News, and now has plans to leave ABC News to join Yahoo.

Such a move might initially seem backwards, but actually makes sense. In the old days when television only offered three channels, evening news anchors held tremendous influence and status. Nowadays with hundreds of TV channels to watch and news appearing every second from all over the world through the Internet, the evening news is obsolete. By the time the evening news presents information, that same news has already been on the Internet for hours before.

Television evening news shows, much like newspapers, are simply too slow and limited. On the Internet, you can read obscure news on a variety of different topics. On the TV evening news shows, you just get snippets of the most popular news stories with little in-depth coverage before the news anchor rushes to the next story.

So Katie Couric's defection to Yahoo! makes perfect sense. Few people rely on television news any more, but many more people rely on Internet news. By following the trend away from television evening news shows to the Internet, Katie Couric maximizes her chances of staying relevant in the news broadcasting business. If she had stayed at CBS or ABC News, she would have simply faded from sight like major newspapers across the country.

If your mind remains stuck in the past, you would think that Katie Couric should have stayed at CBS or ABC News forever. When you realize that what worked in the past no longer works in the future, then you can understand why the CBS Evening News and ABC News is an antique while news broadcasting over the Internet represents the future. After all, when was the last time you watched the evening news and saw something that you couldn't find earlier on the Internet?

When you think of Katie Couric moving to the Internet and Amazon and Netflix creating their own TV shows for exclusive distribution over the Internet, what's the future of traditional network television? Probably the same as traditional newspapers and book publishers, which

means a future of greater competition, declining influence, and shrinking profits. In other words, the traditional television networks are fading in power, which gives a clue to what Apple might have in store with their AppleTV.

Right now, AppleTV is just a simple box that lets you stream video content to a TV. The usefulness of any TV relies entirely on content, and that's something Apple can't control. Unless, of course, they follow the path of Netflix and Amazon and simply pay for people to create their own content.

Imagine a quick way to distribute content to millions of people and you have the future of AppleTV as a slicker version of YouTube. It won't just broadcast reruns of existing shows, but will provide new ways for people to create, distribute, and profit from their own video shows. Just look at how iTunes has enabled musicians to bypass the record labels and sell directly to the public. At one time, recording an album took an expensive studio, but now musicians can record their own albums at home.

Currently, producing TV shows and movies is expensive and require video recording studios, but with improved cameras, that technical cost is falling rapidly. Pretty soon it will be easy for anyone to create their own TV show or movie that doesn't require the backing of a network or studio, and that's the future of AppleTV.

Katie Couric can see that the Internet is the future and traditional television broadcasting is not. AppleTV can potentially exploit this growing dependence on the Internet for video content far beyond the simple idea of streaming existing content to TV sets like AppleTV does right now.

Remember, iTunes started off as a simple online music store that eventually morphed into iRadio along with the ability to let musicians sell directly to the public. Just look at how iTunes changed the music industry and that's what AppleTV can do for the television industry in the near future.

In the old days, actors treated TV as a stepping stone to movies and movie stars rarely appeared on TV shows. Nowadays, the real excitement in Hollywood centers around TV shows with so many movie actors appearing on TV. TV acting is no longer considered second-class to movies any more. With the Internet, more television shows can appear and reach more people as costs of production and distribution plummet.

The future is the Internet as a broadcasting medium and TV shows as video content that can hook viewers and captivate them far longer than even the best movie can do. Notice that the best movies spawn sequels to satisfy the same audience, but TV shows have been doing that for years with regular episodes. TV shows are the new cash cow of Hollywood, and products like AppleTV could lower the cost of video distribution while increasing choice at the same time.

The Internet is the future of music, television, and books. The record labels, TV networks, and book publishers are obsolete and rapidly losing their monopoly for good. If you want to

thrive in the future like Katie Couric, follow the Internet.

A Unique Language Learning Tool

Learning any foreign language can be challenging, especially since you really need to hear proper pronunciation of words to speak another language correctly. With many languages like French or Spanish, it's easy for English language speakers to sound out the words, but with languages like Chinese, each character represents a complete word and there's no way to phonetically figure out how to pronounce that word.

To help you learn Chinese with an iPad, you can use the Pleco Chinese Dictionary. Like many iOS apps, the app is free but for added functionality, you'll need to purchase add-on products.

If you know the English word for something but want to know the equivalent Chinese word, just type in the English word and Pleco displays the Chinese character along with its pronunciation written in a phonetic version known as Pinyin. Even better, tap an audio icon and the app pronounces the Chinese word with both a male and female voice. By listening to the correct pronunciation while looking at the character, you can teach yourself how to read Chinese.

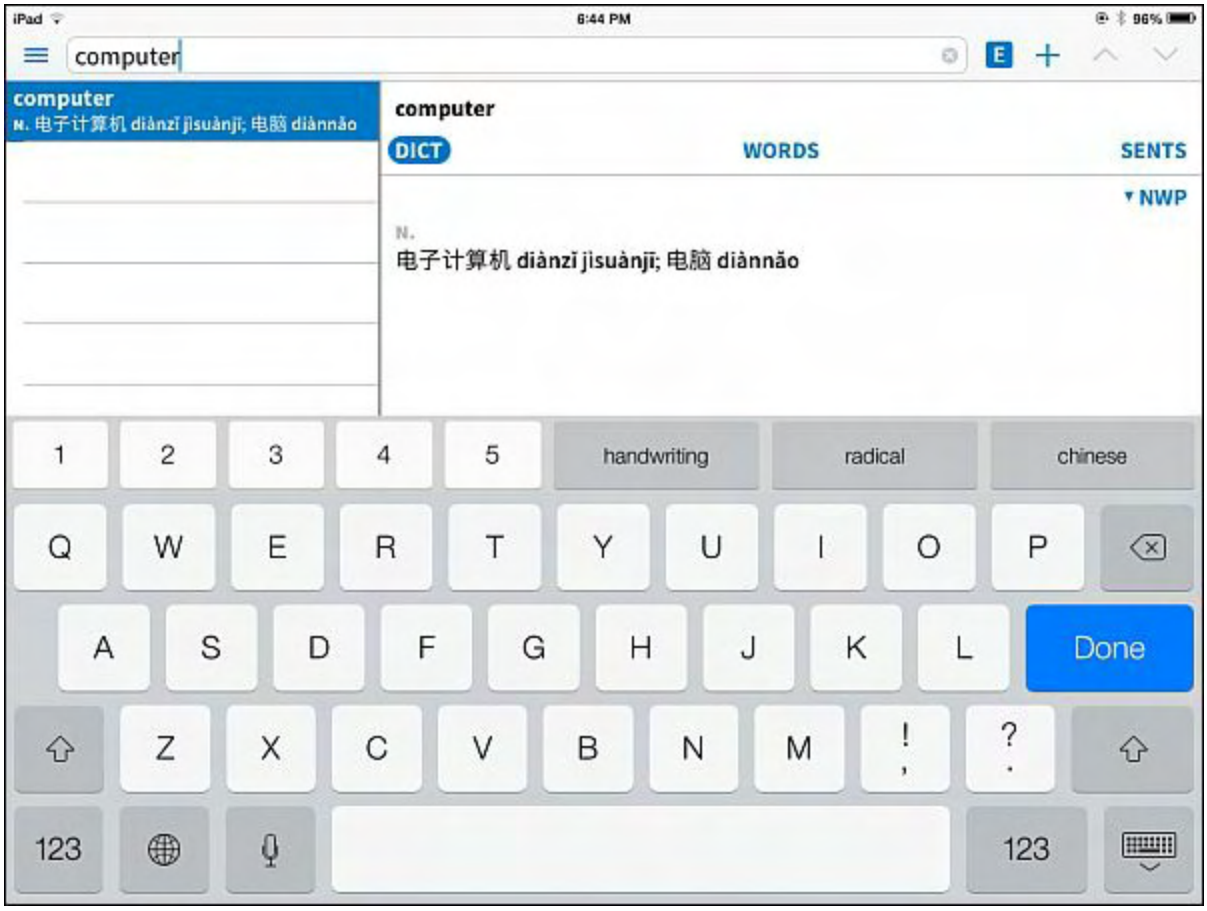

Figure 4. Pleco lets you type in an English word to get the equivalent Chinese character.

If you know the Pinyin representation of a Chinese character, you can type that in and Pleco will display a list of matching words. If you know how to draw the Chinese character with your finger, you can draw it out and the app will display a list of characters it thinks you're trying to write so you can tap the one that you want. Since words are often pronounced nearly the same but with different tones, the app shows all possible words.

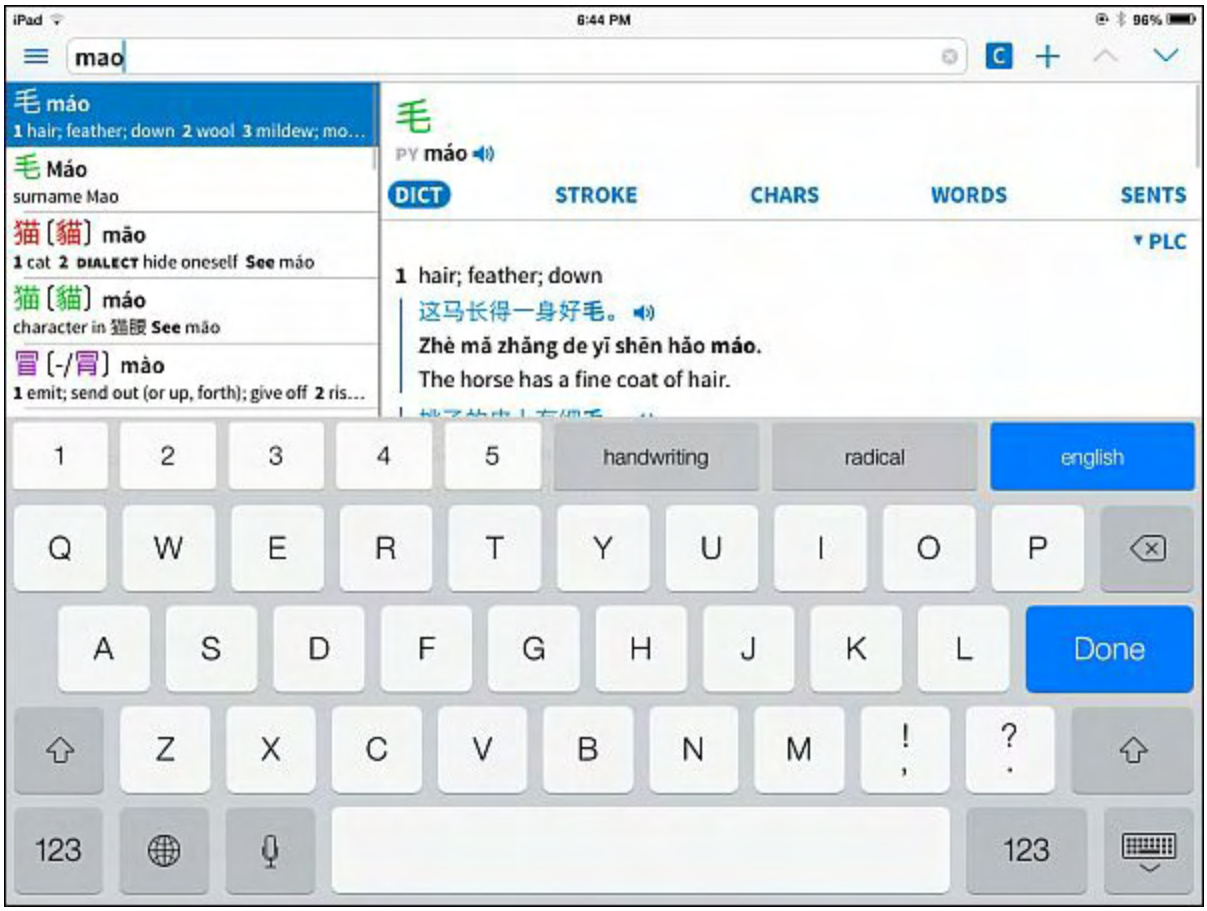

Figure 5. Pleco lets you browse all words pronounced nearly the same.

When learning Chinese, you need to learn the proper order to draw each stroke. To help you learn this, Pleco displays the proper stroke order for each character. By learning the proper stroke to use for each character, you can learn to write Chinese characters accurately.

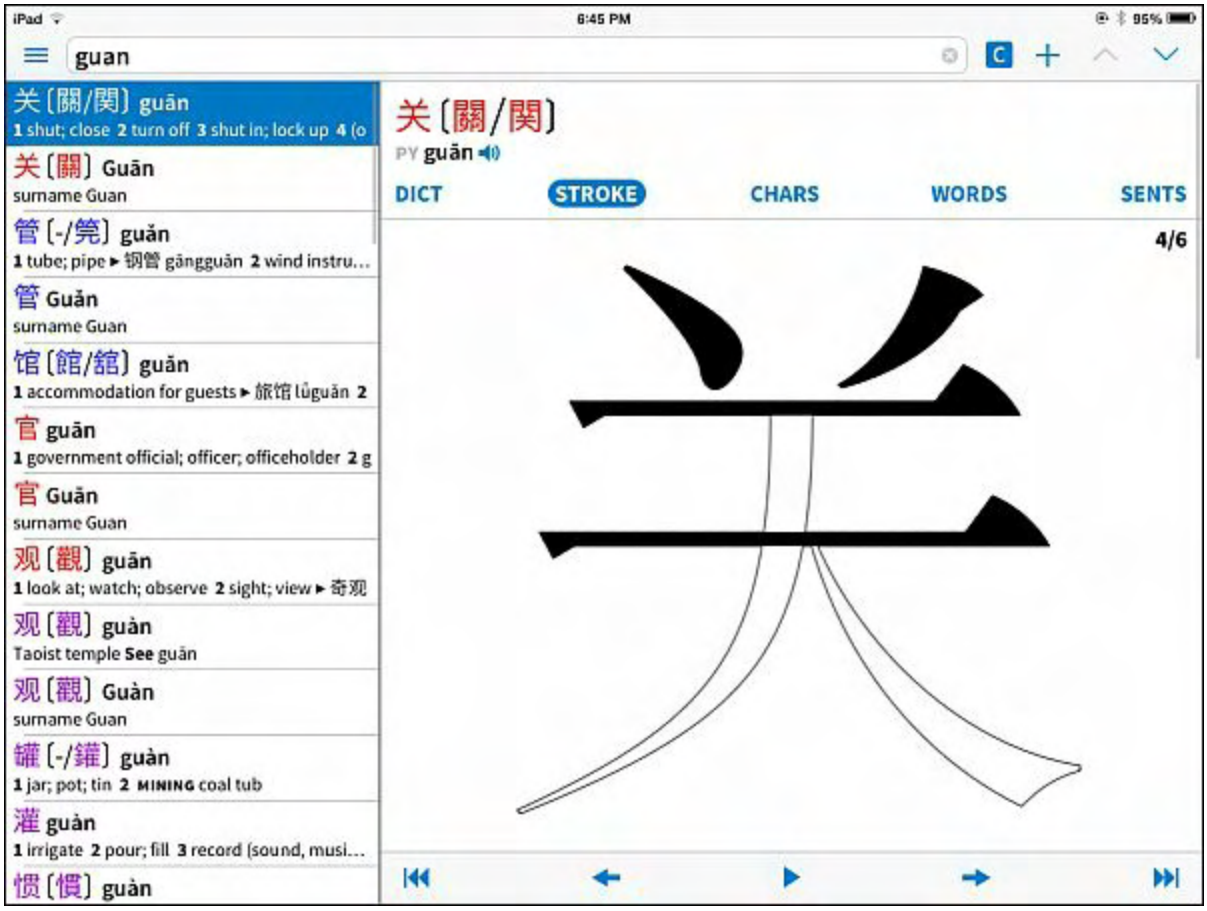

Figure 6. You can learn the proper order to draw each stroke of a Chinese character.

Unlike English and similar languages that use letters to represent sounds, the Chinese language uses complete characters in combinations to make up new words. When you look up a Chinese word, you can also see all the different combinations you can create using that word to form new words.

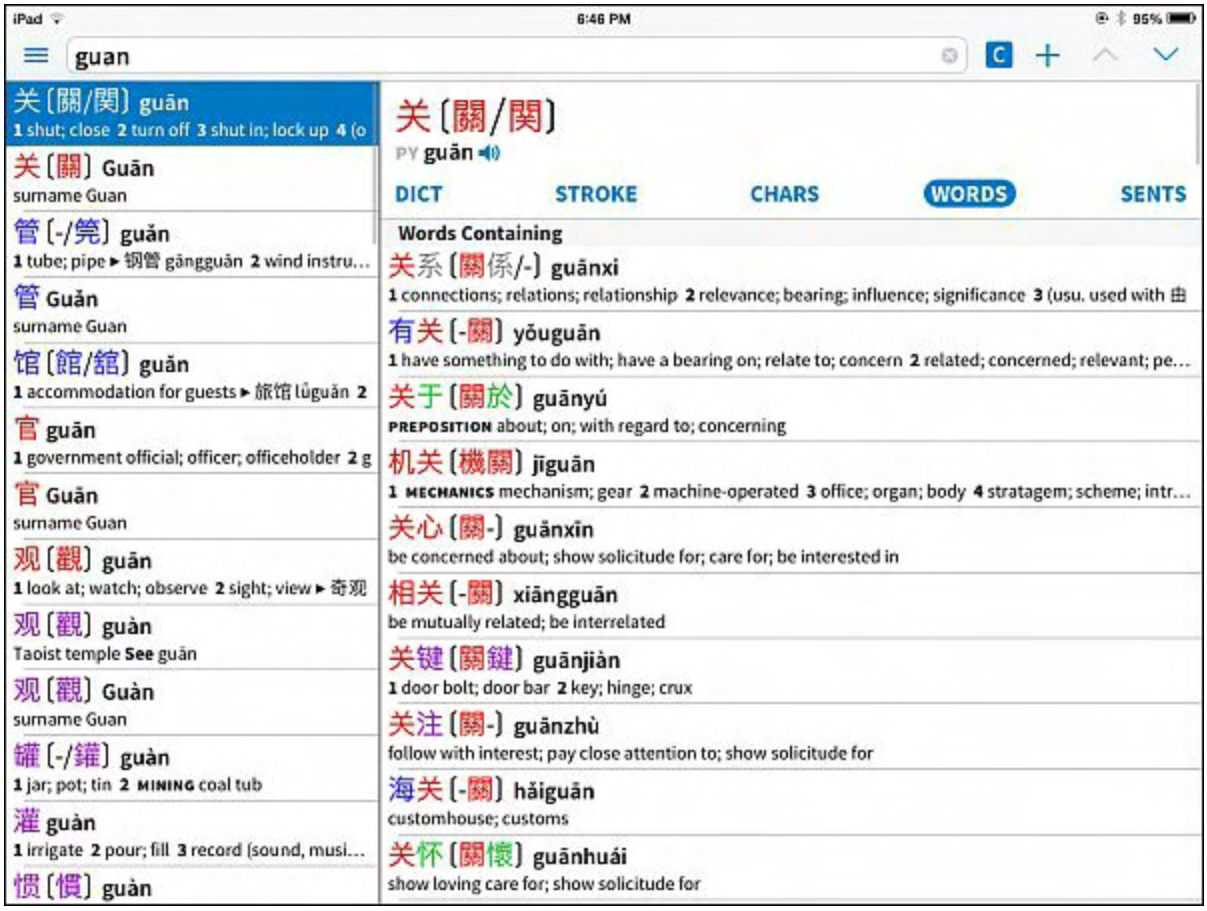

Figure 7. Pleco can show you how to combine characters to create new words.

Perhaps the most useful feature in the paid add-on for Pleco involves using the iPad's camera. Point your iPad camera at a picture of a Chinese symbol and Pleco shows you what that word means.

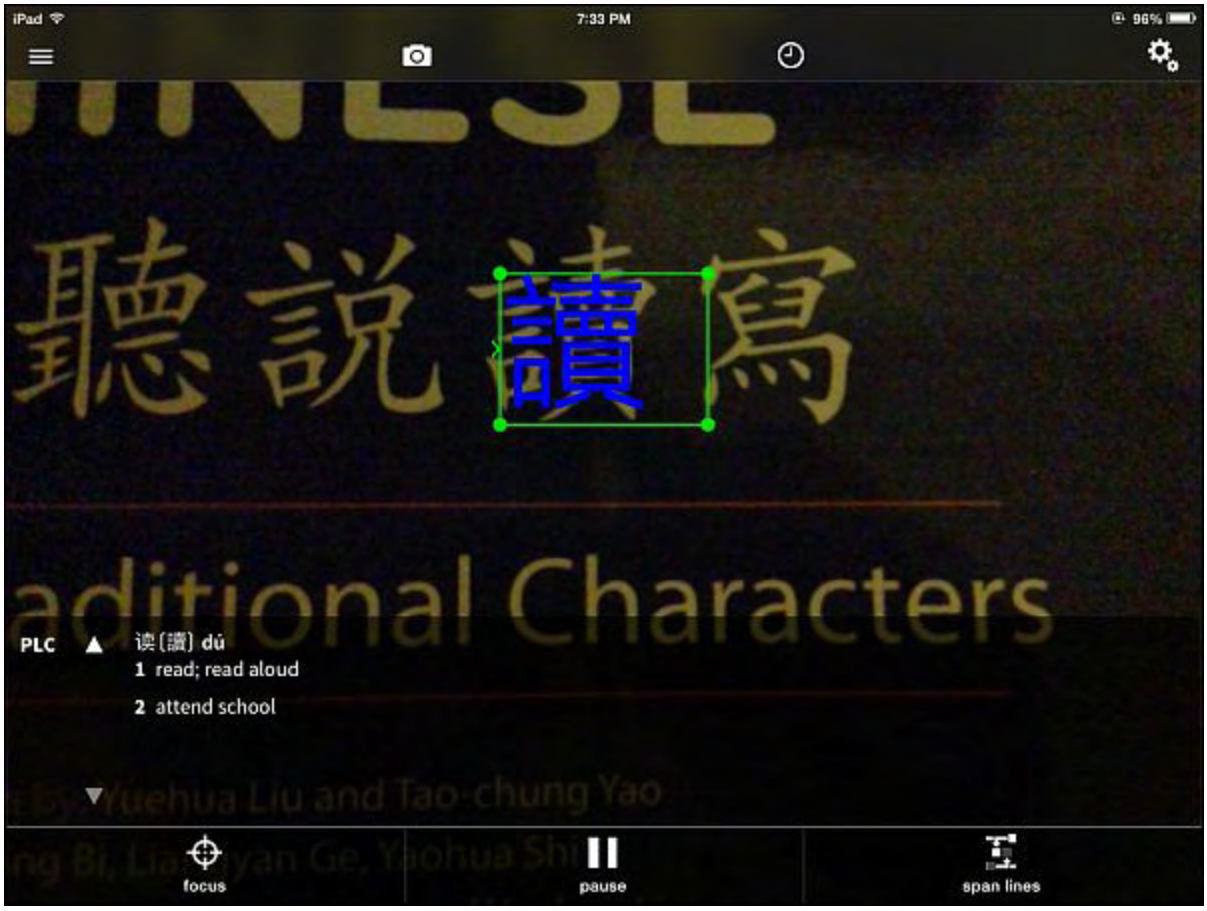

Figure 8. Pleco can recognize pictures of Chinese characters.

By teaching you how to write, recognize, and pronounce Chinese characters, the Pleco app can make learning Chinese far easier with an iPad than with traditional books and language recordings. Probably the only limitation of the Pleco app is that it won't let you practice speaking and responding to others, so there's still a reason to have human tutors after all.

* * *

If you can upgrade your Macintosh to run OS X 10.9 Mavericks, then you can also get a free copy of Apple's iWork office suite. Apple recently updated iWork so you can customize the toolbars to display only those icons representing commands you need most often.

To customize your toolbar, just choose View > Customize Toolbar from any iWork program. Then drag and drop the icons the way you want them to appear.

Figure 9. You can customize the toolbar in iWork.

In the early days, before Wally became an Internationally renowned comedian, computer book writer, and generally cool guy, Wally Wang used to hang around The Byte Buyer dangling participles with Jack Dunning and go to the gym to pump iron with Dan Gookin.

Wally is responsible for the following books:

Microsoft Office 2013 For Dummies

Beginning Programming for Dummies

Beginning Programming All-in-One Reference for Dummies

Breaking Into Acting for Dummies with Larry Garrison

Strategic Entrepreneurism with Jon and Gerald Fisher

How to Live with a Cat (When You Really Don't Want To)

The Secrets of the Wall Street Stock Traders

Mac Programming For Absolute Beginners

Republican Fairy Tales (Children's Stories the 1% Tell About the Rest of Us)

The Zen of Effortless Selling with Moe Abdou

The 15-Minute Movie Method

Erotophobia (A novel)

Math for the Zombie Apocalypse

In his spare time, Wally likes blogging about movies and writing screenplays at his site "The 15 Minute Movie Method," finding interesting news stories about cats at his site "Cat Daily News," and providing the type of advice he wishes someone would have told him when he was much younger at his personal Web site. Wally can be reached at *wally@computoredge.com*.

Editor's Letters: Tips and Thoughts from Readers

"Computer and Internet tips, plus comments on the articles and columns." by ComputorEdge Staff

"Screen Brightness," "Head Injuries," "Virtual Typing"

Screen Brightness

[Regarding the November 15 A Slider App for Dimming the Computer Screen column:]

Control Panel>>Power Options

-Ron Cerrato, San Diego, CA

Alas, Ron, were it that this were always true. Many Windows computers do not have a brightness control either because of driver issues or various other circumstances. Even on the computers I own which do support brightness control, getting to it is a little tedious and the transition is not smooth and continuous. (You need to click Apply between each setting to see the result.) Another option outside of Windows is to change the screen brightness directly on the monitor controls. But this misses the point of my column.

The purpose of my introducing the ScreenDimmer AutoHotkey script was not to encourage people to use it in place of any Windows tools or adjusting their monitor controls. I was merely demonstrating how the AutoHotkey Slider GUI control could be used in a script to select values within a range of numbers—any range for any purpose. That fact that the ScreenDimmer script is easier to use on most computers is incidental.

My ScreenDimmer app can always be just a click away. Next week I'll show how to make it pop up with just one click of the System Tray icon. This is not to encourage anyone to use the app, but merely demonstrate more AutoHotkey techniques—although I've found it very convenient myself.

-Jack Dunning

Head Injuries

[Regarding Marilyn K. Martin's November 8 article, "High Tech Sports, 2014 Previews, and

More!":]

High Tech Sports, 2014 Previews, and More!

"Head injuries in high-impact sports continue to receive a lot of attention, especially since brain damage from a hit may not be readily apparent if the player doesn't lose consciousness."

So if the player does lose consciousness, we know there's brain damage? Where's the editor?

-John Smith, Denver, CO

I was quoting the article, which trolls/shills never read before jumping to inane conclusions.

The idea is that losing consciousness after being hit in the head in an impact sport is the best indicator or "most obvious symptom" of a concussion. It is called a "traumatic brain injury," although most people fully recover.

Traumatic Brain Injury - Concussion - Overview

-Marilyn K. Martin, Texas

Virtual Typing

[Regarding the November 15 Wally Wang's Apple Farm column:]

Hello Wally,

Your remarks about virtual keyboards are quite correct in my experience. It took me a while, but eventually I became as fast on the iPad virtual keyboard as I am on a physical keyboard, and lately, the physical keyboard has begun to seem slower to me. I seldom see people doing much typing on the iPad without an added keyboard.

But why carry an iPad if you are going to add a keyboard that makes it heavier to carry around than a MacBook Air? Most people say they do so because "you can't do serious document creation on the iPad." I wonder who told everyone that.

Speaking for myself, I think it's been a case of retraining my nervous system to feel the distances between the virtual keys instead of feeling the physical keys going up and down. I'm old enough to have made the transitions from manual typewriters to electric ones, and then from electric typewriters to computer keyboards; the transition to a virtual keyboard seems exactly the same to me. Awkward at first, easier as I get more practice, finally easiest the new way.

Of course, for anyone who believes it can't be done, it probably can't. Meanwhile, thanks for

your continuing willingness to point out which emperors are in fact wearing clothes.

-K. Svoboda, Carlsbad, CA

ComputorEdge always wants to hear from you, our readers. If you have specific comments about one of our articles, please click the "Tell us what you think about this article!" link at the top or bottom of the specific article/column at ComputorEdge.com. Your comments will be attached to the column and may appear at a later time in the "Editor's Letters" section.If you want to submit a short "ComputorQuick Review", or yell at us, please e-mail us at ceeditor@computoredge.com. If you would like to review our recent e-books, please visit ComputorEdge E-Books.

Table of Contents

List of ComputorEdge Sponsors 2
San Diego ComputorEdge Sponsors 2
Colorado ComputorEdge Sponsors 3
ComputorEdge™ Online — 11/29/13 4
Bare-Bones Computers of the Past, Present, and Future 4
Magazine Summary 4
Digital Dave 6
Android Emulator 6
Open/Save Navigation Bug 7
Printer Error When Printing Web Pages 8
Stripped Bare: Motherboards, Bare-Bones and Mini-PCs 10
How Altair Inspired Apple 12
Back to Basics 13
Acorns and Raspberries—Micros with a Mission 14
Other Micro-Minis, Beagles to Roboards 14
Companies Jump into Bare-Bones/Mini Computer Manufacturing 15
Where to Buy Bare-Bones or Motherboard-Only DIY Computers 16
Even a Bare-Bones Computer for Your Car! 16
Do Personal Supercomputers Come in Bare-Bones? 16
The Future of Bare-Bones Micro Computers? 17
Windows Tips and Tricks: RAMMap for Viewing What's Inside 19
Building a Recipe Book with AutoHotkey, Part I 23
AutoHotkey Script Design 26
The Vision 26
Collecting Data 28
Turning a Variable Value into a Variable 29
Wally Wang's Apple Farm 32
The Difference Between Microsoft and Apple 34
Katie Couric Going From TV to the Internet 37
A Unique Language Learning Tool 39
Editor's Letters: Tips and Thoughts from Readers 46
Screen Brightness 46

Head Injuries 46
Virtual Typing 47