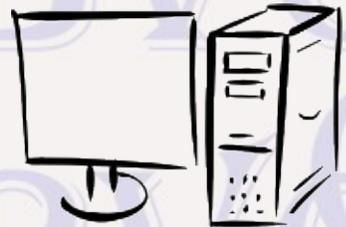


# Bits & Bytes

Arkansas' Premier Computer Club



## June 2022

**Bella Vista Computer Club - John Ruehle Center**

Highlands Crossing Center, 1801 Forest Hills Blvd Suite 208 (lower level), Bella Vista, AR 72715

Website: <http://BVComputerClub.org>

Email: [editor@bvcomputerclub.org](mailto:editor@bvcomputerclub.org)

### MEETINGS

**Board Meeting:** June 13, 6pm, in John Ruehle Training Center, Highlands Crossing Center.

**General Meeting:** June 13, 7pm, "Microsoft Word vs LibreOffice Writer", presenter Joel Ewing. This will be a look at two widely used word processing applications, what they have in common and where they conflict.

We will meet in-person in Room 1001 on the lower level of The Highlands Crossing Center, 1801 Forest Hills Blvd, Bella Vista, or you may attend the meeting on-line via Zoom. Zoom access information is published on our website.

Visitors or Guests are welcome.

Because of COVID-19, we recommend observing any current masking and social-distancing guidelines that may be in effect at the time of the meeting. Consider attending by Zoom if you or others in your family are in a high risk category.

**Genealogy SIG:** No meeting (3<sup>rd</sup> Saturday).

### HELP CLINICS

June 4, 9am - noon at John Ruehle center

June 15, 9am - noon at John Ruehle center

Members may request Remote Help on our website at <https://bvcomputerclub.org> at menu path Member Benefits ► Remote Help .

### MEMBERSHIP

Single membership is \$25; \$10 for each additional family member in the same household.

Join on our website at <https://bvcomputerclub.org> at menu path Get Involved ► Join/Renew, by mailing an application (from the web site) with check, or complete an application and pay in person at any meeting.

### CLASSES

(At BVCC Training Center)

Saturday, June 18, 9am-noon, "Using Windows 10", with Joel Ewing.

Wednesday, June 22, 4pm-6pm, "Computer Security for Regular People, Part 1", with Justin Sell.

Saturday, June 25, 9am-11am, "Microsoft Word", with Joel Ewing.

Advance sign up required for each listed class: For reservations: email to [edu@bvcomputerclub.org](mailto:edu@bvcomputerclub.org), or sign up at the General Meeting. Classes are free to Computer Club members.

Check the monthly calendar and announcements for any last minute schedule changes at <https://bvcomputerclub.org> .

## HELP NEEDED -- MEMBERSHIP SURVEY

BVCC is an all-volunteer organization. Our By-Laws explicitly forbid the organization from having any paid staff or administrative personnel. The only thing that allows BVCC to continue to exist and serve the NWA region is the willingness of enough of our members to volunteer and fill those positions that keep BVCC functional.

We are only a little over two months out from our August General Meeting, when we elect four officers (President, Vice President, Secretary, Treasurer) to serve from September 2022 to August 2023 and one Board member to serve two years from September 2022 to August 2024. There are also a number of appointive positions whose term length is by mutual agreement with the Board.

Although annual elections are the obvious point when we look for volunteers, health issues or other changes in circumstances can always result in needs at other times, and having reasonably up-to-date data on capabilities and willingness of our membership is invaluable.

There are also other capacities in which members can always help: room setup before/after General Meetings, working with Help Clinics, suggestions for programs and classes, even volunteering to present a program or a class on some computer-related topic or application in which a member has experience or interest.

**It would be a great help to the continuation of BVCC if each member were to complete an on-line survey to update the areas in which they would be willing to help or serve within BVCC, or any special skills you might be able to contribute.** The survey, complete with a description of the office positions can be found on the BVCC website (<https://bvcomputerclub.org>) as a "member survey" link in the 3rd paragraph of the "**Helpers Needed**" web page located under menu path **Get Involved ► Help Us**, or go directly to <https://bvcomputerclub.org/survey.php>

We know people are very reluctant to raise their hand to volunteer in a crowd. We've all been in the same place. To try to reach the entire membership one-on-one by phone to seek volunteers involves many hours of phone tag, and is not that effective in these times when robo calls make many inclined to ignore calls from unfamiliar numbers. We hope that a survey that you can fill out at your convenience after time for reflection is a more effective way to reach the entire membership.

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## BITCOIN DIPS BELOW \$30,000

By Joel Ewing, President Bella Vista Computer Club  
Bits & Bytes, June 2022  
president(at)bvcomputerclub.org

Bitcoin crashed again in May, dipping below \$30,000 for the first time since July last year and is now worth less than half what it was worth last autumn. Cryptocurrencies are continuing to show a potential for spectacular losses to accompany their potential for spectacular gains.

Advocates of cryptocurrencies had hoped their designs would help insulate those currencies from general problems in the financial markets, but if anything, the events of May exposed the fallacy of expecting graceful failure in an unregulated commodity in times of stress.



The most spectacular failure appeared to occur in TerraUSD, a stablecoin "designed" to have a fixed value of \$1 with a total invested value of \$60 billion, but which sunk to 6% of its value to \$.06 as investors panicked. The value of TerraUSD was even insured -- insured by the Luna Foundation Guard company, which unsuccessfully attempted to stabilize TerraUSD by putting in more than \$3 billion. This remedy failed partly because most of Luna's assets were not in stable investments but in -- wait for it -- other cryptocurrencies like Bitcoin, which were also in decline. Luna's large sell off of Bitcoin caused Bitcoin's value to plummet, causing a general loss of confidence and negative impact on all cryptocurrencies. Common sense says trying to insure one unregulated commodity using assets in another related unregulated commodity is probably not a wise strategy, but there weren't any laws against it and they took a gamble with other people's money and lost. There is no way investors would have known this positive feedback risk existed until it was exposed by failure.

If you are fortunate to invest in cryptocurrency at the right moment and have the luxury of choosing when to cash in, you could make a bundle. If you invest at the wrong time or are forced by circumstances to cash in at the wrong time, you could also lose big time. The specific events causing drastic declines have so far proven to be unpredictable: an unexpected action by one country (China), or by one person (Elon Musk), or some new major scam or theft involving cryptocurrency that causes a general loss of confidence. If you can tolerate the worst case loss, investing in cryptocurrency probably has better long-term odds than gambling at Las Vegas; but be sure you understand that the risks can be substantial.

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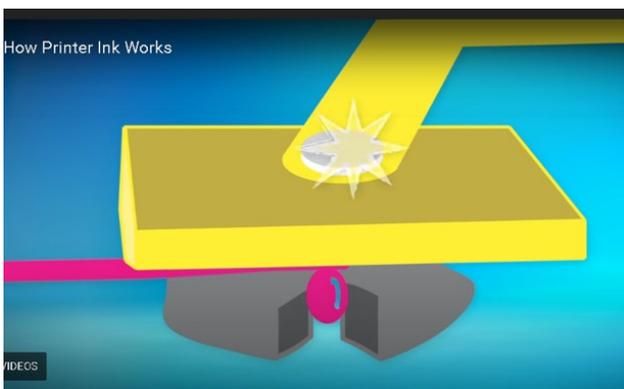
## INKJET PRINTER INK CARTRIDGES

by Jeff Wilkinson, President, Sun City Summerlin Computer Club  
<https://www.scsccl.com>  
pres.scsccl (at) gmail.com  
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There are two methods of ink deposition that are widely used in household inkjet printers: thermal bubble and piezoelectric.

### ***Thermal Bubble Printing***



Inkjet printing technology was proposed as early as 1960 and became commercially available in the early 1980s in the Canon Bubblejet and the HP Digital Printer. In March 1993, Epson entered the inkjet printer market with Micro Piezo inkjet technology using a piezoelectric crystal in each ink nozzle.

With the bubblejet technology, current is passed through a resistor in the nozzle path, heating the ink, vaporizing it, and depositing a small amount of ink on the media. As a result, a

slight vacuum is created, drawing more ink into the nozzle for the next cycle. This happens as often as 36,000 times per second.

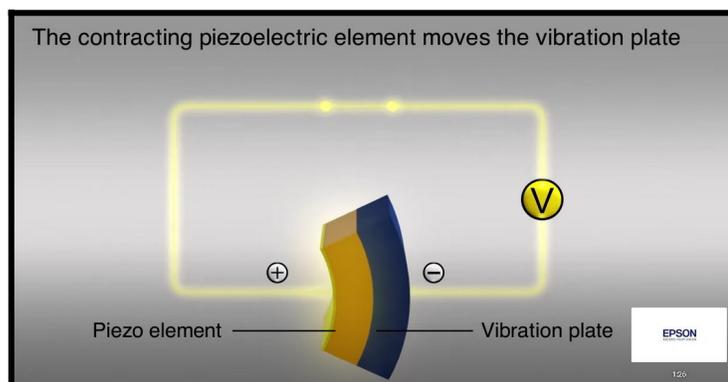
Using "bubblejet" technology, the typical ink cartridge has hundreds of tiny holes or nozzles, about 15 microns in size. The precision digital manufacturing process ensures the nozzles are correctly sized and placed on the printhead for correct placement of the ejected drops. As small as 4-picoliters, the tiny ink drops are launched through these precision nozzles. A picolitre is a millionth of a millionth of a liter! As many as 32 drops of ink are used to produce each color dot, and images may contain thousands upon thousands of dots. Therefore, the chemical formulation of the ink is very important, and poorly formulated inks may cause clogging or oxidation on the printhead nozzle.

Partially because of the complexity and development costs and a somewhat captive market, the price of inkjet cartridges was initially quite high. This spawned a compatible cartridge market in which vendors, big and small, qualified and not so qualified, began offering replacement inkjet cartridges. However, their only option was to refill inkjet cartridges with the existing patents since a replacement could not be legally manufactured. This created a secondary market for empty inkjet cartridges with various recycling and collection schemes used to get cartridges to refill.

As the compatible market matured, the OEM manufacturers added protection in the form of a semiconductor chip used to prohibit non-OEM cartridges. Of course, workarounds appeared almost immediately, and the back and forth battle has been going on for many years. There is no question the best quality comes from OEM ink cartridges. Still, many users feel that the cost/quality ratio is too high for everyday printing and opt for compatible cartridges. Furthermore, since the printing functionality comes almost entirely from the cartridge, a faulty cartridge can be replaced and renew the entire imaging system.

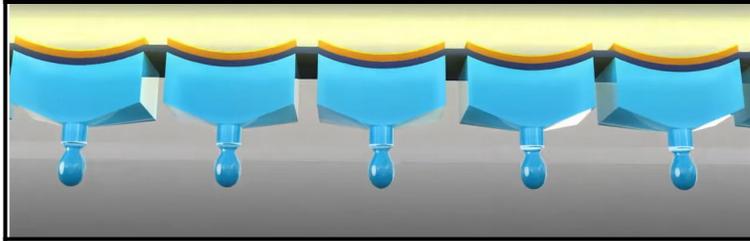
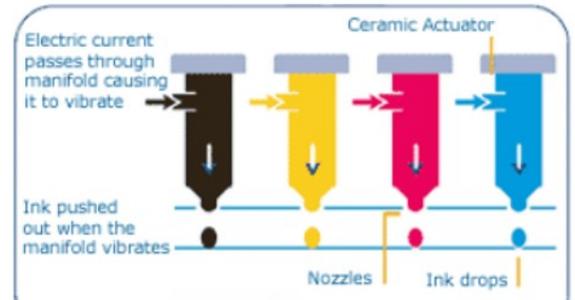
## ***Piezoelectric Printing***

Epson inkjet printers use the piezoelectric process in their printers. With this process, the printer contains the printheads rather than the printheads being part of the cartridge. Printheads have a piezoelectric element in the printer that contracts when a voltage is applied. The element and vibration plate move, much like the loudspeaker's cone, and force out a precise amount of ink out of the nozzle.



This eliminates the need to heat the ink to create a bubble, reducing the complexity of the ink formulation. Printheads with 128 black nozzles and 192 color nozzles (64 for each color) produce a resolution of 720 dpi, for example.

Since the ink does not need to be heated, it can be tailored to the media to which it is applied, in many cases giving more flexibility to the ink formulation.



The internal printheads contain rows of these elements, which fire at precisely the right time, releasing the correct amount of ink as many as 40,000 times per second!

Since the ink cartridges for these printers do not contain the printhead, they are easier to duplicate, and many compatible cartridges are available. However, once again, the manufacturer has countered these efforts with onboard chips which warn you about the use of third-party inks.

Printer manufacturers have made numerous attempts to use firmware and onboard chips that won't allow the use of third-party inks and multiple corresponding class-action lawsuits against these actions.

Each user has to choose which ink cartridges to use, but armed with some understanding of the printer ink systems you can make a more informed decision.