

THE GIGABYTE GAZETTE

The Monthly Newsletter
of the

***SUN CITY SUMMERLIN
COMPUTER CLUB***

<https://www.scsccl.com>

April, 2021

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President's Message

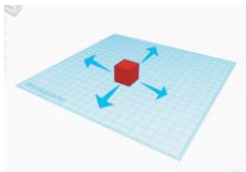
by Jeff Wilkinson

3D Printing

Recent articles extolled the advantages of 3D printed houses, so I thought it might be time to take a look at what all the fuss is about. 3D printers have been around for a while now and a few club members have them and have created some very interesting and useful items. To support the growing demand of small business customers, some UPS stores now offer 3D printing services. Industrial applications grow every day and volume manufacturing is now a reality. Meanwhile rapid prototyping is still an efficient and practical tool used in product development.

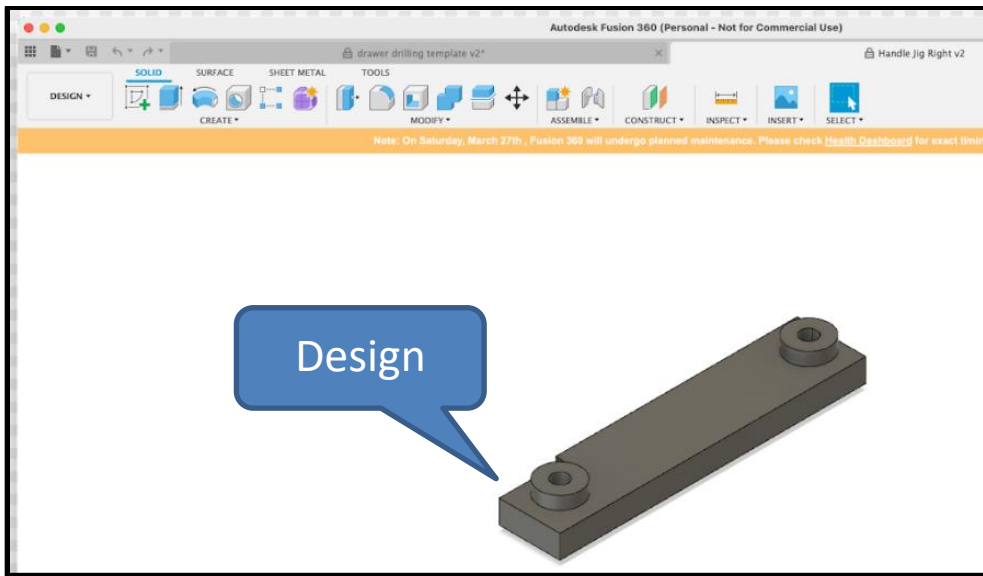
3D printing is an additive process, with material deposited in successive layers. Using a computer, allows for the creation of a three-dimensional item. Plastics and metal alloys are the most commonly used materials, but the 3D printed house takes it a step further with the use of concrete.

An outgrowth of printing as we know it, where ink is laid down on a substrate, generally paper, in a thin layer, 3D printing lays down material in successive layers building up the height. Used in a manufacturing environment, 3D printing saves material over a subtractive process such as milling, sawing and shaping by removing material. Materials can be laid down precisely by the computer controlled "print head".



The 3D printing process begins with a design. Beginners and hobbyists can use a program such as [Tinkercad](#), a browser-based application that allows you to create and then export your design as an .STL or .OBJ file compatible with 3D printers. The file is then "sliced" or split into hundreds or thousands of layers, this is done with software. Your sliced file is now ready to be sent to your printer.

The setup and calibration of the printer is of course very important and the time to print is a function of the complexity of the part. One of our club members recently designed and built some jigs to be used in locating and drilling holes for new cabinet hardware. Each jig took just over 2 hours to print using ABS plastic filament. The result is a useful tool pictured below.

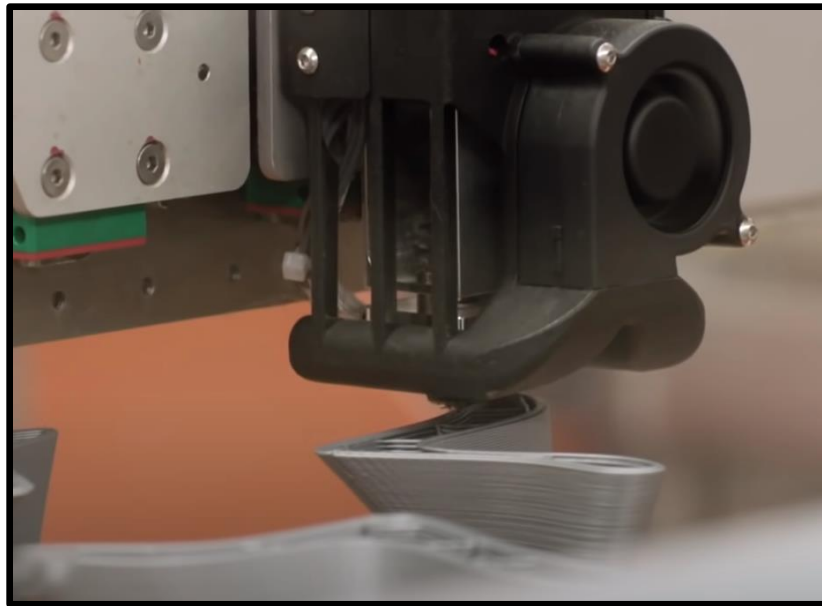


Jig on cabinet door



Holes drilled and new hardware successfully installed

Custom jig to locate and facilitate drilling of holes to mount new cabinet hardware.



Melted plastic filaments being applied layer by layer

Of course, a 3D printed house is a bit more complicated although it only takes days to make at a fraction of the cost of conventional construction.



The 3D printing eliminates over 20 manual labor-intensive processes such as siding, framing, and sheathing and allows completion of a 1900 square foot house in about 48 hours of print time spanning 8 – 10 days.

As technology moves forward and new techniques are used in more applications, even more uses are continually discovered.

A hobbyist can get into 3D printing for under \$500 and use it to create jigs and tools that can be used for all sorts of practical purposes – or maybe just to create unique shapes for the fun of it!!

More information: <https://www.youtube.com/watch?v=XHSYEH133HA>

Stay safe and healthy!

Jeff Wilkinson, President
(702) 527-4056 pres.scsc@gmail.com

General Membership Meeting

Our April General Meeting will be held at **2 PM on Thursday, April 1st** via Zoom webcast. Our program will feature a video presentation by Judy Taylour of APCUG on **“Social Media for Seniors.”**

For Club information: go to www.scscclab.com, contact Jeff Wilkinson, President at (702) 527-4056 or email him at pres.scscclab@gmail.com.

April 2021 Printable Calendars

To view this month’s classroom and lab calendars, click the following hyperlink:
http://www.scscclab.com/Calendars/scscclab_calendar_2021-04Apr.pdf

SCSCC Board of Directors Actions

The Computer Club Board of Directors took the following actions on March 10, 2021

Howard Verne made a motion that the **minutes of the February 10, 2021 Board Meeting be approved as submitted.** The motion was seconded by George Lobue and unanimously approved by the Board

Chuck Hagen made a **motion** that the meeting adjourn. Chuck Wolff **seconded** the motion, and it was unanimously **approved** by the Board. The meeting was adjourned at 10:15 AM.

Submissions Welcome

We are always looking for new information to share with our club members. If you have computer or technical information you would like to share with members of the club, send your articles to editor **Tom Burt** at tomburt89134@cox.net. Thank you to everyone for your contributions.

Welcome New Members

The following new members have joined the Computer Club
from February 28th to March 26th.

Betsy Bazany
Scott Helsper
Russell Meppen
Joseph Scanlan

Carolyn Sizemire
Joseph Spoto
Patrick Thompson

As of March 26th, the club has 469 paid memberships for 2021.

As of December 31st, the club had 614 paid memberships for 2020.

Special Interest Groups and Kaffee Klatches

Currently, all seminars, SIGs, Q&As and Kaffee Klatches are being conducted as Zoom webcasts. Unless explicitly stated, advance registration is not required for SIG sessions.

Special Interest Groups (SIGs) provide a forum for general discussion on a specific computer related subject. Admission to all SIGs is on a first-come, first-seated basis and is subject to the maximum allowed by fire code regulations. All of the following meetings are held in the Classroom. <W>, <L>, <M> or <H> indicate whether a SIG would be of interest to a Windows, Linux, MacOS or Hand-held Device user.

Apple SIG / Q&A <M/H> via Zoom Gail Weiss (702-355-6220)

3rd Monday, 10 a.m.

No meeting in April

Bring your Apple iPhone, iPad, Watch or MacBook to get one on one help with your questions about how to use any Apple device and popular iOS or MacOS apps.

Repair SIG <W/L/M > Chuck Wolff (702-233-6634) and Chuck Hagen (702-418-2614)

Reservation Required

Every Tuesday, 12:30 p.m. to 3:30 p.m.

The Repair Lab provides **CLUB MEMBERS ONLY** with no-cost assistance for those having upgrades and / or hardware and software problems with their computers. Bring in only your PC tower, your Mac or your laptop and your problems. Our TECH team will give you our best effort. ***Be sure to mark your cables so you can re-connect when you get home.***

Internet Investing <W/M/H> via Zoom Tom Burt (702-341-7095)

3rd Thursday, 9:00 a.m. in even months

Next meeting: April 15th

The Internet Investing SIG provides a forum for members interested in using Internet resources for researching and managing investments to meet, discuss, and learn more about the topic. The SIG's target audience is members with intermediate computer skills and investment experience, but all members are welcome.

Networking SIG <W/M/H> via Zoom Robert Ambrose (rna@muttsoft.com)

2nd Thursday of odd months at 9 a.m.

Next Meeting: May 13th

This SIG is a discussion forum on computer network technology including modems, routers, firewalls, protocols and ISPs.

Kaffee Klatch <W/M/H> via Zoom

Every Tuesday, 8:30 a.m.

Jeff Wilkinson (702-527-4056)

This Kaffee Klatch is an open, free-form discussion group for all users, from beginning to advanced. KK discussions are not restricted to any one subject, computer platform or computer-knowledge level but should be computer or technology related. We will try to answer your questions, help you keep your systems updated and provide some useful “tips and tricks.”

Seminar Offerings

Currently, all Seminars, SIGs, Q&As and Kaffee Klatches are being conducted as Zoom webcasts. Unless explicitly stated, advance registration is not required for Seminar sessions.



Windows 10 File Explorer – Part 2

Wednesday, April 7th 9:00 AM

Presenter: Jeff Wilkinson

Location: Zoom Webcast

Jeff will continue his review the many features and functions of the Windows 10 File Explorer. This session will focus on searching.



Introduction to the Photopea Image Editor

Thursday, April 29th 9:30 AM – 11:00 AM *via Zoom*

Presenter: Tom Burt

Location: Zoom Webcast

An interesting **free** program for advanced editing of digital images is the **Photopea Image Editor**. Photopea is a web-based image editor with a rich and powerful set of features. It is similar in look and functionality to Adobe Photoshop.

While we can't begin to cover the full scope of Photopea's capabilities, this 1½ hour seminar will demonstrate how to use Photopea in enhancing your photos to turn them from snapshots into photographic art. We'll first cover all the common image edits. Then we'll reach beyond the basics, demonstrating layers and other advanced techniques you'll want to use in your "digital darkroom".

You can never have too many image editing tools – especially when the price is right (\$0.00). So, come check out Photopea and see if it belongs in your image editing tool kit.

Presentation notes will be available about April 22 at: <http://www.scscclab.com/smnr>.



Tom's Tech-Notes

Solid State Drives – What's New *(Updated from April 2014)*

Tom Burt, SCSCC Vice-President

Solid State Drives (SSDs) have been around for quite a while. Prices have come down while capacities and performance have gone up. As a result, adding a SSD to an existing system has gone from being a luxury to a practical way to significantly increase the performance of a desktop or laptop.

SSD capacities have grown from 32 GB to 64GB ten years ago to 256 GB, 512 GB and 1 TB today. If you're flush with cash, you can get a 2 TB SSD.



A majority of SSDs are sold as 2.5 inch drives with a SATA controller and power supply. These drives look to PC hardware and software just like a regular hard disk drive. Most SATA SSDs are rated as SATA III, which can deliver data between the drive and the motherboard at 6 billion bits per second.

Sequential read / write speeds are now up in the range of 500 Megabytes per second for top-line SATA III drives. For random I/O, high end drives are rated at up to 100,000 input/output operations per second. This makes SATA SSDs about 3 times faster than hard disk drives.

In the past five years, two new SSD PCIE card form factors have begun to supplant the SATA format. One is a small card that combines the flash memory chips and SATA controller. It plugs in to a special M.2 socket on the motherboard.



To the PC's CPU, it appears as a secondary SATA controller. These cards are recognizable because they have two notches (B+M) in the connector end. Performance is comparable to that of a 2.5 inch SSD, but the card takes up much less space and uses less power. These are now popular in laptop PCs.



The second new form factor is called NVME (Non-volatile Memory Express). A NVME SSD does not include a SATA controller; it is directly connected to the PCIe data bus of the motherboard via a simple memory controller

interface. The NVME SSD card also plugs in to a M.2 socket on the motherboard. The NVME SSD card only has a single notch (M only) in the connector end.

For more details on the M.2 slot, see the following:

<https://www.howtogeek.com/320421/what-is-the-m.2-expansion-slot/>

Top line NVME SSDs like the Samsung 980 Pro above can read data at up to 7000 megabytes (56 gigabits) per second if installed on a motherboard supporting PCIe 4.0. This is about 12 times faster than a SATA hard drive. The 1TB 980 Pro unit retails for about \$200. A mid-range unit like the 1TB Samsung 970EVO retails for about \$140 and can read at up to 3500 megabytes (28 gigabits) per second.

What makes the big performance difference in SSDs is that they can access a block of data anywhere in the drive's memory instantly. By contrast, a hard disk drive must position the read / write heads to the correct track and then wait for desired block to rotate under the heads. This access time can take up to 10 milliseconds or more – easily 5,000 times longer than the SSD. In addition, the newer NVME SSD cards can transfer data at 6 to 12 times faster than a SATA drive can.

Upgrading a PC to use a SSD can take either of two routes: one is to add the SSD to an existing desktop PC while keeping the PC's original hard drive installed; the second is to replace the PC's hard drive with a SSD. For most laptops, the second approach is the only practical one; there isn't room in the laptop for two drives. For desktops, the first approach may be more satisfactory, since it combines high performance while not forsaking high storage capacity. You can use the SSD to store the operating system, applications and very frequently accessed data files and then use the much larger hard disk drive to store all your other documents, photos, music, videos and such.



Most new motherboards come with at least one M.2 connector, so it is possible to add a NVME or SATA M.2 SSD if you're building a PC desktop tower. Note in the image at left that there are screw holes for three different lengths of M.2 card. 80 millimeters (the one with the screw) is the commonest. For commercially-made brand-name desktops, you may have to go with a 2.5 inch SATA III drive that connects via a SATA cable to one of the SATA ports on the PC's motherboard. In a laptop, that will also likely be the case; you will replace the laptop's hard drive with a 2.5 inch SATA SSD. However, for a desktop without a M.2 connector, you can also buy a PCIe to M.2 adapter card that has a M.2 connector on the card and plugs into a PCIe slot on the motherboard. These adapters cost \$10 to \$15.

For a tutorial on installing a M.2 SSD, see the following: <https://www.techradar.com/how-to/how-to-install-an-m2-nvmesata-ssd-on-your-pc>.

In upgrading to a SSD, you will need to consider whether to reinstall your operating system (Windows, Mac OS, possibly Linux) and applications from scratch or to attempt to copy (clone) your existing system to the SSD. If you wish to copy your existing hard drive's system, you will need an imaging or cloning tool such as Acronis True Image, Casper or Macrium Reflect. The challenge is to get the size of your operating system's hard disk partition to be no larger than the size of your new SSD. There are many complications related to this and details are beyond the scope of this article. You might want to stop by our Tuesday Hardware / Software Repair SIG and get some advice before diving into a SSD upgrade.

If you're now convinced a SSD is the way to go, what's the best size and make to buy? Lower end SATA drives are often on sale for about 12 cents per gigabyte. These drives are OK but may not be as fast as the top end drives. Higher end drives are selling for about 20 cents per gigabyte. The Samsung EVO series drives get very high ratings and have some of the best performance specs at very good prices.

Other brands are good also but read the recent reviews carefully. A few years ago, some vendors got good initial reviews on their solid state drives and then switched to cheaper, slower memory chips. Check the usual online stores (Amazon.com, NewEgg.com, TigerDirect.com) and watch for sales. At current prices, a 500 GB drive is very attractive, and you will most likely not run into capacity issues.

Until next month ...



Kretchmar's Korner

Bitcoin - the New Gold?

By David Kretchmar, Computer Technician

In March 2021 **the total market value of Bitcoin exceeded one trillion dollars** for the first time ever. Each individual bitcoin recently touched a value of over \$60,000, before falling back.

Bitcoin's pull back was precipitated by Federal Reserve Chairman Jerome Powell when he made what was perceived as negative comments about Bitcoin.

"Crypto assets are highly volatile — see Bitcoin — and therefore not really useful as a store of value. They're not backed by anything. They're more of an asset for speculation,"

"It is essentially a substitute for gold rather than the dollar,"

Powell also reiterated the IRS position that sellers and spenders of bitcoins would be required to report capital gains as though Bitcoins were stock.



To put this gold/bitcoin comparison in perspective, **the total market value of gold in the world is about 10 trillion dollars, 10 times the total market value of Bitcoin.**

In this discussion I'm using the term "Bitcoin" to represent the numerous crypto currencies such as Ethereum and 100 smaller cryptocurrencies, many offering features that are very different and are superior to bitcoin by some measures. Bitcoin is the mostly widely known, and Bitcoin's value currently represents almost 90% of the total value of all crypto currencies.

Durability

Gold is an inert element that does not oxidize. Bitcoin is dependent on the internet and all of the decentralized participants in its operation. So, if there is some kind of global catastrophe that destroys the internet, then only gold survives. But for anything less than that, Bitcoin and gold are equally durable. A much more likely scenario is the internet suffering some serious but limited issues and being problematic for days or weeks. Without the internet, all financial institutions would have problems functioning. Some theorize that because of its decentralized structure, in the event of an internet meltdown, Bitcoin might emerge as "the peoples" money. Bitcoin is currently preferred in nations like Venezuela and other third-world countries where the fiat currency issued by the government has become virtually worthless.

Transferability

You can trade gold on paper if you are willing to assume third party risk, which defeats part of the purpose of holding gold. To transfer physical gold, you usually need to move it. Large quantities of gold are heavy and difficult and expensive to transfer securely. Commissions can be excruciating for small gold transactions.



Bitcoin can be sent to another address controlled by somebody anywhere in the world in seconds, and the transfer is confirmed and permanently recorded in minutes. Bitcoin is infinitely more transferable than gold.

Divisibility

It is difficult to divide gold, particularly for small amounts. Bitcoin can be subdivided today into 100,000,000 units called satoshis, and the protocol could be extended in the future to support even smaller amounts if that becomes necessary. Bitcoin is infinitely more divisible than gold.

Scarcity

The scarcity of gold is well understood; in the history of mankind about 6 billion troy ounces of gold have been produced, 90% of which is estimated to still exist. All the gold ever mined would



fit inside a 20-meter cube. The world's supply of produced gold increases by roughly 1 - 2% each year, depending on the price of the metal and new discoveries of deposits.

Bitcoin has a limit of 21,000,000 units, which includes Bitcoins permanently out of circulation due to lost keys. Changing the rules to allow more units of Bitcoin would require a consensus of users. This is possible, but it is very doubtful that the Bitcoin stake holders would choose a course that would hurt the value of their asset.

Interestingly, both gold and Bitcoin are produced by "mining", and each has been mined to the extent that is estimated to be approaching 85 - 90% of the total quantity that will ever be produced. Bitcoin and gold are both scarce commodities.

Recognizability

Gold can be counterfeited and sometimes needs to be tested for purity. Authentication can be tricky, but not that all that difficult for experienced people.

Bitcoin cannot be counterfeited, and it is easy to verify the validity of Bitcoin based on the blockchain, the shared Bitcoin ledger. Bitcoin is more recognizable than gold, at least among people who understand what a Bitcoin is.

Taxation

Bitcoins are taxed just like stocks, with a maximum 15% or 20% rate on long term capital gains (assets held for at least a year). That compares favorably with most other alternative investments. As Jerome Powell stated, people who use Bitcoin to make a purchase create a taxable event they have to report.

Gold is taxed as a collectable and sales do not have the advantage of favorable long-term capital gain treatment. When sold, gold gains are taxed at the individual's ordinary income tax rate to a maximum of 28%. Gold buyers may also have to pay sales tax, depending on relevant state laws.

Conclusions

Gold and Bitcoin, as different as they are, both have characteristics of good investment vehicles and sound money. As more people grow comfortable with Bitcoin and understand how it works, Bitcoin will replace gold as a store of value. This is exactly what we see happening right now. If this continues, some specialists predict the price of Bitcoin in US dollars should stabilize at \$300,000 - \$500,000, but it's going to be volatile. Any investment with huge upside potential also has massive downside risk.

Price is ultimately determined by supply and demand. Demand comes from popular recognition, a liquid market and sustained interest. Bitcoin has been amazing, achieving a world-wide network in less than 15 years. Other currencies are acknowledging Bitcoin and even inking their value to Bitcoin. The US and other countries are looking into issuing their own digital currencies. Individuals and vendors all around the world are beginning to adopt Bitcoin as a payment mechanism and as stored value.

Bitcoin is becoming a valued currency not by force of government declaration or people's acquiescence, but by recognition and popular acceptance.

APCUG Guest Article

Virtual Classes – are Real

**By Phil Sorrentino, Contributing Writer
Sun City Center Computer Club**

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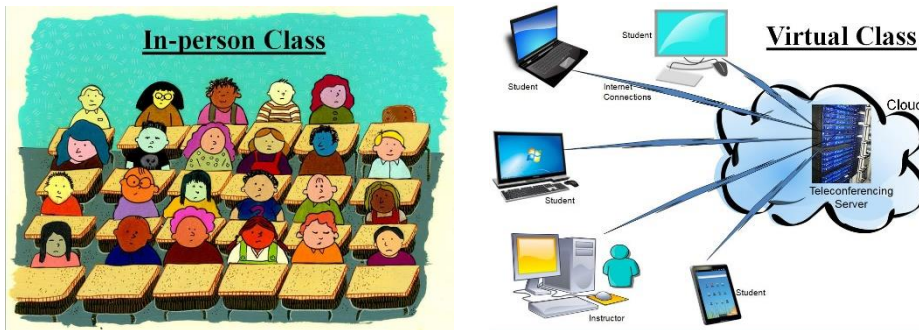
That almost sounds like an oxymoron like “Jumbo Shrimp” or “deafening silence.” Well, the coronavirus has elevated teleconferencing to a level never seen before or maybe even ever expected. Almost everyone, by now, knows of Zoom and other computer Apps like GoToMeeting for teleconferencing. Zoom appears to have a lion’s share of the business. If you’re not quite sure what Zoom is, here is what Wikipedia says. “Zoom Video Communications, Inc is an American communications technology company. It provides video telephony and online chat services through a cloud-based peer-to-peer software platform and is used for teleconferencing, telecommuting, distance education, and social relations”. For many of us, we can think of it just as an “easier to use” Skype. Two years ago, I did a presentation to a User Group on the west coast using Zoom (surprisingly not Skype). It was the first time I had heard of or used Zoom. Now Zoom has over 40% of the teleconferencing market. (Boy did I miss an investment opportunity. Zoom went public in March 2019 at \$36 and is now around \$250.)

Before the virus, teleconferencing was used mostly in the corporate world. But now everyone is familiar with it, from the seniors who are self-quarantining to avoid crowds, to elementary school students and teachers staying at home to avoid classrooms and crowded schools, to employees who are working from home to avoid the workplace gathering places like the coffee pot, the copier, and the water cooler.

Almost all of us are trying to avoid groups of people where the virus might easily be transferred. I recently needed to go to a shopping mall, and I was amazed to see how empty it was. We are staying away from gathering places. (Although the beaches do still seem to be pretty crowded.) So, now that we are not going out and gathering as much, we are staying home a lot more, which gives us a lot more time to learn new things. How many of us have taken up a new instrument or are learning a new language? Now’s the time to learn how to play that guitar or keyboard you bought a few years ago. Well, language and instruments may be too much to expect but we probably can more easily learn about things we are involved in or are using daily, like our computer and our phone. And that is where virtual classes can be of some help.

Virtual classes are educational classes held remotely using teleconferencing software like Zoom or GoToMeeting, or others. With an in-person class, students and teachers gather in a classroom and interact there. With a Virtual class, we interact through our computer Clients (apps) which are then gathered together in a Server. (Remember Client-Server Technology?) Each of our computers is connected to the server via the internet, and it is the Server software that provides the magic that lets us all share the Video and Audio from our client computer’s cameras and microphones. The popular servers support many different clients. You can attend

a virtual class using almost any device such as a Windows computer, an Apple computer or an iPhone or iPod, an Android phone or tablet, a Chromebook, or even a Linux computer. A reliable, fast internet connection will greatly improve the experience. A wired connection to your router may be desirable, but not very common. Fortunately, modern wi-fi is typically more than adequate. (But unfortunately, not everyone has the latest wi-fi, especially if it is being supplied by the Internet Service Provider.)



The internet connections to the server in the cloud allow us to interact “virtually” and avoid gathering together. The server “connects” each of us to each other. And the server presents a classroom presentation to each of us (the Users) so we can see who is participating in the virtual class. (There are controls on the Users screen that allow the Video and Audio, separately, to be turned on or off. The audio control is the “mute” control, mute turns the audio off, and un-mute turns the audio on. The video control is typically just Video on or off, though initially, it might show up as “join with Video”.)

The classroom presentation also has some different ways of showing the group of participants. Gallery view, as it is sometimes called, shows each of the participants (if their video is on) in a box on the screen. (If a Participant’s video is off, the box will just have the User Determined name.) The screen is divided among the number of participants, so as the number of participants gets larger it might be harder to determine who is in attendance, though each participant box does show the name. Another classroom presentation shows predominantly the person who is speaking with others shown in small boxes to the side or bottom, sometimes called “speaker view”. If there are a lot of speakers this might be helpful, though if someone has a slow internet connection, it might end up less helpful, due to the delay.

For any Virtual class, a very comprehensive PowerPoint presentation would be recommended, in general, to guide the class through the subject matter. Some classes readily lend themselves to the Virtual format. These are the “lecture” type of classes where there are no “hands-on exercises” to be undertaken. Demonstrations of hardware or software can mostly be accomplished using a “Share screen” feature that lets the instructor share the contents of his computer screen with all the participants. (Software on a particular device can be easily demonstrated by having that device as another class participant and allowing it to share its screen.) When the instructor does this, the instructor’s screen shows up on every participant’s screen.

So, it's just like watching the big screen TV in front of the classroom, only everyone sees the teacher's screen on their computer screen, at their location. A class like "Cut the Cord" works well as a virtual class because it is mostly lecture. Other classes, that are more interactive, may not lend themselves as easily. A class that requires a lot of interaction may be difficult as a virtual class. This type of class may be more like a discussion group and maybe more dependent on having a definite agenda and a very strong moderator/instructor. Smaller class sizes may help this type of class be successful. The Special Interest Group on smartphones is an example of this type of class. All the participants of this class are encouraged to bring questions and ideas to the class for discussion, and it is anticipated that everyone will have an opportunity to speak. Questions from the class participants in any class are handled with either a "Chat" feature where the question can go to all participants or a specific participant or a "Raise Hand" feature that shows up on the screens to get the participant's attention.

Hopefully, this brief description (and time spent watching YouTube videos on the subject) will give you the courage to participate in a virtual class the next time an interesting one is offered.

Lab Monitor Schedule

Facial coverings and social distancing of 6 feet required.

The Open Lab session is held once per week: 9 am to noon on Saturdays.

April 2021	Monitor Schedule
Jeff Southwell Marilyn Gramms	Saturday 04/03/2021
Fred Cohen Gail Weiss	Saturday 04/10/2021
Mary Hedin John Zuzich	Saturday 04/17/2021
Karen Ristic Ray Ristic	Saturday 04/24/2021