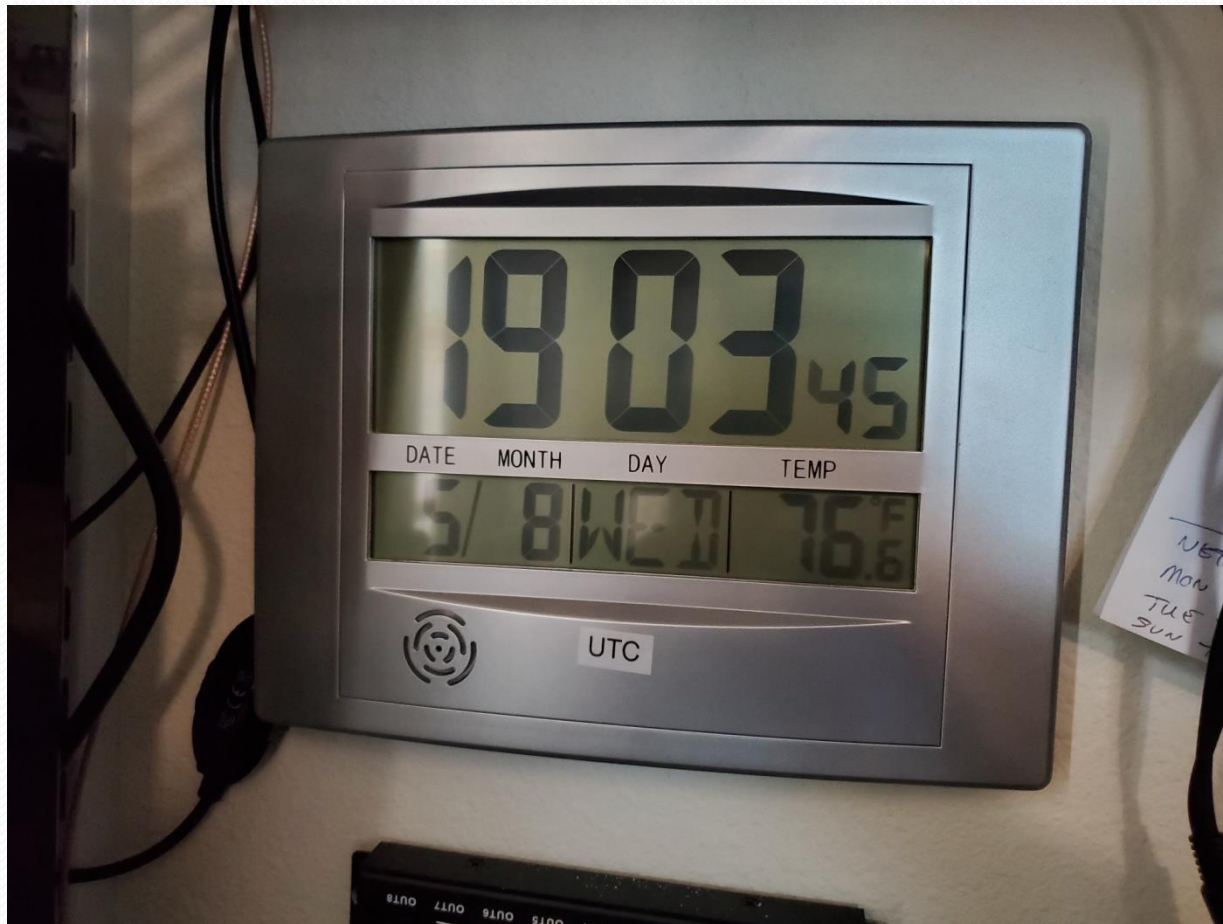# An Easy to build HamClock

By Don KI5AIU

Why?

- Everyone needs a clock
- UTC and Local time (and date!)
- Current gray line
- Satellite rise and set times

My first HamClock

Options

- Started coding a two clock display (local and UTC) using an Arduino and a two line display…….
- Read about ESPHamClock in QST (October 2017)
- http://www.clearskyinstitute.com/ham/HamClock/QST-HamClock.pdf

HamClock

- Initially based on an Arduino ESP micro controller.
- Pros
  - Inexpensive
  - Low power
  - Very small
- Cons
  - No direct support for HDMI

Arduino ESP MCU
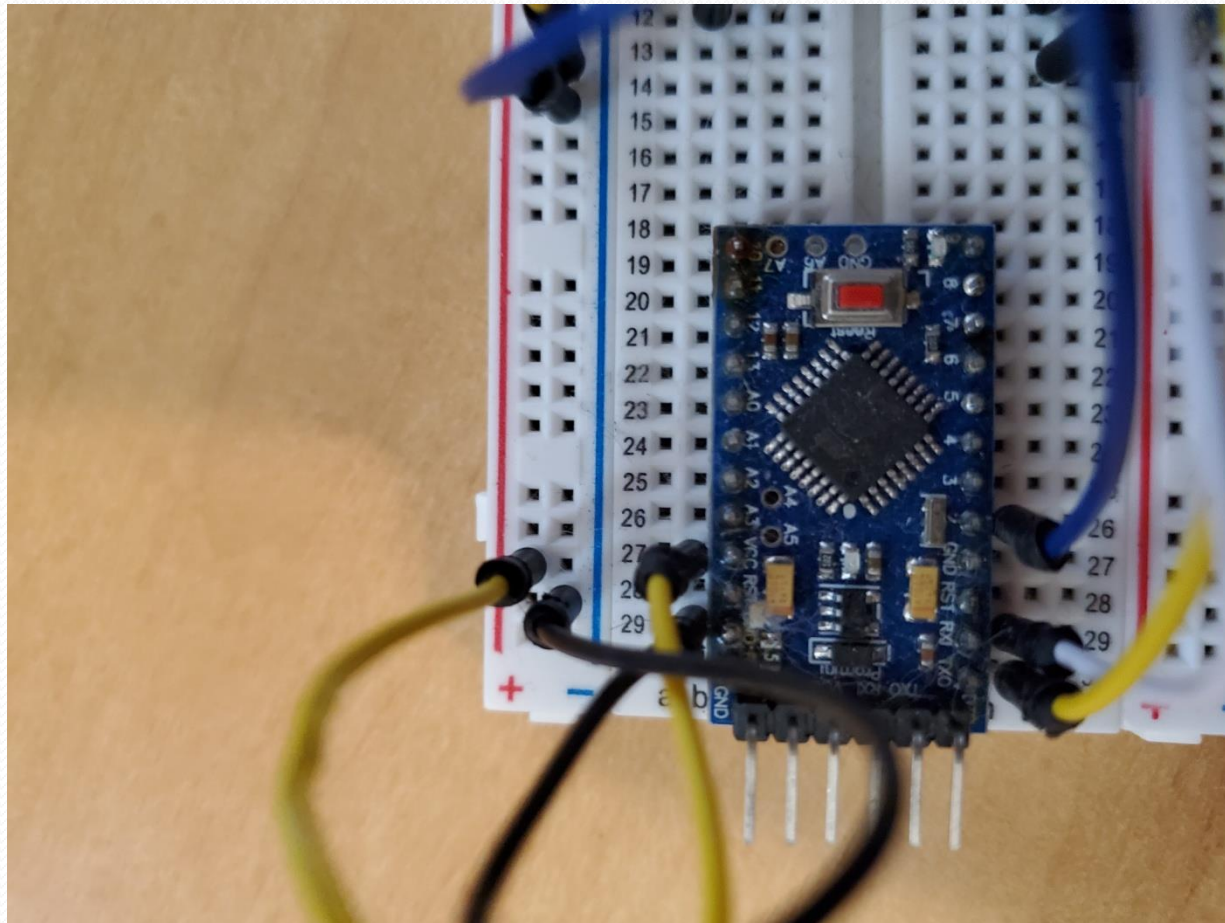
Raspberry Pi?

- Fortunately, the HamClock also runs on Raspberry Pi
- Tested on
  - Pi Zero – runs; but runs high utilization and hot
  - Pi 3B – runs fine, no issues
  - Pi 4 – runs fine, no issues; and now easier to find than Pi 3B!
  - **Note that each of these Raspberry Pi systems uses a DIFFERENT HDMI cable! Pi Zero uses an HDMI mini, Pi 3B uses a regular HDMI, and Pi4 uses a HDMI micro! Get the right cable! DAMHIKT.**
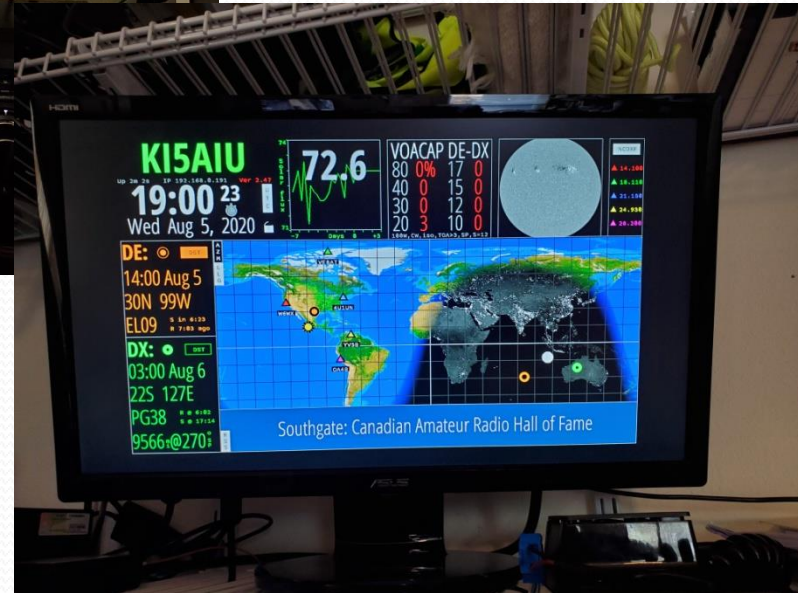
HamClock on a Pi 3B

HamClock on Pi 4
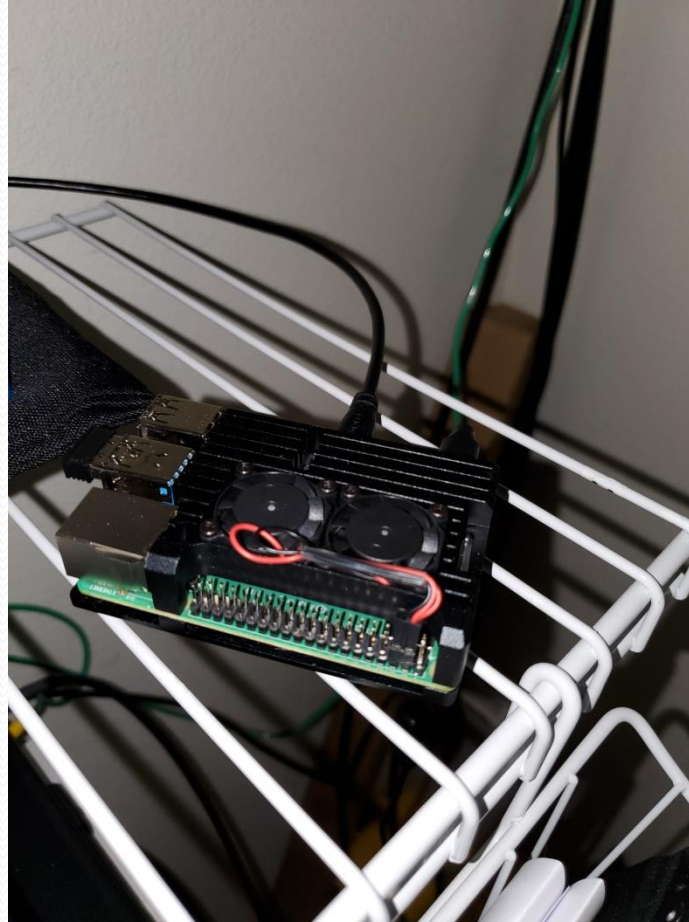
HamClock Display

- Lots of detail, so a large display works best
- I use the Pi to drive an 22" computer display with HDMI, DVI and VGA inputs
  - HDMI – for Ham Clock display
  - DVI – for radio display
  - VGA – for computer/SDR display
- User selectable input

Display

How to build for HDMI

1. log in via ssh (or putty, etc)
2. run sudo raspi-config one time and set the following options:
   - **For HDMI only:** Advanced options -> Resolution -> choose one the same or a little larger than a HamClock size
3. reboot
4. connect to your RPi again with ssh and run the following commands:
   - curl -o ESPHamClock.zip
     http://www.clearskyinstitute.com/ham/HamClock/ESPHamClock.zip
   - unzip ESPHamClock.zip
   - cd ESPHamClock
   - make -j 3 hamclock-fb0-1600x960
   - sudo ./hamclock-fb0-1600x960
5. The example make command above will build HamClock at 1600x960 pixels for fb0. If you want the smaller size 800x480 for the 7" display, redo the make and sudo commands with hamclock-fb0-800x480. Type make help for a list of other fb0 sizes available.

Full details at: http://www.clearskyinstitute.com/ham/HamClock/
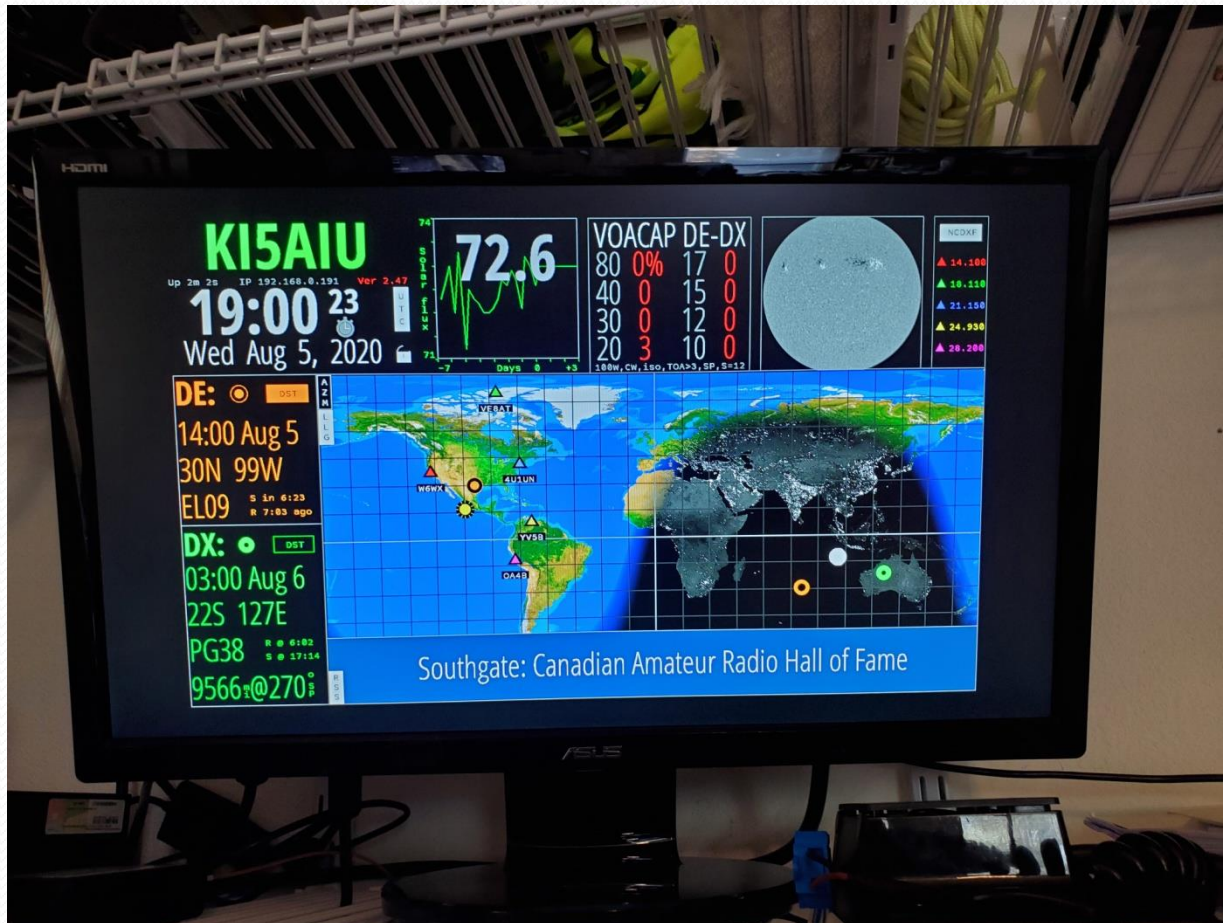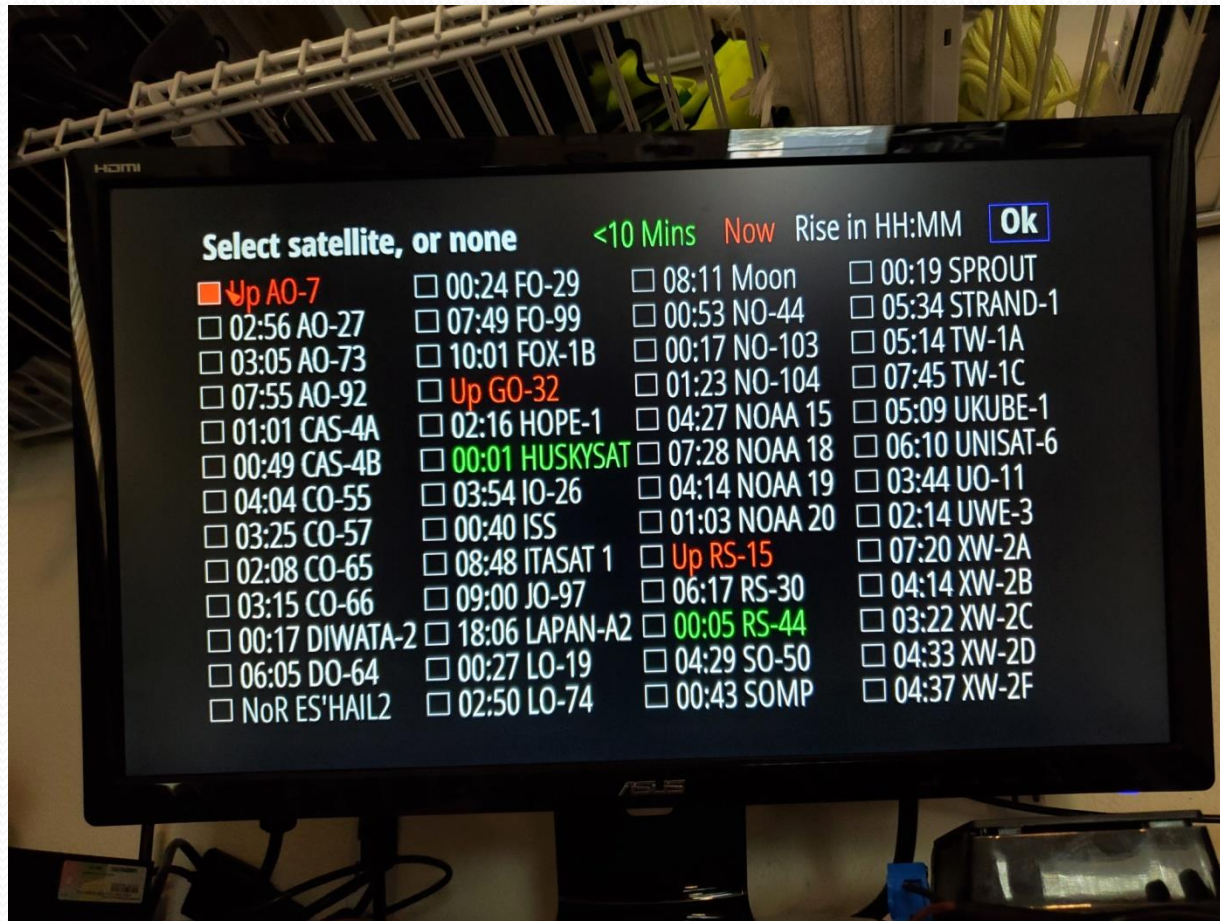
Results

Results

Results

Results
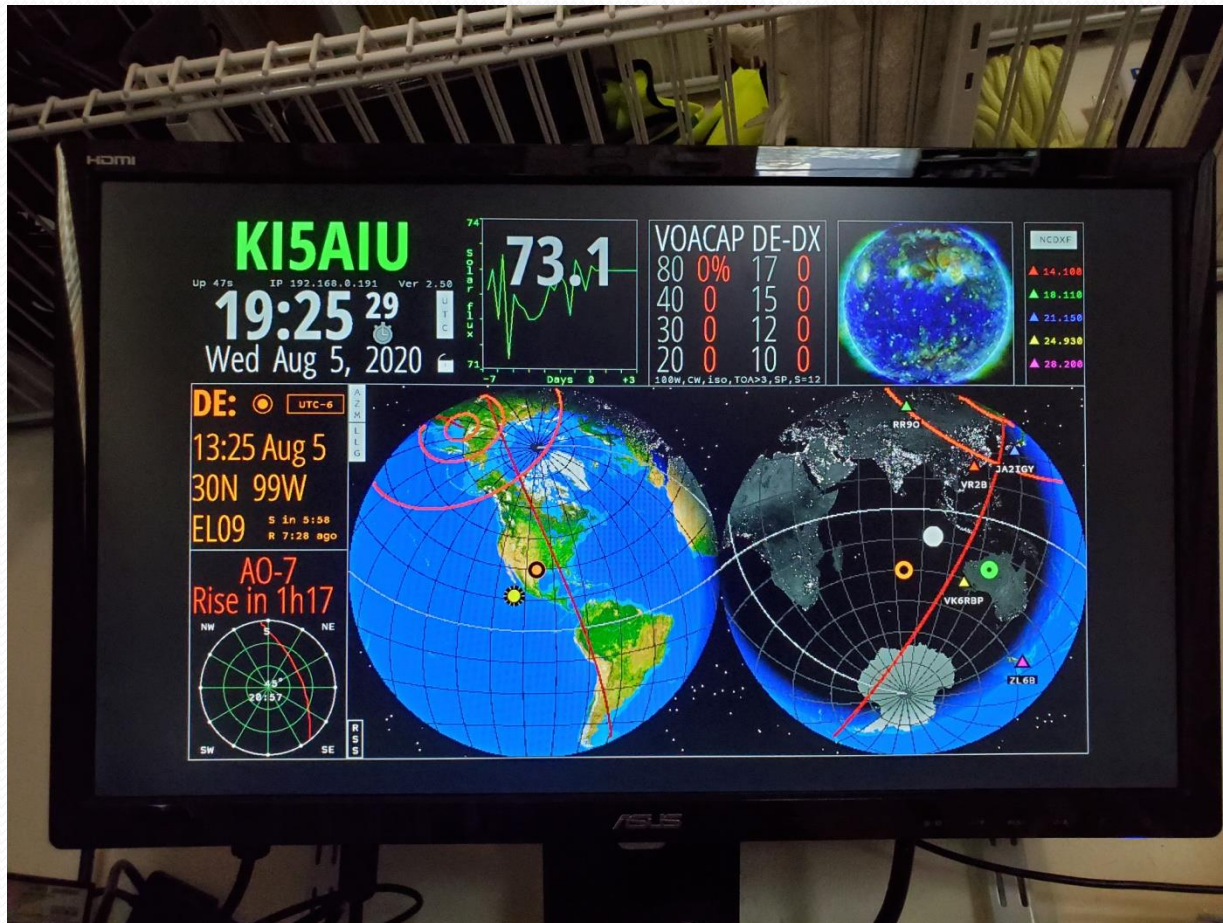
Decoding the screens

HamClock Touch Controls and Map Symbol Key
V 2.07

Decoding the screens

Questions?