CPE301 – SPRING 2019

Design Assignment DA3A

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Directory: subnission\_da/DA3A

Submit the following for all Labs:

1. In the document, for each task submit the modified or included code (only) with highlights and justifications of the modifications. Also, include the comments.
2. Use the previously create a Github repository with a random name (no CPE/301, Lastname, Firstname). Place all labs under the root folder ESD301/DA, sub-folder named LABXX, with one document and one video link file for each lab, place modified asm/c files named as LabXX-TYY.asm/c.
3. If multiple asm/c files or other libraries are used, create a folder LabXX-TYY and place these files inside the folder.
4. The folder should have a) Word document (see template), b) source code file(s) and other include files, c) text file with youtube video links (see template).

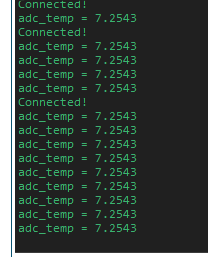
1. **COMPONENTS LIST AND CONNECTION BLOCK DIAGRAM w/ PINS**

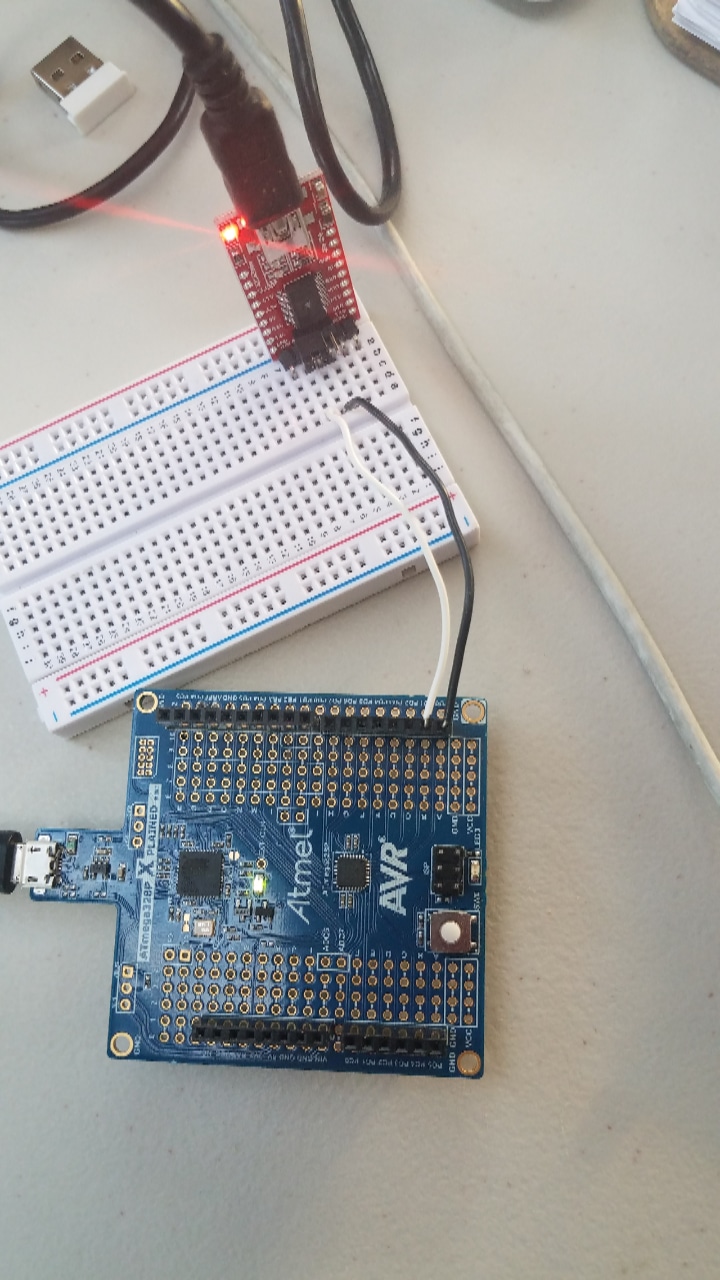
Atmel Studio 7, ATmega328p Xplained mini, FTDI chip, breadboard, two wires, two usb cables.

1. **INITIAL/MODIFIED/DEVELOPED CODE OF TASK 1/A**
2. #define F\_CPU 16000000UL
3. #include <avr/io.h>
4. #include <util/delay.h>
5. #include <stdio.h>
6. #define BAUDRATE 9600
7. #define BAUD\_PRESCALLER ( (F\_CPU /BAUDRATE/16UL) - 1)
8. // Function Declarations
9. void USART\_init( unsigned int ubrr );
10. void USART\_tx\_string( char \*data );
11. //volatile float adc\_temp = 7.2543;
12. char outs[20];
13. int main(void)
14. {
15. float adc\_temp = 7.2543;
16. USART\_init(BAUD\_PRESCALLER); // Initialize the USART
17. USART\_tx\_string("Connected!\r\n"); // we're alive!
18. \_delay\_ms(125); // wait a bit
19. while(1)
20. {
21. sprintf(outs, "adc\_temp = %.4f\r\n", adc\_temp);
22. USART\_tx\_string(outs); //
23. \_delay\_ms(2000); // wait a bit
24. }
25. }
26. /\* INIT USART (RS-232) \*/
27. void USART\_init( unsigned int ubrr )
28. {
29. UBRR0H = (unsigned char)(ubrr>>8);
30. UBRR0L = (unsigned char)ubrr;
32. /\* Enable UART receiver and transmitter \*/
33. UCSR0B = ((1<<RXEN0) | (1<<TXEN0) | (1<<RXCIE0));
34. UCSR0C = (1<<UCSZ01)|(1<<UCSZ00); //asynchronous 8 N 1
35. }
36. /\* SEND A STRING TO THE RS-232 \*/
37. void USART\_tx\_string( char \*data )
38. {
39. while ((\*data != '\0'))
40. {
41. while (!(UCSR0A & (1 <<UDRE0)));
42. UDR0 = \*data;
43. data++;
44. }
45. }
46. **schematic**

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1. **SCREENSHOTS OF EACH TASK OUTPUT (ATMEL STUDIO OUTPUT)**

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1. **VIDEO LINKS OF EACH DEMO**

<https://www.youtube.com/watch?v=im-KEXSaeeg>

1. **GITHUB LINK OF THIS DA**

<https://github.com/mendos1/subnission_da>

**Student Academic Misconduct Policy**

<http://studentconduct.unlv.edu/misconduct/policy.html>

“This assignment submission is my own, original work”.

NAME OF THE STUDENT