Three Phase Display unit software daily log

3\_6:

Original Version:

3\_8:

This version has seven segment font and Calibri fonts.

3\_13:

Update firmware version to 0.2

1. These three versions have different font on the main screen.

2. Modify four buttons. Now support press, release and hold.

3. Modify void updateDisplayMemory(void), delete "displayMemoryNeedsUpdate"

3\_14:

1. Finilize the buttons and apply it to all menus

2. Delete menu.h, remove extern int userInput and extern \_Bool parameterIsSet to displayMemory.h

Things need to be done:

1. When entering password, the display only shows single digit for 0-9. On the spec, should be 00-09.

2. Validation screens needs to be adjusted.

3\_15:

1. Fix the validation screens text

2. Fix most flashing problems

3\_17:

1. Fix flashing during transition to main screen.

2. Enter password has 00-09 instead of 0-9.

3. Move Heater, condensor, evap, compressor icon control from mainScreen() to showWorkingStatus2().

###Important Change: Update firmware version to 0.3

Separate the position and displaymemory update routine

3\_20:

Clean up the project.

3\_21:

Modify the UART part to achieve:

1. Shorten the time that UART is using

2. Decrease the memory space that modbus array is using

3\_23:

1. Bug fixed: when enter system interface, jump to password setting menu. Error cause: should use enterPasswordPosition and enterPasswordDisplayMemory instead of

passwordPosition and passwordDisplayMemory.

3\_24:

Update the Processor.

Bug:

1. Add following delay inside OLED\_WriteCommand()

// add a delay before sending next command, Idle Time before a new transmission can start is 1.3 us at minimum.

int i = 0;

while(i<10000)

{

i++;

}

2. As for the delay in I2CSendData() for idle time before a new transmission can start(same as above), because it is in the main loop and

other steps (scanButton(), etc.) take more than 1.3 us, thus, there are always enough time between two transmission and it does not need a delay inside the routine.

3\_27:

Bug Fix:

Problem: The transimission is not successful. It stucks at first request: read first 8 holding registers

Problem analysis:

1. Connect the old display unit(with KE02 processor) and capture the waveform of the transimission of the first request.

2. Connect the new display unit(with KE04 processor) and capture the waveform when transimitting the first request.

3. Comparing two waveforms captured in step 1&2, found out that the waveform looks the same, but the length is different. The waveform in step 1 takes 8.28ms to transmit,

while the waveform in step 2 takes 7ms to transmit. Thus the problem is timing issue. The new processor has faster baud rate than the old one, this is why it not working.

Fixing:

1. First try to make the baud rate of the compont to be the same as the old one (9600 baud) through processor expert. However, after checking the lenght of the waveform,

this does not change the duration of the waveform. (Maybe a bug of Processor expert itself)

2. Then, check the KE04 family reference manual chapter 32, section 4.1 "Baud rate generation", find out that the UART baud rate generatro is the bus-rate clock.

3. Check the clock part in reference maunal, find out how to adjust the bus clock. In this case, change the internall oscillator to 37.5 kHz, then change the ICS output clock

to 48 MHz at clock source settings, finally, go to clock configurations, change the bus clock to 16 MHz, which is exactly the same as the one used in old processor.

Update the Display unit hardware version number to 0.2 and Display unit firmware version to 0.4

Things still need to be done: Check the new display specification and update accordingly.