

## **Basic WordClock Build Info**

*These are provided for information / help only, I cannot guarantee their [or any linked information's] accuracy*

- You can find a copy of the schematic in this Github folder
- Component sourcing
  - Resistors, capacitors, pushers, IC sockets – [Bitsbox](#)
  - Stripboard [127x95mm] - [Bitsbox](#)
  - 8x8 Matrix CPC Farnell
  - Max 7219 Atelects [ Ebay ]

I used KINGBRIGHT, TC2311SRWA 8x8 60mm sq matrix display, it is important to note that matrix displays come in 2 versions

- Row Cathode Column Anode
- Row Anode Column Cathode

The wiring instructions and Python code assume Row Anode Column Cathode. The following site is very helpful in identifying which type and also the pin out <http://arduino-er.blogspot.co.uk/2015/01/how-to-identify-pin-1-of-8x8-led-matrix.html>

### **Note :**

The smaller 1.2" displays used in many of the cheap Ebay MAX7219 board are Row Cathode Column Anode. Richard Hull's [Github](#) repo - is setup to work directly with Row Cathode Column Anode. I use Richard's driver but only the individual LED manipulation subroutines.

I will try and update the instructions and s/w to include a version for Row Cathode Column Anode displays in the future.

### **RTC**

I used an RTC board from Adafruit [ DS1307 ] , this is not the most accurate RTC chip but works and there are lots of instructions for setting it up.

If your Pi is going to be connected to the internet you will not need this. Some of the instructions people / companies have posted for setting the Pi's s/w clock from hwclock at start-up do not work with the most recent operating s/w. There is some information on my Blog in the 'Random Pi notes' section on this.

### **Letter templates**

I have included a number templates in the Github that I created in Word and Publisher. They print best on a laser printer so you get really solid blacks. I found the registration on most printers was accurate enough but only if you print direct from Word or Visio, printing from PDF seemed to introduce error.

I have tried a range of fonts, the ones that work best of the 'non-proportional' ones like 'Courier'. There are a number of examples in the 'font test' document – note these are all available as free fonts on the web but may not be installed as standard on your PC. **Be careful to check the authenticity of any site you download fonts from.**

If you are building a work clock using 1.2" [ or smaller if you have really good eyesight ] Word and Excel are no good for making the templates as you cannot specify the box dimension with sufficient accuracy – I changed to use Visio and Publisher for this individually positioning each letter !

Things to try,

- Try black text against a white fill
- mirror the template then attach blank side up
- print onto overhead transparency paper [but make sure it is compatible with your printer first]

One of the biggest problems I had was sticking the paper to the matrix display, I wanted to avoid anything too permanent but found most paper glues and spray mount did not work well. Eventually I landed on Pritt stick which seem fine. I think the issue is that with the weaker glues you need something that does not set hard so it can move with any temperature change, with the hard setting glue the paper template just falls off if there is a temperature change.

I will plan to spend a bit more time on the templates so will update this section with any improvements I find.

### **Python Code,**

Commented Python code is avail in the Github, you will also need to install the driver from Richard Hull's [Github](#) repo. There are some additional instructions you may find helpful on the [RasPi.TV](#) site. Note for my code you need to make sure 'timeword1cc.py' and 'matrix\_clockr2.py' are in the same folder on your pi.

The s/w is still a bit rough around the edges but works with exception of the function to update the time using the pushes – I am struggling with the syntax for one line so will update when I sort this out.

I have the s/w auto starting at power up using the method described on my blog.

### **Kickstarter**

Going forward I do plan to create a basic Kickstarter kit including a PCB, please let me have you email if you want me to let you know when it launches - hopefully in the next month.