



GATEWAY

**The Official Magazine of the Gippsland
Gate Radio & Electronics Club Inc A0016893M**

August 2023



Micro-Controllers & Basic

GGREC 50A Switchmode Safety

Dim Bulb Tester

And More



Cover photo, Mike VK3KTO receiving his 'Certificate of Appreciation' for a job well done.
(If you have any good photos, please send them in)

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Event Queue

August:

18 th .	8:00	General Meeting
26-27 th .		ALARA. Contest – courtesy WIA

September:

1 st	7:30	Prac night
15 th .	8:00	General Meeting

October:

6 th	7:30	Prac night
20 th .	8:00	General Meeting

<p>Club run events are only possible with the involvement of ALL members. Without volunteers to coordinate and participate in club events the club will fail to prosper</p>

President's Message

It is no secret that as well as being president on the GGREC committee I am also involved with the RASA (Radio Amateur Society of Australia) management team. In that capacity, over the last year, I have had the pleasure of making presentations to clubs and groups in person to five Australian states and some on-line presentations to clubs in the USA. Such events are not a one-way affair. I have learned from this experience. There are patterns of issues within Clubs that at a local level, seem like they are happening in isolation, yet they repeat over and over again, around the world.



The main observation appears to be the struggle for clubs and groups to draw sufficient persons from their pool of members to staff their respective committees. It is a bigger issue than volunteerism in general, as many clubs have clubrooms, good accounts and often a substantial list of members who have been for years, if not decades. From the membership pool, you have those who had been on a committee in the past and feel as though it is 'now somebody else's turn', or members have major time commitments in other areas, or they travel away from home too often to participate in a committee, or they lack confidence in joining a team. Once these and other reasons have been applied, there are too few remaining committee members to carry out the business of the club.

The second observation relates to activities that members want to see in their clubs. There are increasing numbers of members who would like to see certain events and activities take place, because they like the ideas and will vote for them if given the opportunity, but those same persons are unwilling to participate themselves. Low participation rates make things tougher for the committee members that do try hard to engage their members.

These issues are reversible, but it takes some commitment by members to do more than pay an annual subscription or warm a seat at a meeting. There is a definite comfort-zone dynamic at work and many people will not step beyond what is comfortable and familiar to do.

Over the years I have actively taken the opposite position and I must say the most fun and rewarding experiences have always come from having a go at an activity that lays beyond the most the most comfortable path to follow. When the message comes forth saying 'Your Club needs you', it really does. If you don't like the activities that your Club puts forth, put your hand up and add an activity of your own. If you do choose to be the member of a club, GGREC in particular, please do give some thought into different ways that you can contribute.

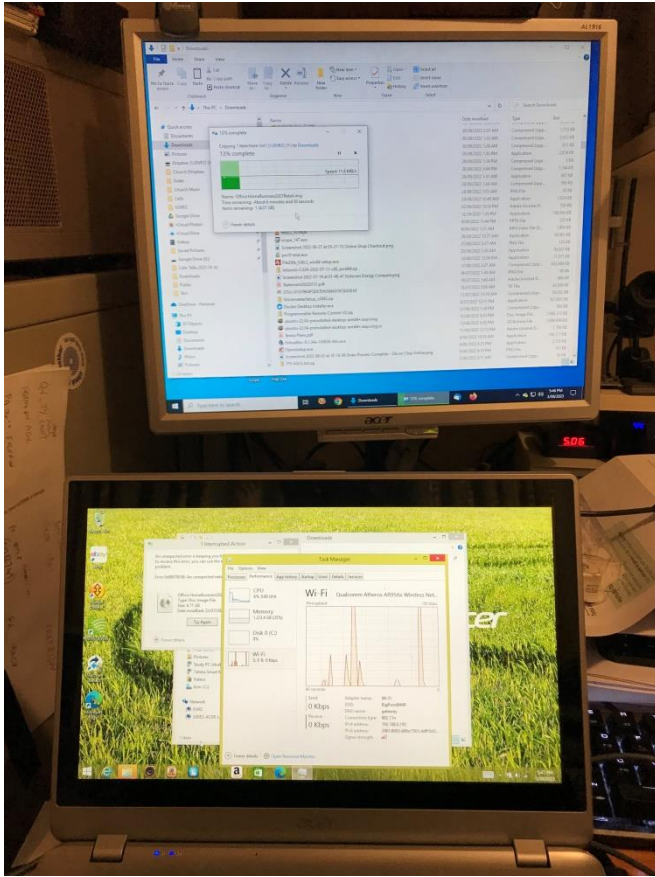
To other business at hand and I saw that the Club had a quite successful day out the front of Bunnings for some fundraising. Last Sunday about 10 members got together and cooked up more than 500 sausages for passers by for \$3.50 per snag. After costs (and the sausages I ate) this has netted the Club around \$1600 for the day. An excellent outcome that has secured Club operations for another year. A big thank you to Klaus and Fred for making the day happen and to the rest of the team that came along on the day. Klaus set up electronic point-of-sale technology for the Club which worked like a treat. 42% of sales took place electronically. That tells us something about contemporary purchasing habits of Cranbournians. Of course a big thank you is in order for Bunnings themselves for their invitation for us to stage the event.

Another event looming for the club is participation for the upcoming Jamboree On the Air (JOTA/JOTI) for Saturday, the 21st of October. We have been asked by the Guides if we are able to stage the event this year in our Club shack. I have been assured by the Guides that the involvement for a couple hours on the day, under their supervision is below the threshold where 'Working with Children' certification is required. If you feel you can help out on that day, please send an email to me at president@ggrec.org.au soon. I have put a circle on the calendar for the end of August, after which I shall contact the Guides with a definitive Yes or No for our involvement this year. I will be looking for 3-6 volunteers for this task. Unfortunately, I won't be able to participate myself this year. At that time I will be playing tourist in Japan, trying to work out the correct pronunciation for the words 'cold beer'.

Last month I gave a presentation on small microprocessors and on bridging the gap for electronics enthusiasts wanting to get in on the action. I hope that those present got something from the talk. Working with microprocessors is yet another integral part of modern Amateur Radio. If you have some level of expertise in a field that you would be willing to share at a meeting, please let us know. I'm sure our members would be interested too. Even if they are not, they rarely ever throw fruit at the speaker.

Cheers, Ian VK3BUF

From The Editor



This month I was asked to 'sort out' a laptop, he wanted Microsoft Office & Zoom installed, a tall order it seemed to me, mainly as this thing was so darn slow it wasn't funny.

I have a few laptops, however I've kind of given up on them as they are just too old, mine are all older 32bit models, everyone has moved onto 64bit, as this architecture gives you a much bigger memory space as most new apps (software) and particularly operating systems have grown by what seems orders of magnitude in size since these older machines were made.

The other side is that a lot of what people desire these days lives on the web, and these web sites just get bigger and bigger offering a more polished user interface, along with the ever invasive ad's that are more or less always video based, seem to be consuming more and more bandwidth, bandwidth that needs to be processed and presented whilst leaving ample processor 'room' for the rest of the page.

A new development just out is that Google is looking at implementing 'DRM', or "Digital Rights Management" on the web, whilst they say this is for security to keep the bad guys out, everyone else seems to be smelling a rat here. Basically what this means is that you will need an approved configuration to access their systems. To me this means you cannot have anything in your system that they don't like, like ad blockers, content 'scrapers', and probably also any VPN's, basically anything that interferes with their business model, as in they want maximum unvetted suck from your wallet. Yuk big time. Here come another truckload of bandwidth....

So I've gotten off the rails from the intro about a laptop... maybe, Well soon Windows 10 will be obsolete, Windows 11 will be it, and I have nothing that is supported... so what's the chance of me giving him a good experience with that laptop? It came with Windows 8, I still have the Microsoft 'kit' for the free Windows 10 upgrade – that was supposed to end ages ago, however they are not blocking the software so it must be ok to use – I guess...

Then there is Office, there are various sites that offer incredibly cheap 'supposedly legit' licenses, way cheaper than Microsoft, How can this be?

I can load anything, but I'm leaving the license to him – I'm over these sketchy sites.

The laptop is off my bench, but I think the satisfaction factor will be extremely short lived.

With me I've kind of given up on laptops – no way can I justify spending any \$\$\$ on a new one, for now I'm living on hand me downs from church & several boxes from the Frankston tip shop. \$20 for a machine that runs Ubuntu Linux quite smoothly – well enough for my weekly YouTube video fix. (just add a \$35 SSD)



Paul VK3TGX

NEWS FROM THE TREASURY

Some update about our recent fund raising activity Klaus VK3IU

Fund raising activities

The Bunnings Fundraising organisation team (Bruno VK3BFT, Fred VK3FWR and Klaus VK3IU) worked very hard on the preparations for the Bunnings sausage sizzle fundraiser, which we held with support of our regular members on Sunday August 13, 2023.

The fundraiser was almost one year after our successful 2022 activity. Unfortunately, as it was with last year, it was cold and soft drinks, weren't so popular. We lost a bit out on these sales.

Fred VK3FWR jumped in days before to assist Bruno with the logistics and negotiated a nice donation from Coles of 100\$. Bruno VK3BFT took care of the organisation of supplies. Klaus VK3IU organised the administration of the fundraiser with Bunnings, acquired an EFPOS system SQUARE and set it up for club use.

This year it was Klaus VK3IU turn cut 12kg of onions at home, not so many tears were produced there, but the house smelled of onions for the next days.

The fundraiser was a total success exceeding my best expectation and last year's earnings.

Table below shows the overview of both years. We earned a nice financial buffer.

year / month	drinks	kg	packs	sausages	Expenses	Income	profit
2022 / 08	176	7	27	508	-\$ 1,114.39	\$ 2,294.30	\$ 1,179.91
2023 / 08	110	18.5	33	580	-\$ 846.16	\$ 2,472.85	\$ 1,626.69

Unlike last year, we did not have a single sausage left, all were sold or consumed by the crew.

These funds help us to maintain our current level of membership fees, which we are able to keep at this level for the past years. Increasing operational cost put a constant pressure on clubs, such as us. Insurance premiums, utility cost are constantly on the rise.

Special thanks goes to our members who sacrificed a Sunday and supported their Club, not by word, but by action.

Name	Call	Comment
Robbie	VK3XIN	
Mike	VK3KTO	
Mike	VK3TDK	
Bruce	VK3BRW	whole day
Bruce	VK3BPT	
Albert	VK3BQO	Came all the way from Drouin
Bruno	VK3BFT	whole day
Fred	VK3FWR	whole day
Klaus	VK3IU	whole day
Gerry	VK3ZXC	whole day
Ian	VK3BUF	Came all the way from Drouin

I also like to mention that **Conway VK3FACJ** drove all the way from his Philip Island home to visit us and special thanks to his donations on that day.

We are looking forward to see new faces for the 2024 Bunnings fundraiser.

What's next?

We now sitting on a comfortable financial buffer and as a none for profit organisation we should now think about what project we can do to improve our club, benefit our members.

There are many option and I would encourage all members to put forward proposals to the committee, what we should do. The committee will discuss what ideas we come up with, but your input is essential and valued



Dim Bulb Tester



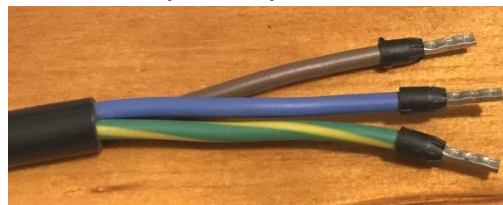
If you watch any of the TV/Radio etc. repair channels on YouTube, you will probably have seen this device that they frequently use, a 'Dim bulb tester', these are quite simple, as in they put an old school (none of this modern LED stuff here) lightbulb in series with the mains power feeding whatever they are testing. This has two purposes. One is to give really old equipment a slow start, capacitors in old valve sets don't like a hard power on especially if it's laid disused for many years. The other use is to capture faults without causing more damage to the equipment. Yes a circuit breaker (or fuse) will save you from a major smoke out, however the multi-amp surge can easily do more damage beyond what was initially faulty. You don't need to lose a perfectly good rectifier tube as it tries to charge a shorted main filter cap. No circuit breaker will save you from that one.

Several years ago, I was at work when I received a call from the wife, A 12V always on system at home had tripped an alarm as the main power supply had failed, and everything was now on backup battery power. I asked her to look into the equipment cabinet, where she noticed the output circuit breaker on the switchmode supply had tripped & also the supply had also shut down. I correctly diagnosed it as a failed output rectified and told her to just close the door and forget about it, it'll have to wait until I get home. She didn't, instead trying to power reset the supply at which point it made a big bang and lost its main switching transistors in addition to the dead output rectifiers. Now if I had received that supply and did the same, yes another bang, however if I powered it up via a dim bulb tester, the lamp would had limited the attempted startup current and probably saved a few switching transistors. (That I had to guess as to what they were as nothing was left, part number wise)

Often when I make up projects I start in my junk box, however that is a problem for others whose junk box will most likely not have the same parts, so this time I started at Bunnings.

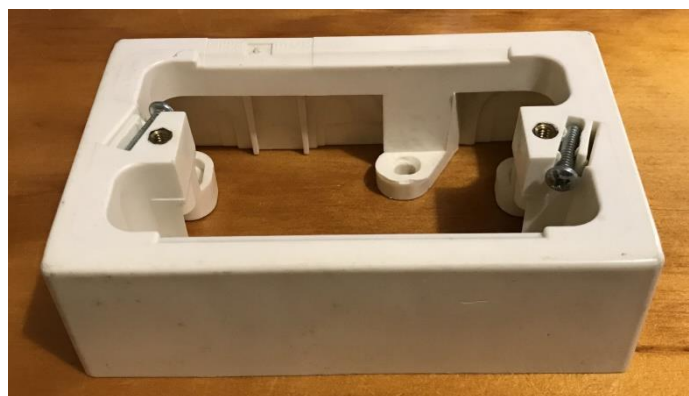
The only bits not bought new were the block of wood I used as a base (of course Bunnings sells wood) & the IEC inlet socket that can be acquired from Jaycar or Altronics. Bunnings also (strangely) sells building wire – as in the stuff electricians wire your house with, by the meter, a service I'm sure no electrician would use. I find this strange as there are signs up in many places saying you need a licensed electrician to install any of this stuff. So who is the target customer?

So how did I go about building it? Well the first 'problem' was getting power into it, normal mains cords use wire with many fine strands of wire that are not really suitable for screwing into the back of a power point, the screw holes here are very large compared to normal mains flex.



The normal solution is to crimp a ferrule onto the end of the wire, and that can take the oversized screw. I have some, and would have normally gone down that path, however I elected to use the wire that these things are designed to use. I had a short length handy, however as I

said before, it can be bought by the meter. That left the thin mains lead issue, so I side stepped that one by fitting an IEC socket. You could use some Utilux etc. lugs, however I elected to solder the wires to a socket I already had, as it had holes just asking for wires to be looped through etc. The next bit is mounting the powerpoint. Now you can get flush mounting sockets, however these have no switches, and I wanted two, one to disconnect the load, and another to bypass the bulb. (this seems to be the 'normal' way to build these testers) The powerpoint I bought needs to be mounted in a hole. Now I could have just used a router and cut a suitable hole in some wood, however as mounting boxes are fairly cheap, I went that way instead



This basic box is quite thin on the sides, not designed to take anything other than provide a hole for an incoming duct etc. I suppose I could have made do, however I kept looking and found two other options. The next step up was somewhat sturdier, but had a double wall construction, this seemed bad for either adding a socket, or a cable strain relief like a cable gland etc. A pity as I have a small pile of the first type, just waiting for a use.



That left this one with way thicker walls designed to have plastic ducting cemented into its four walls. It did not cost much more, so was kind of a no brainer to me.

I cut away most of one of the duct entries, then filed it out to take an IEC socket.

Having an input socket, rather than a trailing lead seems more convenient to me, being able to easily disconnect it and pop it on a shelf with no lead needing to be wrapped up is nice.

Also, if something goes wrong, I can get to that socket way quicker than having to reach over to where it's plugged in etc. Say I accidentally busted the bulb (they are thin, and there can be heavy tools on my bench), popping the lead out the back is way easier than standing up and trying to reach over the busted bits to access where it's all plugged in.

Next came the lamp holder, a 'batten socket', I was going to butt it up against the box and just run the wires directly across, (or you could router a channel into the base board)

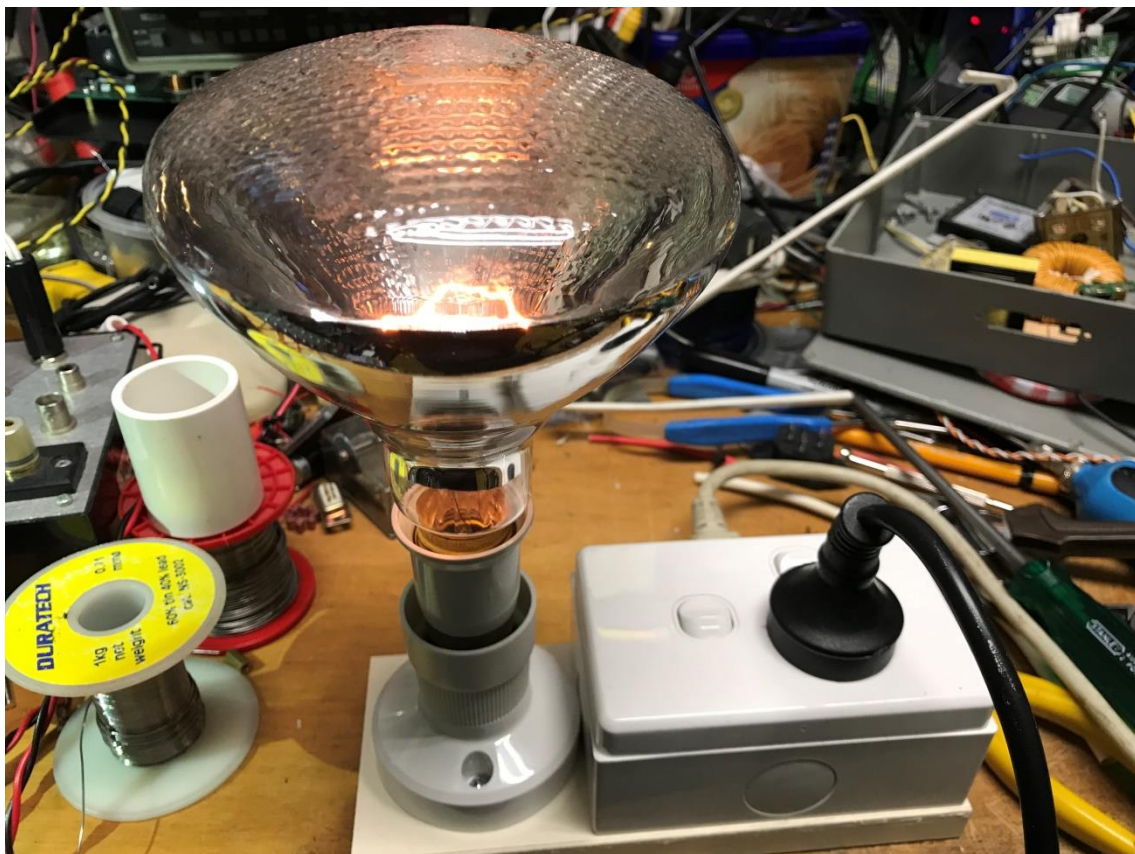


Trouble was the duct hole in the side of the box was way too big and high up compared to the lamp socket base. I could have put some extra wood under the socket to raise it up, however I ended up installing the supplied hole bung into the box side and then drilling a hole as low as possible into that bung, that did it, near perfect alignment, with just a touch of dremeling.

Now it is basically impossible to touch those wires, however I could just see a touch of red, so I added some sleeving to finish it off



All done, now all I need is a selection of bulbs, currently I only have a 150W par flood and a little 15W pilot lamp. I brought a box of old bulbs down to the club ages ago, looks like I gave too many away...



Here it is, fitted with a 150W par flood via an Edison screw to bayonet adapter (eBay, China) with a good warm glow – and a surprising amount of heat, driving a heat gun on its lowest setting.



Here was a surprise, the heat gun is off, yet the little 15W pilot lamp can see it's still drawing current. Now if it had electronic switching I could understand, however it does not, it uses an old school mechanical switch.

And now for those with a well-stocked junk box & an empty wallet, (Standard amateur plight?)



A dead timer, with all that mech removed hooked up to a lamp holder from a maggie lamp?



Or just solder on some leads and connect it across a handy fuse holder. (My previous rig)



Paul VK3TGX

GGREC 50A Switchmode Safety



As a further to the 'dim bulb tester', the same can be applied to your 'new' GGREC 50A supply. Here I am not talking about the input, although that would not hurt whilst you are modifying it.

No, I am talking about the output. 50A is a lot of current, probably twice what your HF rig needs to put out 100W, so the temptation is to run the rest of your shack off this same supply. I am currently using a 40A supply, and it is run all over the shack keeping all my 12V gear happy

The trouble comes with lower power devices, often run via light leads through barrel jacks. If one of these malfunctions, then that lead, even with a dead short on its end will probably not pull 50A, so your new supply will just keep chugging along like nothing is wrong, whilst that lead goes up in a cloud of smoke, then glowing cherry red as it burns through anything in close contact, maybe even cutting into some 240V power leads – not very safe at all.

The same goes on the work bench, where as previously your little 1A plug pack would give up long ago when you get your wires crossed on your proto-board, not so with your 50A supply.

One easy fix is to put a 50W halogen car headlight bulb in series, these normally draw about 5A when running, however when cold they have a very low resistance. If 5A is too much, use a smaller bulb. If you want more, say 10A, wire two in parallel. Another ready lamp source is halogen down light bulbs, I have a small stack, just ask.

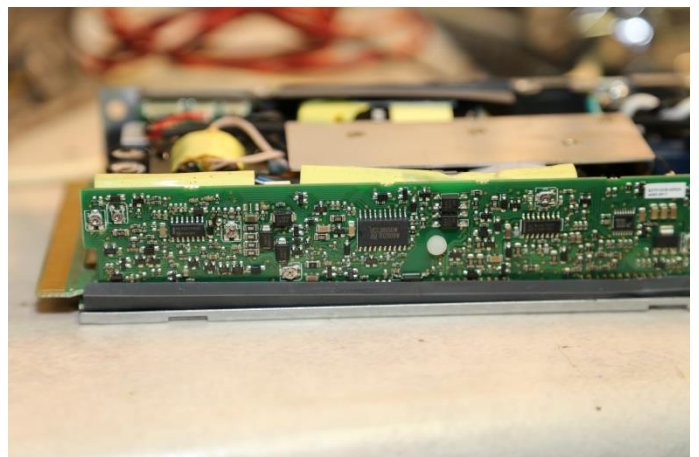
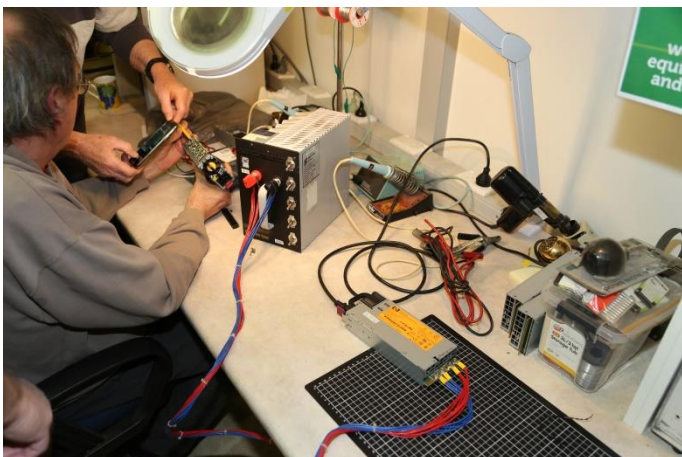
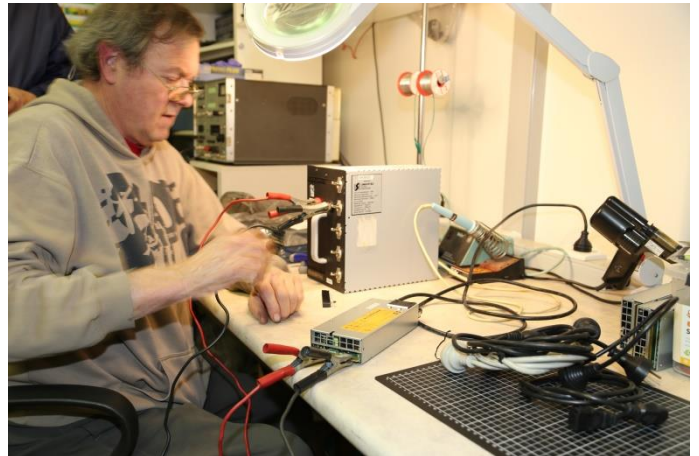
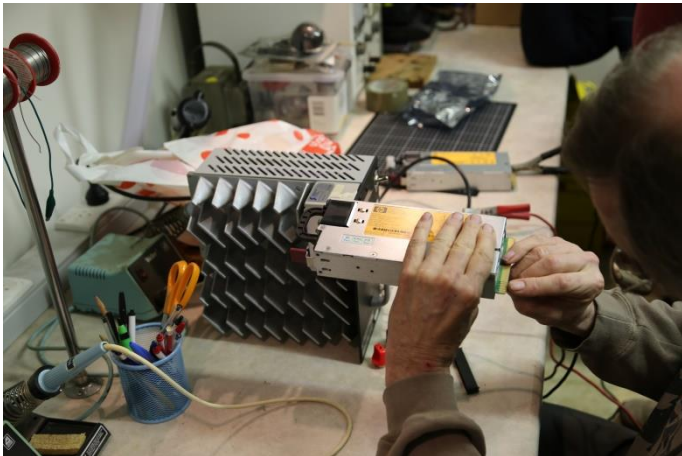
Put in a suitable place, like under the shelf at the back of your workbench where your sockets etc are, it will also make for a very bright indicator that you just did something wrong!

Leave the direct 50A connections to things like high power HF radios and linear amps, things designed to work with these currents, not your Arduino's or other blinky light projects.



Paul VK3TGX

GGREC 50A Switchmode Project

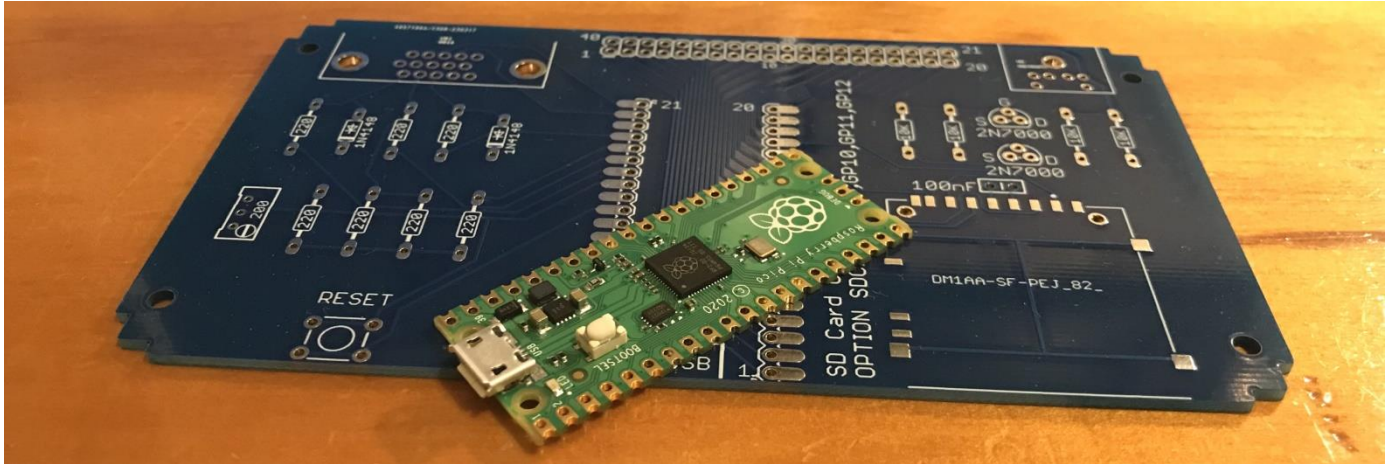


Meeting 21/07/2023



Micro-Controllers & Basic

(A follow up to Ian`s talk)



Ian gave a good talk at last month's meeting about micro-controllers, so I thought I'd add my two bobs worth.

One of the limiting factors to people using these (I believe) is having to learn a strange new language in order to program these chips, and then there is the required software as well as hardware to actually program/write that code into them.

Well I feel that has changed somewhat with the introduction of the Raspberry Pi Pico, as it needs practically nothing to actually program, If you find, or are given a program for one of these then all you need is a spare USB port on your computer & a micro USB cable, the type that used to be commonly used for charging mobile phones.

You plug the pico into your USB port whilst holding down a button on it, causing it to appear as a USB memory stick, then you just copy/paste/drag the program to it, job done. It will immediately disconnect and come back running that program! – can it be any simpler?

For actually writing code, well there is the 'official' suite as setup by the Raspberry pi foundation, it required quite a lot to be downloaded and installed. However if you know Arduino, then you can just use that – way easier to install.

Or how about good old basic, like you probably saw many years ago on practically every home computer, things like the Tandy TRS-80 line, the various Commodore machines, like the C64, and also the various early Apple computers.

In 'Silicon Chip' magazine, they published a little computer based on the Pico, alongside the basic language file you have to program into it – as described above. As a free download.

You can connect a VGA screen to it, alongside a ps2 style keyboard, or skip this and just talk to it via the USB port. The download from Silicon Chip has a full manual on how to drive it

Have a look at <https://www.siliconchip.com.au/Issue/2022/July/VGA+PicoMite> for the first page, the go to <https://www.siliconchip.com.au/Shop/> , select 'Software', then type 'vga pico' into the search field and you will be given a download page.

There is also a version for LCD & e-Ink displays

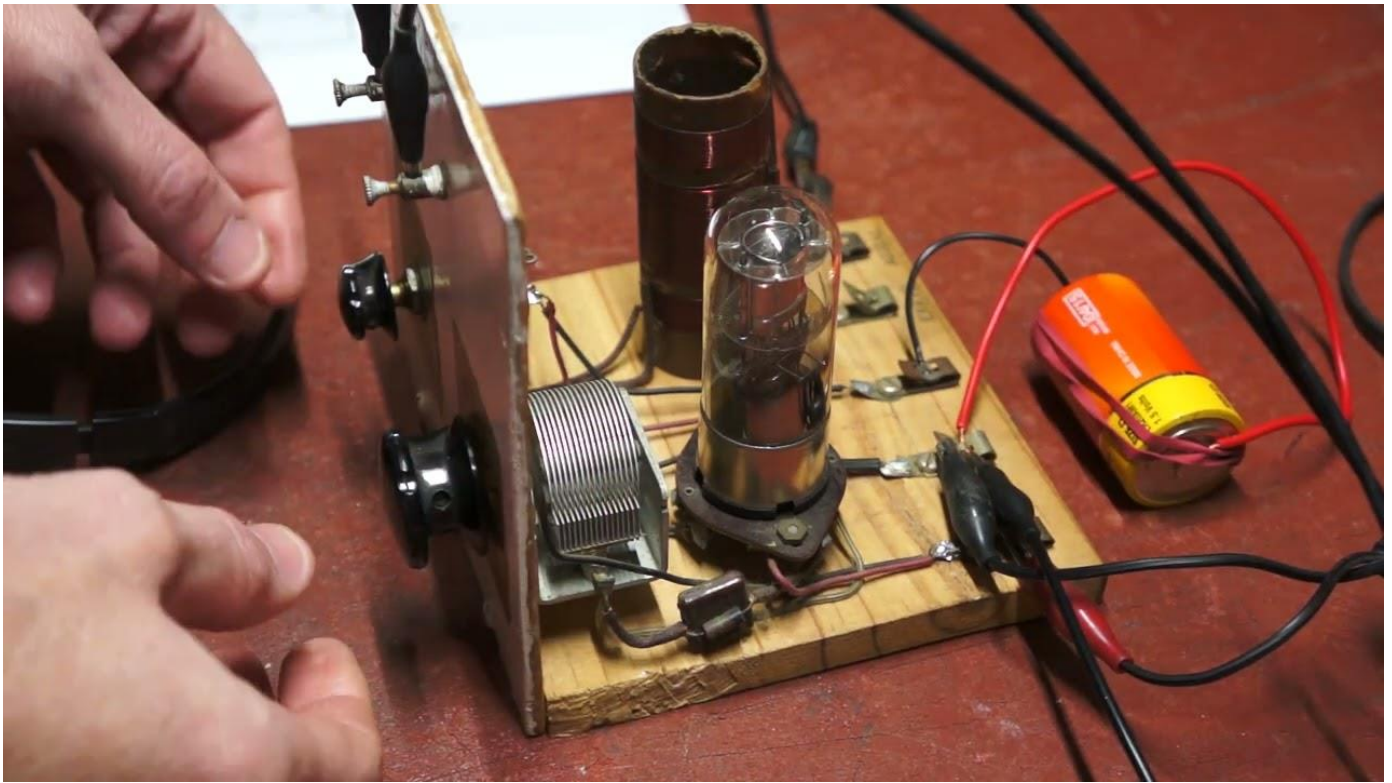
<https://www.siliconchip.com.au/Issue/2022/January/The+Raspberry+Pi-based+PicoMite>

Enjoy.



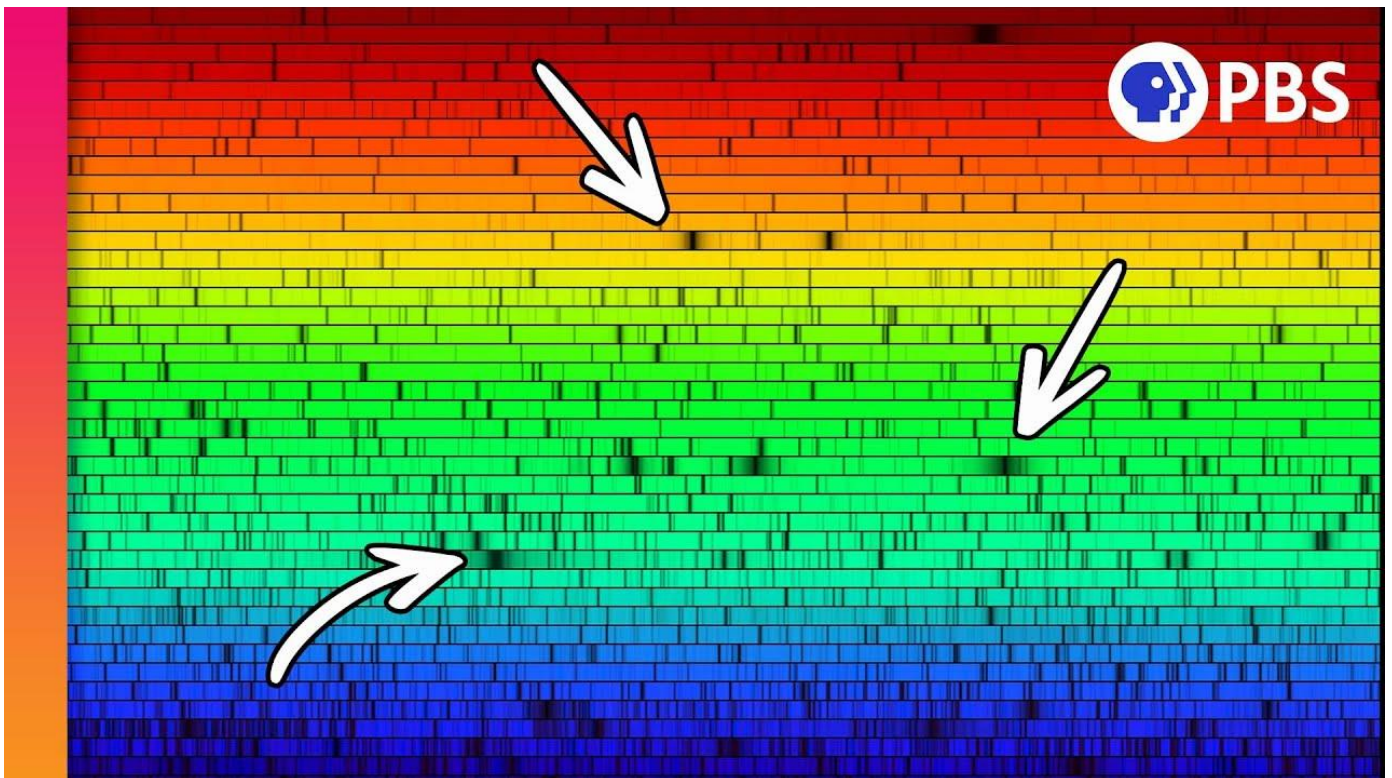
Paul VK3TGX

Interesting YouTube Videos



1Q5 Regenerative Receiver

<https://youtu.be/dTkdwtlPjhs>



Why Some of the Rainbow is Missing

<https://youtu.be/gVZwdYZqCUI>

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The GGREC is an affiliated club of the WIA

<https://www.wia.org.au/>

WIA Affiliated Club

We also give Thanks to



<https://www.jaycar.com.au/>



<https://www.altronics.com.au/>

For their generous support over the years



Club Information



Meetings 20:00hrs on third Friday of the month at the
Cranbourne Guide hall, Grant Street Cranbourne
Prac/Natter nights first Friday in the Peter Pavey Clubrooms Cranbourne 19:30hrs
Visitors are always welcome.

Office bearers

President	Ian Jackson	VK3BUF	General 3	Gerard Watts	VK3ZXC
Admin Sec	vacant		Web Master	Mark Clohesy	VK3PKT
Treasurer	Klaus Illhardt	VK3IU	Magazine Editor	Paul Stubbs	VK3TGX
General 1	Fred Reid	VK3FWR	Property Officer	'committee'	
General 2	Bruce Williams	VK3BRW	Assoc. Secretary	Bruno Tonizzo	VK3BFT

Call in Frequencies, Beacons and Repeaters

The Club Station VK3BJA operates from the Cranbourne Clubrooms.
6m Repeater Cranbourne VK3RDD, In 52.575 Out 53.575 CTCSS none
70cm Repeater Cranbourne VK3RGW, In 431.425MHz Out 438.425MHz CTCSS 91.5Hz
VK3RGW Repeater supports Remote Internet access (IRLP), Node 6794 **offline**.
70cm Repeater Seaview VK3RWD, In 431.575MHz Out 438.575MHz CTCSS 91.5Hz
Simplex VHF - 145.450MHz FM, Simplex UHF - TBA
VK3RLP Beacons 1296.532MHz & 2403.532MHz (**currently offline**)

Membership Fee Schedule

- Pensioner member rate \$40.00, Extra family member \$20.00
Standard member rate \$50.00, Junior member rate \$25.00
Fees can be paid by EFT to BSB 633000 - Account 146016746
• Always identify your EFT payments
• Membership fees are due by each April Annual General Meeting (AGM)

Magazine Articles to editor@ggrec.org.au Cut off, 10th of the month
All other Club correspondence to: secretary@ggrec.org.au
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