Test Plan and Procedure – P3.3

ECE 3740 – Ken Ferens – Fall 2017

Assignment 3.3

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November 3, 2017

TABLE OF CONTENTS

1. INTRODUCTION

1.1 Purpose of the Test Plan Document

This document tests whether the program to toggle LEDs and monitor push buttons on the MX7CK board works by connecting to a TCP/IP server on the board through a Java GUI client, and using the client to interface with the board.

2. TESTING

2.1 Test Plan and Cases

Item to Test	Test Description	Test Date	Responsibility
Server Connection	Verify that the Java client connects to the local MX7CK TCP/IP server.		Daniel Lovegrove
LED Toggle and PB Monitor Functionality.	Verify that the client can issue commands through the GUI to the server. The board should respond by turning LEDs on/off and returning the state of the push buttons.		Daniel Lovegrove
Disconnect Functionality.	Disconnect from the server, connect to it, the quit.		Daniel Lovegrove

2.2 Test Procedures

2.2.1 Server Connection

Prerequisites: Be using a Windows machine with Netbeans IDE, MPLAB X, XC32 compiler and the PIC32 peripheral libraries installed. You must have the project files downloaded, and an MX7CK board with a micro USB cable and Ethernet cable.

Instruction	P/F
1. Using the file explorer GUI, copy the folder P3.3 to C:\tmp\P3.3	
2. Connect the MX7CK board to your computer with a micro USB cable and Ethernet cable. The small end of the USB should be plugged into the DEBUG port. The Ethernet cable should be connected between the board and the computer. Turn the board ON	
3. Open MPLAB X IDE by clicking its icon.	
4. In MPLAB X, click File->Open Project. Using the file explorer that was opened, open the project at C:\tmp\P3.3\MX7CKServer\TCPIP\”Demo App”\XC32-PIC32_ETH_SK_ETH795.X	

5. Once the project is open, in MPLAB X click Debug->Debug Project. This will load the project onto the board. If a dialogue pops up for “Licensed Debugger not Found,” click CerebotMX7CK under Licensed Debugger and click OK.	
6. Verify that the MX7CK server is running, wait no more than fifteen seconds for LED1 on the board to start blinking. When LED1 is blinking, the server is running.	
7. Open the Netbeans IDE. Click File -> Open Project. Using the file explorer that Netbeans just opened, navigate to the P3.3 folder and open the “Client” project.	
8. Press F6 to run the Client application. Verify that a GUI window was opened.	
9. Using the Java GUI window, click Connect.	
10. Verify that the output window responded with: Client connected to server on port 7777. The Client is now connected to the server.	

2.2.2 LED Toggle and PB Monitor Functionality

Prerequisites: Have completed test case 2.2.1, and server is still running with client connected.

Instruction	P/F
1. Using the Client GUI, click the LED2 check box. Verify that LED2 is now on, and that the server sent a message saying LED2 is on. Deselect the LED2 check box. Verify that LED2 is now off, and that the server sent a message saying LED2 is off.	
2. Using the Client GUI, click the LED3 check box. Verify that LED3 is now on, and that the server sent a message saying LED3 is on. Deselect the LED3 check box. Verify that LED4 is now off, and that the server sent a message saying LED3 is off.	
3. Using the Client GUI, click the LED4 check box. Verify that LED4 is now on, and that the server sent a message saying LED4 is on. Deselect the LED4 check box. Verify that LED4 is now off, and that the server sent a message saying LED4 is off.	
4. Without pressing any buttons on the MX7CK board, using the Client GUI press the BTN1 button. Verify that in the output window it says BTN1 is NOT pressed. Now, while holding BTN1 down on the board, click the BTN1 button on the GUI. Verify in the output window that the server responded that BTN1 is pressed.	
5. Without pressing any buttons on the MX7CK board, using the Client GUI press the BTN2 button. Verify that in the output window it says BTN2 is NOT pressed. Now, while holding BTN2 down on the board, click the BTN2 button on the GUI. Verify in the output window that the server responded that BTN2 is pressed.	
6. Without pressing any buttons on the MX7CK board, using the Client GUI press the BTN3 button. Verify that in the output window it says BTN3 is NOT pressed. Now, while holding BTN3 down on the board, click the BTN3 button on the GUI. Verify in the output window that the server responded that BTN3 is pressed.	

2.2.3 Server Disconnect Functionality

Prerequisites: Have completed all previous tests, and make sure the client is still connected to the server.

Instruction	P/F
1. Verify that the client can disconnect. Click the disconnect button on the GUI. The output window should say “Disconnect acknowledged.” then “Client disconnected from server on Port 7777”	
2. Verify that the client can reconnect. Click the connect button on the GUI. The output window should say “Client connected to server on Port 7777”	
3. Verify that the client can quit. Press the red quit button. The client window should close almost immediately. This means the Client disconnected from the server and then quit.	
4. Close Netbeans, stop the debugger in MPLAB X, close MPLAB X, disconnect MX7CK board, then optionally, remove the folder C:\tmp\3.3 .	

3. TEST PLAN APPROVAL

The undersigned acknowledge they have reviewed the P3.3 Test Plan and Procedure document and agree with the approach it presents. Any changes to this Requirements Definition will be coordinated with and approved by the undersigned or their designated representatives.

Signature (TA) _____ Date: _____

Print Name: _____

Title: _____

Role: _____

4. REFERENCES

K. Ferens, “ECE 3740 Systems Engineering Principles 1,” 15 September 2001. [Online]. Available: http://ece.eng.umanitoba.ca/undergradutate/ECE3740/. [Accessed 17 September 2017].