WEB PAGE DESIGN SEQ SLOUTION SOW

OBJECTIVES:

The objective of this project is to design a Web Page interface for the modular controller design.

This Statement of Work provides a framework of the information that the ExComms board will display via a web page:

Initial screen/ password protection

Sequencing solution setup
Sequencing solution standard display
How the setup of each CPU device flows.

Shall: Shall is used to indicate a requirement that must be implemented in the design.
Should: Should is used to indicate a goal that could be implemented in the design. The design should include the requirement unless they cause a Shall requirement to no longer be valid.

The Web page design shall meet the following requirements.

GENERAL

The Web Page shall have the following:
1. Support English.
1. Have a password to connect to the wifi
a. Default password: WITHHELD
b. Password should be modifiable within the Webpage configuration menu.
2. Https selectable within web page
a. default as http
3. Utilize the provided Brand Standards .

INITIAL SETUP SCREEN

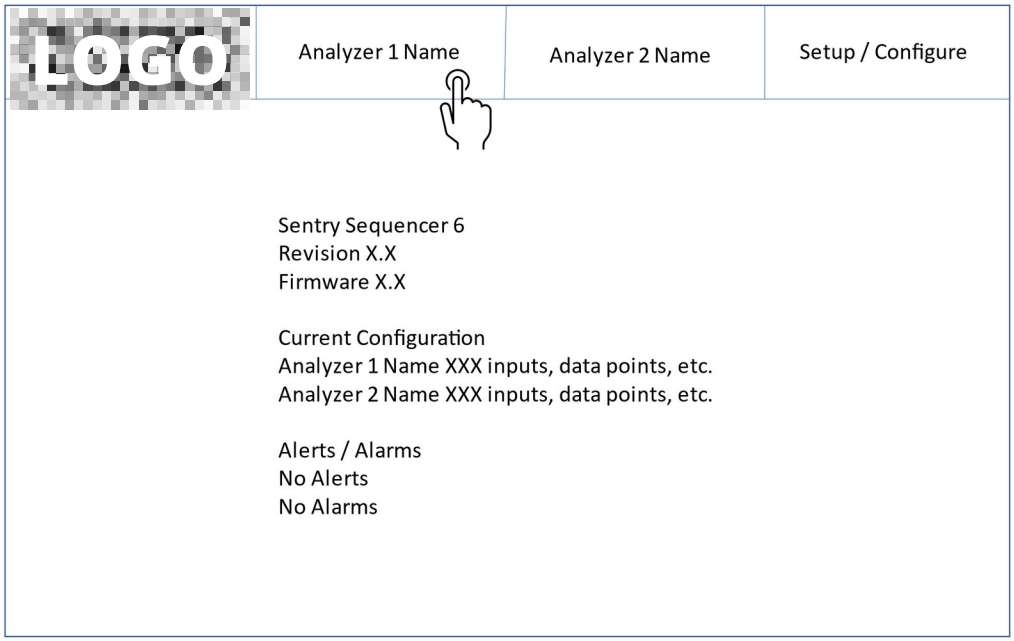
The initial page shall have the following:

1. Password entry to allow navigation away from initial screen:

a. No username / user setup.

b. WITHHELD as default password

c. Password is disabled by default, and configurable from the Setup/Configure menu.



The Initial page Shall have the following:

2. The following information within the top bar:

a. Sentry Logo

i. Acts as a back button on any internal screen back to the Initial Setup Screen

b. Each Sequence within a device is organized within tabs.

i. Each tab should have the analyzer name.

c. Setup/ Configure Tab

3. The following information within the content pane:

a. Basic name of each product connected i.e. 'WITHHELD Sequencer 6'

i. Each sequence should be nested under the device performing said sequence.

b. Revision 'X.X'

c. Firmware 'X.X'

The Initial page Should have the following:

d. Current Configuration

i. Sequence 1 basic information and overview

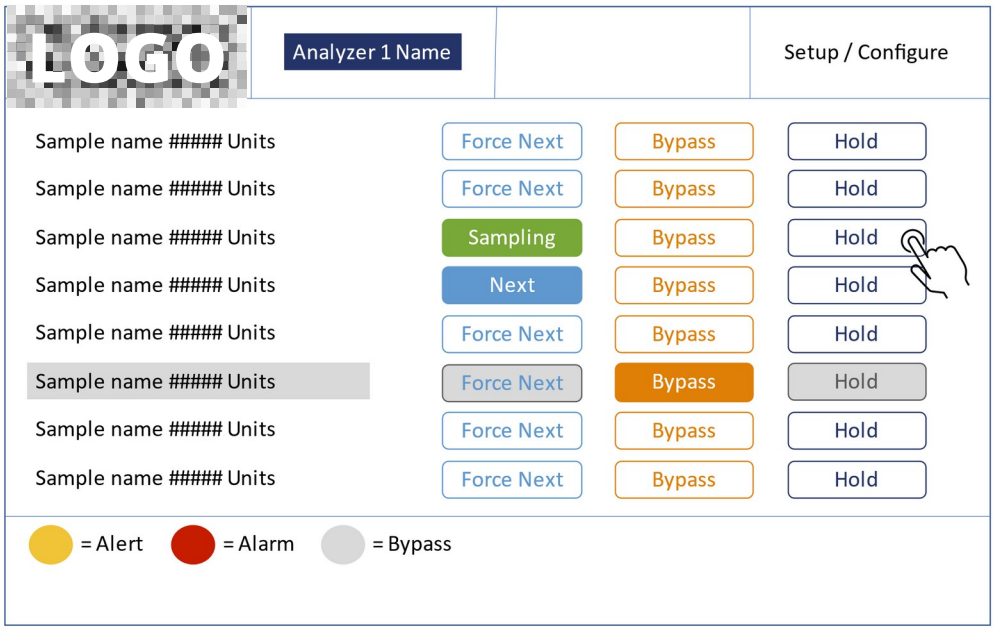
ii. Sequence 2 basic information and overview

The Initial page Shall have the following:

e. Alerts or alarms from any sequence

SEQUENCING SOLUTION STANDARD DISPLAY

The standard display for a Sequencing solution shall be like the proposed page below:



The sequencing display shall support up to 16 sample lines.

The sequencing display shall support the following functions to interact with the sequencing controller.

1. Sampling / Force Next / Next button
   a. This button indicates which line is currently being sampled, which line is next, and allows the user to force a different sample as the next sample.
   b. This behavior is communicated down to the CPU board via a WITHHELD API which controls the behavior of the sequence.
2. Bypass
   a. This button allows the user to set a sample to bypass. When bypassed a sample will be skipped until the bypass button or setting is removed.
3. Hold
   a. This button allows a user to select a line for continuous sample
   b. A timeout setting should be included in the configuration menu of the sequencing device.

The sequencing display shall support indicating the following changes in sampling behavior:

1. Alert
   a. An alert is indicated by the Sequencing CPU when a sample / analyzer is indicating calibration
2. Alarm
   a. An alarm is indicated by the Sequencing CPU when a sample / analyzer is indicating an alarm

3. Bypass

a. A sample is bypassed when the user sets the bypass mode. The name, value, units, and buttons should be greyed out to provide indication of the bypass state.

For additional information on button functionality reference slides 6-13 within the “Seq6 Mock Up.ppt”.

SEQUENCING SETUP DISPLAY

The Setup page shall have the following:

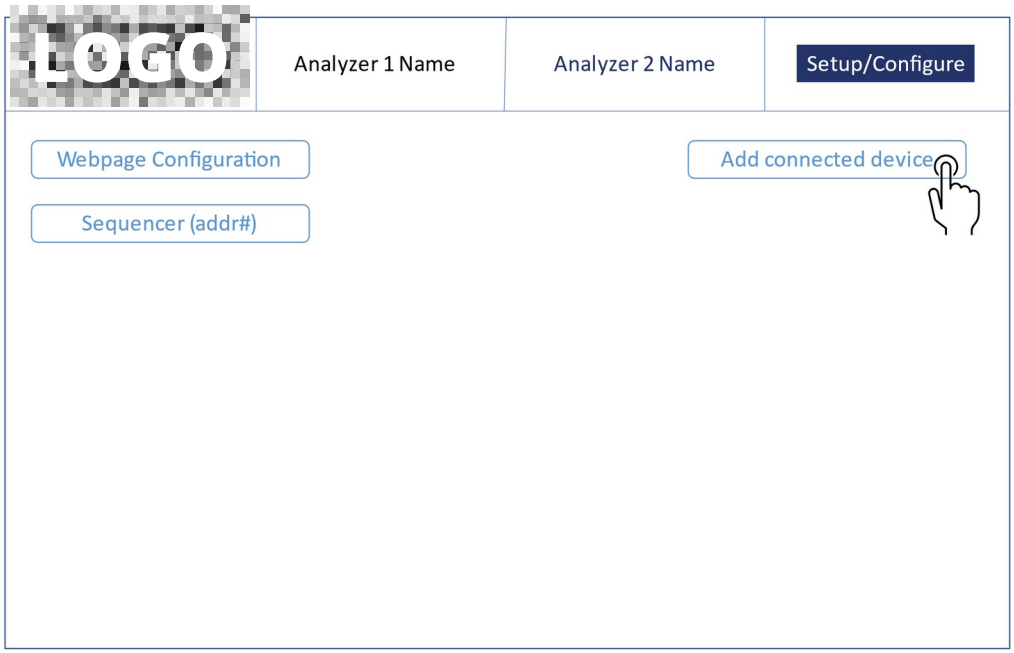
1. Set up and configuration for the webpage on Excoms board
2. Set up and configuration for the Sequence(s) for connected analyzers

The menu order within this section shall be:

1. Define sequencing config
a. This represents the number of sequences within the connected device
    1. After selecting the number of sequences then select the number of samples
2. Configure analyzers (loop through # defined above)
a. Name them
b. Create timings
c. Create curve points
3. Configure sources
a. Name them
b. Define sequence

The below are some slides on how the Sequence configuration should navigate

The following slides are represented in the power point with 16-21



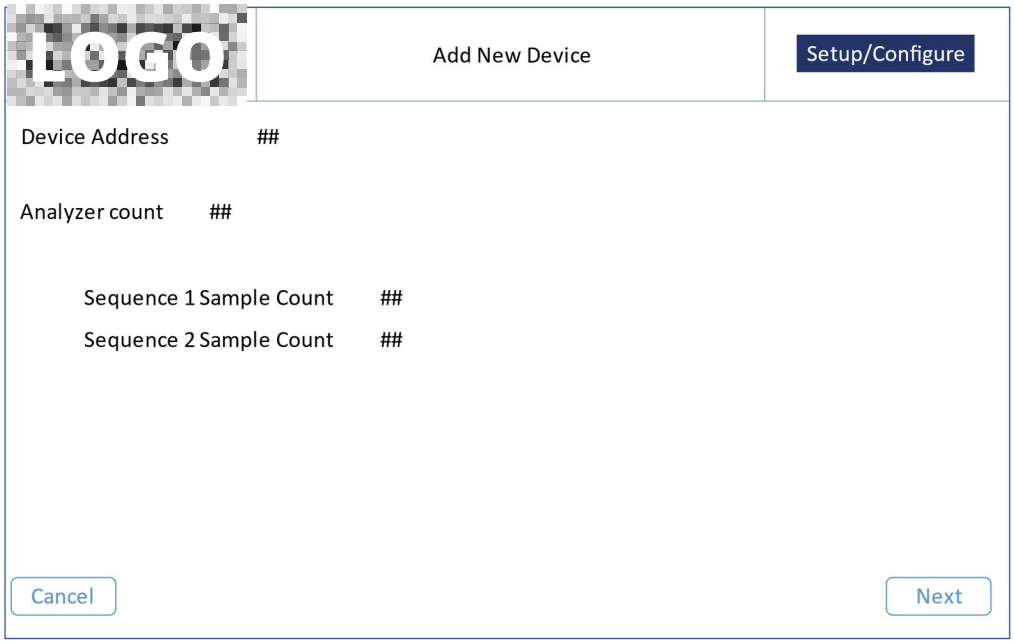
All buttons shall show a depressed state upon interaction

The webpage configuration button would contain the necessary configure screens for the deliverables within the General section (above).

When ‘Add Connected Device’ is completed the device shall appear as a button underneath the ‘Webpage Configuration’ as a new button labeled “Sequencer #” as seen above.

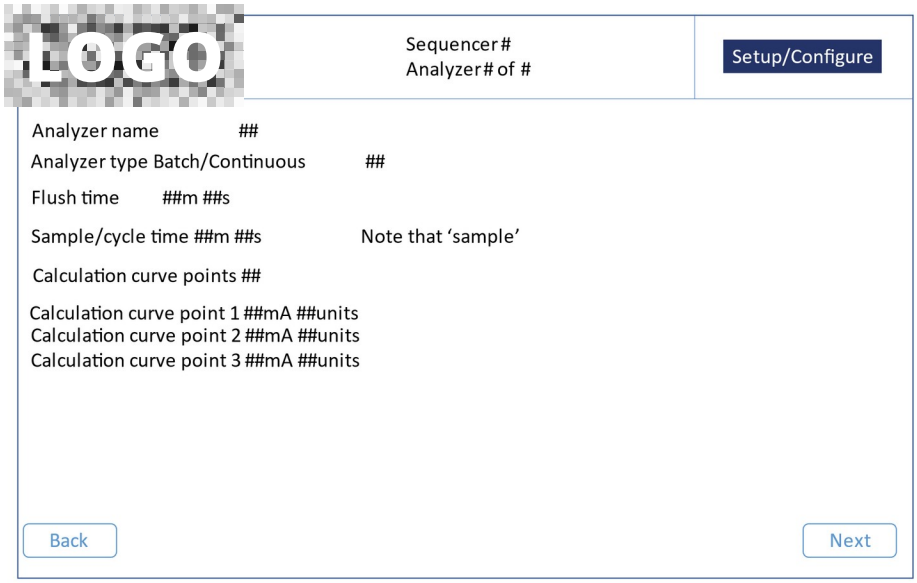
1. The # represents the device address as dictated by the dip switches on the device.

INITIAL DEVICE SETUP

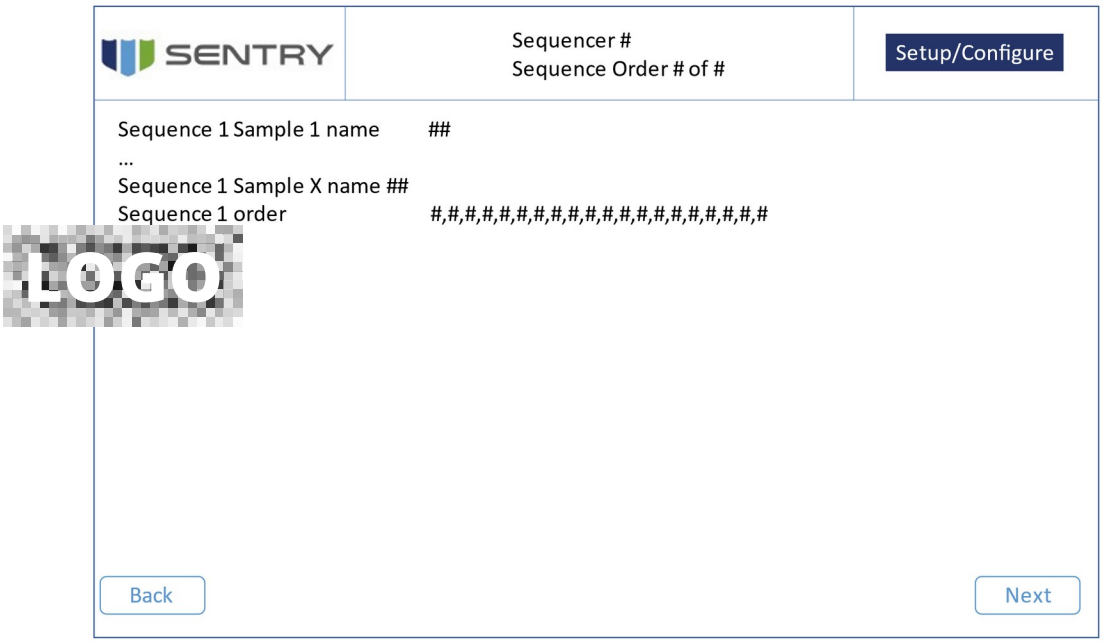


1. device address is editable only from the CPU board
   a. The dip switches on the cpu board indicate the address.
2. analyzer count is how many analyzers are being sequenced by the cpu board
   a. i.e. An analyzer count of 1 would result in 1 sequence sample count being displayed. If there were 2 analyzers then both sequence sample count 1, 2 would be displayed and editable etc.
   b. sequence sample count has a max value of 16
   c. analyzer count has a max value of 4
3. when next is pressed then it shall navigate to the following screen below
4. if cancel is pressed the screen navigation shall return to the initial setup screen selection page. And device creation is cancelled.

CONFIGURATION OF SEQUENCES



5. the sequencer number AND ANALYZER # out of # heads the page
    a. this is to represents which CPU board is getting configurating as well as which analyzer out of the total amount is being configured
6. an editable analyzer name.
a. Max character count is 16.
7. Analyzer specification between batch and continuous
8. an editable flush time in min and seconds
9. an editable sample or cycle time based upon Analyzer type
a. note: that 'sample' is for continuous, and 'cycle' is for batch for clarification
10. number of calculation curve points for scaling
a. based upon that number either 2 or three curve points would appear below
b. that would allow the scaling from mA to units would be specified
11. back would take you to the previous screen and next would take you to the following page



12. the sequencer number AND SEQUENCE order # out of # heads the page
    a. this is to represents which CPU board is getting configurating as well as which sequence order for each Sequencer is being configured based upon how many analyzers there are
13. the number of sequence sample names appear and editable
    a. this is dictated by the number of sequence sample count previously in the configuration setup
14. next the sequence order is editable for a maximum of 16 values but not privy to the maximum value.
a. ie the order could be 1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1
    1. in the first case the loop could loop through 1 16 times and circle back to sample 1
b. or the order could be 1,2,3,4
    1. in the second case the cycle would sample 1,2,3,4 and circle back to sample one leaving sample sequence order positions 5-16 empty.
15. If there are multiple analyzers and sequences enabled from the initial device setup, then the next button would return to Configuration of sequences page for the next analyzer and the pages following step 5.
a. If there are no more analyzers and sequences to be configured, then next would take the user to the initial setup/configure page

LIMITATIONS

1. STM32H750 has limited flash memory available for programming.
a. This will likely mean implementation of a bootloader is required.
b. Code to load from QSPI into flash for operation.
2. Due to the ExComms, not having connection to the internet the certificate when using HTTPS cannot be verified. Therefore, user will always see a warning when using HTTPS to connect to the web interface.