Foxbox 2025

Greg VK5ZGY

The South East Radio Group has been hosting Conventions on the June long weekend for around 50 years at various locations around Mount Gambier including places such as the Showgrounds, Glenburnie Hall and now the Scout hall in Margaret St.

I started to get involved around 1981 with the Fox hunting part of the Convention.

At that time it was 4-5 fox hunts for the weekend on 80m and 2m etc and the fox was allowed to move during the hunt in those days

From 1980 with 4-5 Fox hunts on 80m and 2m and then fast forward to now 2025

Foot based: sniffer hunts with 10 hidden Transmitters on 2m and Road based: 18 hunts in various combinations of 80m-10m-6m-2m-70cm and 1296 Day and night hunts.
How times have changed.

In the past few years the hunters have been asking for a more consistent signal as in the past it was a fox in a vehicle transmitting a voice signal at random times and stop transmitting when the hunter got close but in effect it allowed all the hunters to bunch up and have them all arrive at the fox at the same time.

So I started thinking what did all the other Fox hunt events do and to my surprise there was not that much information around regarding Radio, power, type of signal and frequency of transmission.

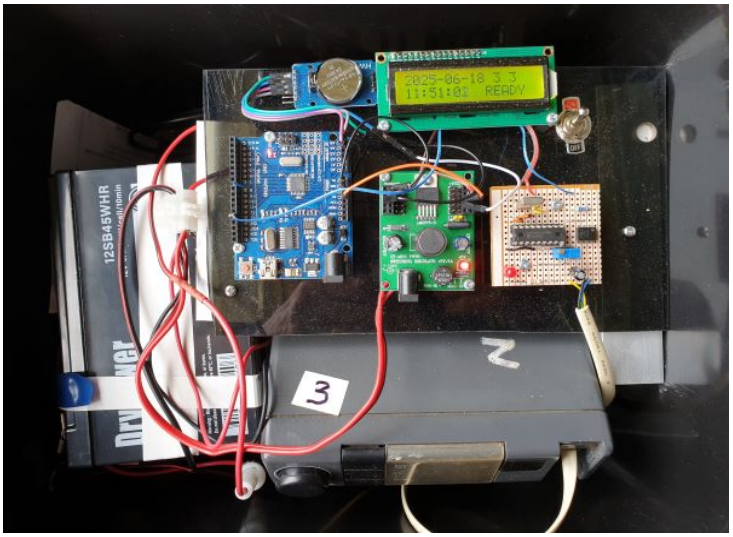
It was then I decided that I would do it the **Mount Gambier way** so this is how it went.

The Rules:

The original idea was to have a self contained unit for each Fox, to interface with the Radio being used by the Fox but it became very apparent in the design that this would prove difficult to have a unit that could adapt to all combinations of Radio this led to the next upgrade

All Foxbox transmitters would transmit a signal consisting of a generated voice, Morse Id or a tone and would also transmit 30 seconds ON and 15 seconds OFF from the start of the hunt until the last hunter had finished with no input required from the fox person other than switching it ON or OFF. And all radios set to 8 watts and be self contained with its own controller and batteries 2 x 12v 9ah

A few years back Andrew VK5KET designed a set of 4 separate radios with keyers for an event called ARDF (Amateur Radio Direction Finding) that each consisted of a PMR 80 programmed for 146.525 that transmitted for 30 seconds ON and 90 seconds OFF in a cycle that gave each transmitter 30 seconds ON in a 2 minute cycle all controlled by a microprocessor (UNO)with its own clock and Morse generator all in a box with its own battery and programmed to turn on at the start of the event and turn off at the finish so that they could be hidden in the field in the morning and picked up after the event had finished.

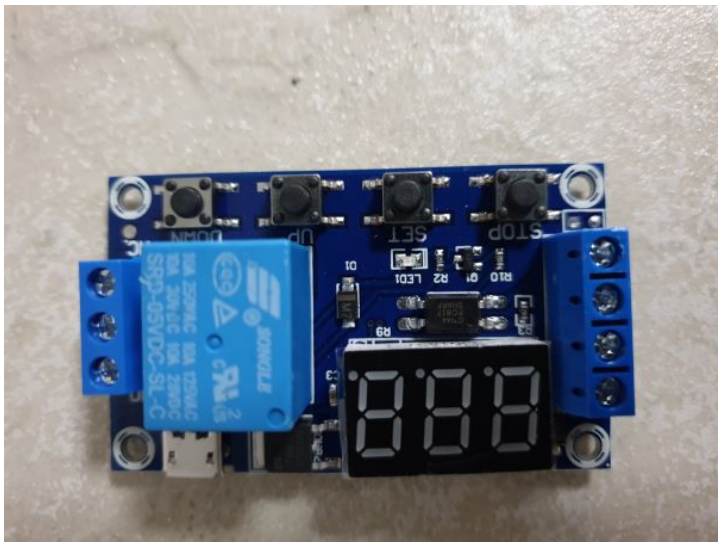


Andrew's VK5KET ARDF box and controller

The only problem that I had is that I do not really understand code and how to compile the code and that I would have to have a computer to change any parameters that I may need.

My mind lives in an Analog world so the Foxbox was developed around an analog system using modules that are readily available and for me cheap that allowed me or anyone in the field to alter the parameters using a set of basic instructions.

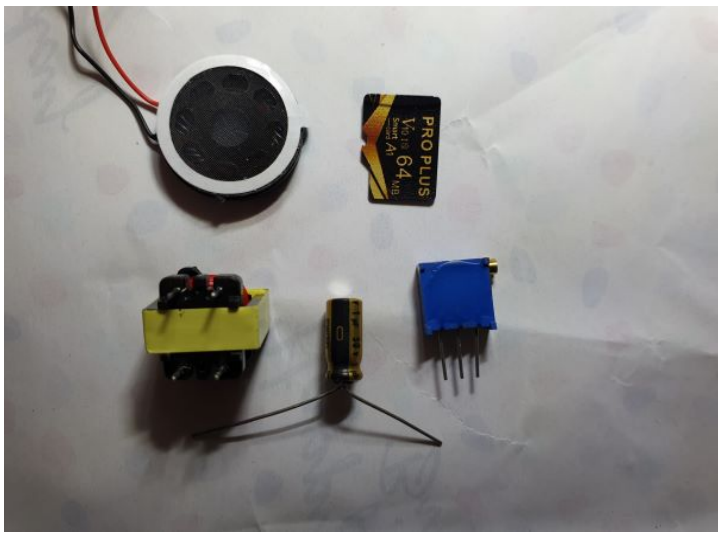
The components consist of a 12v Cyclic timer, a 12v to 5v power supply and an MP3 player and to switch on/off a 12v weekly timer



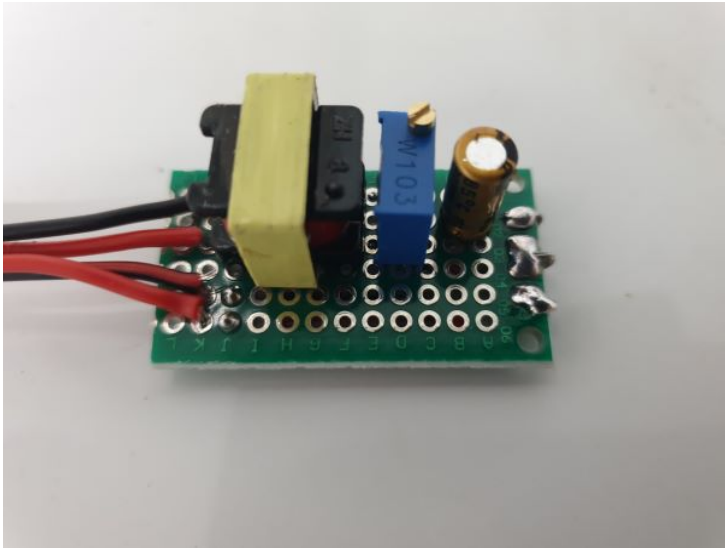
12v Cyclic timer programmed to P3.2 cyclic mode

12v to 5v power supply

MP3 Player apply power and speaker and it will loop continuous



and a few extra components

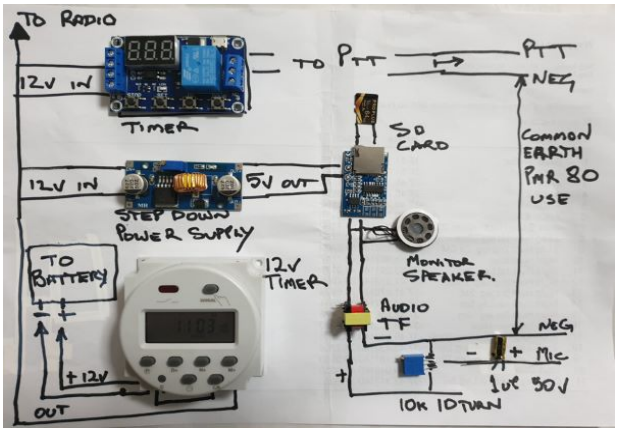


Radio interface board the solution

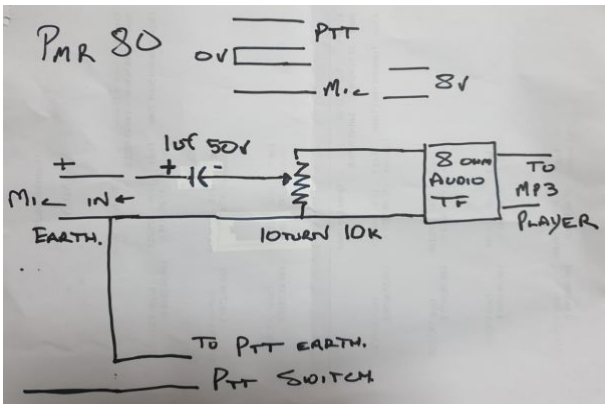
12v timer 7 Day 10 events a day

This timer could be an added extra to allow the box to be turned ON and OFF at a specified time. It will also offer the flexibility of being able to leave it to look after itself. It does not have to used but the opportunity is there if needed to add a simple programmable timer.

These are the basic components that are used to put it all together as per the circuit diagram



One of the issues that I had was how to interface the PMR80 to the MP3 player as the PMR80 has 8v on the microphone output when transmitting and it also has a common 0v line for PTT and mic input and the MP3 player has an isolated speaker output so this is the reason for the audio isolation TF and a 10 turn pot to set the mic volume and a capacitor to isolate the 8v



This is the circuit of the interface that also could be used to connect to any transceiver

Foxbox Controller Parts List

Purchased from AliExpress prices as of June 2nd 2025

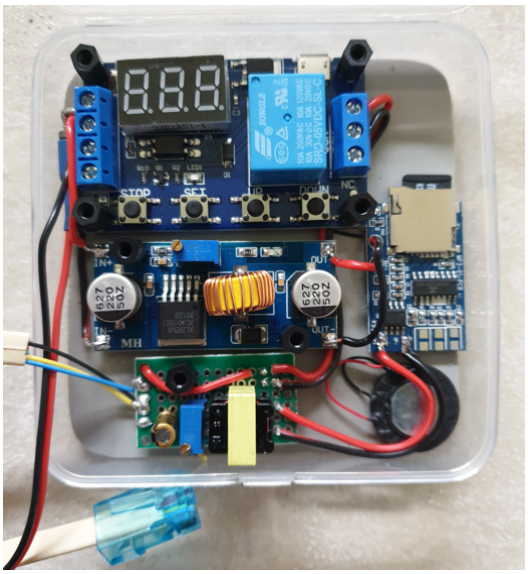
CNC 101A 12v On/Off Timer switch	$4.29
DC 6-30v Led Display Automation Cycle Delay Timer	$1.39
LM 2596S DC voltage regulator 3-40V in 1.5-35V out	$1.10
GPD2846A TF card MP3 Decoder Board	$0.86c
1300:8ohm Audio Transformer EE14	$0:48c
1uf 50v electro capacitor	$0.08c
10 turn 10k trim pot	$0.15c
SD Memory card 32 GB	$2.33

Purchased from Ebay

20mm round 8 Ohm 1 W mini speaker	$0.81c

plus a few odd parts from the junk box

total Under $15



All put together in a small plastic box

Then to complete the Foxbox mount it all (controller, radio and batteries) in a Maggie 7.5kg Gravy Mix tub

With a PMR80 on the Frequency that is required

The unit complete ready for fitting to the tub With Batteries

Now in the tub

And the complete Foxbox painted ready for the field

And finally the complete unit with Flower pot antenna and wooden stake to mount the antenna onto

A few notes:

This design is used for the 146.525 Mhz the 439.025 Mhz and the 1296 Foxboxes

I understand that this unit could be built using an Arduino or similar but as I said earlier I do not know code and programming. What I needed was a unit that was cheap to build simple and could be reprogrammed in the field if needed and also if it was “ lost ” the total cost for the unit could be as low as $20 using a donation of a used radio etc.

This is version number 1 and no doubt another upgraded version is on the drawing board

I would like to thank all those who kindly donated some PMR80`s and also Maxwell VK5AC for programming the radios to what I needed for the 2025 Convention

And finally to all the foxes that helped with using these units

Thanks
Greg VK5ZGY