Subject: Pocket-FT8: incorrect TFT display connections in your builder's notes
From: Peter Kohler <peter@kohler.world>
Date: 1 Jan 2022, 23.17
To: oz1bxm@pobox.com <oz1bxm@pobox.com>

Dear OM Lars,

I'm also about to build the Pocket-FT8 TRX published by W5BAA when I came across your Builder's Notes (http://www.oz1bxm.dk/notes/pocket-FT8.html).

I too was struggling getting the display working. In the end, there were 2 issues:

- MISO and MOSI connections are reversed on the original schematic (the hardware SPI pins on teensy 3.6 are 11 for MOSI and 12 for MISO)
- The display was working only very erratically in my build, I then lowered the SPI clock from 30 to 25MHz, since then it runs stable (line 56 in HX8357_t3.cpp). Maybe with some proper (shielded) wiring to the display, 30 MHz would work ok. The display speed seems however be ok with 25MHz.

It seems you got the constructor wrong in your notes:

// Syntax: HX8357_t3(CS, DC, MOSI, SCK, RST, MISO)

In HX8357_t3.cpp (line 63) it says:

HX8357_t3::HX8357_t3(uint8_t cs, uint8_t dc, uint8_t rst, uint8_t mosi, uint8_t sclk, uint8_t miso)

So CS->10, DC->9, RST->8, MOSI->11, SCK->14, MISO->12. This wiring works for me.

I stumbled upon another issue with the touchscreen: As it is driven by 3.3V, it overloads the MCP3422 ADC, as in single-ended mode it can only measure up to the internal reference voltage of 2.048V. Due to this, only 2/3 of the touchscreen were usable. By using a 1:1 voltage divider (I used 2x100K), this could be fixed.

hope this information is useful for you. Good luck with your Pocket-FT8 build, and happy new year!

best 73, Peter HB9TVK