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

* Xplained mini
* Usb
* FDTI chip

1. **INITIAL/MODIFIED/DEVELOPED CODE OF TASK 1/A**

/\*

\* DA3A\_Task1.c

\*

\* Created: 3/27/2019 1:46:32 PM

\* Author : perezr1

\*/

#define BAUD 9600

#define *F\_CPU* 16000000UL

#include <avr/io.h>

#include <stdio.h>

#include <util/delay.h>

#include <avr/interrupt.h>rr

//////////////////////////// Declare functions////////////////

void USART\_send(char data);

void USART\_putstring(char\* StringPtr);

void USART\_init(void);

///////////////////////////////////////////////////////////////

char String[] = "Ricky Perez DA3A!!"; //String[] is the variable to output into terminal

char outs[20]; // contains up to 19 characters in the array.

volatile float adc\_temp = 79.95; // my birthday MonDay.Year

int main(void)

{

TCCR1B = 5; // 1024 prescaler

TIMSK1 = (1<<TOIE1); // enable Overflow Interrupt in the Interrupt Mask Register

TCNT1 = 49911; // 65535-15624

USART\_init();// calls function

sei();// enable interrupt

while(1)

{

// main loop

}

}

ISR (TIMER1\_OVF\_vect)

{

USART\_putstring(String); // prints string

USART\_putstring("\n"); // create a new line.

USART\_send('7'); // In decimal its 55. also my birth month :D

USART\_putstring("\n"); // create a new line.

*snprintf*(outs, sizeof(outs), "%f\r\n", adc\_temp); // the floating point characters are stored in outs

USART\_putstring(outs); // transmits outs to UART

TCNT1 = 49911; // reset

}

void USART\_init( void )

{

UBRR0H = 0; //USART Baud Rate Register high

UBRR0L = *F\_CPU*/16/BAUD - 1;// USART Baud Rate Register low: BAUD prescaler

UCSR0C = \_BV(UCSZ01) | \_BV(UCSZ00); /\* 8-bit data \*/

UCSR0B = \_BV(RXEN0) | \_BV(TXEN0); /\* Enable RX and TX \*/

}

void USART\_send(char data) // sends data/ integer

{

while (!(UCSR0A & (1 << UDRE0)));//USART Control and Status Register & ?USART Data Register Empty

UDR0 = data;

}

void USART\_putstring(char \*StringPtr) // prints strings in terminal

{

while ((\*StringPtr != '\0')){

while (!(UCSR0A & (1 << UDRE0)));

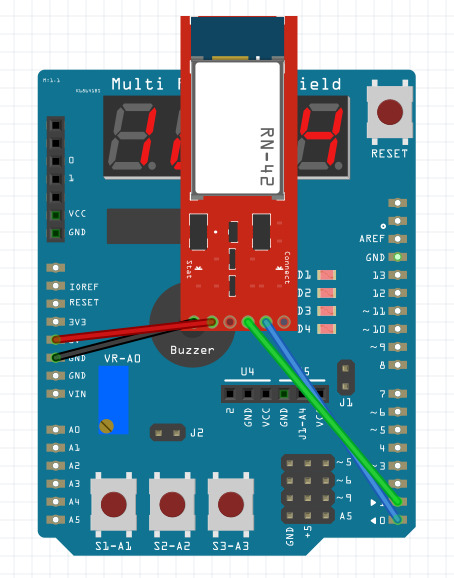
UDR0 = \*StringPtr;

StringPtr++;

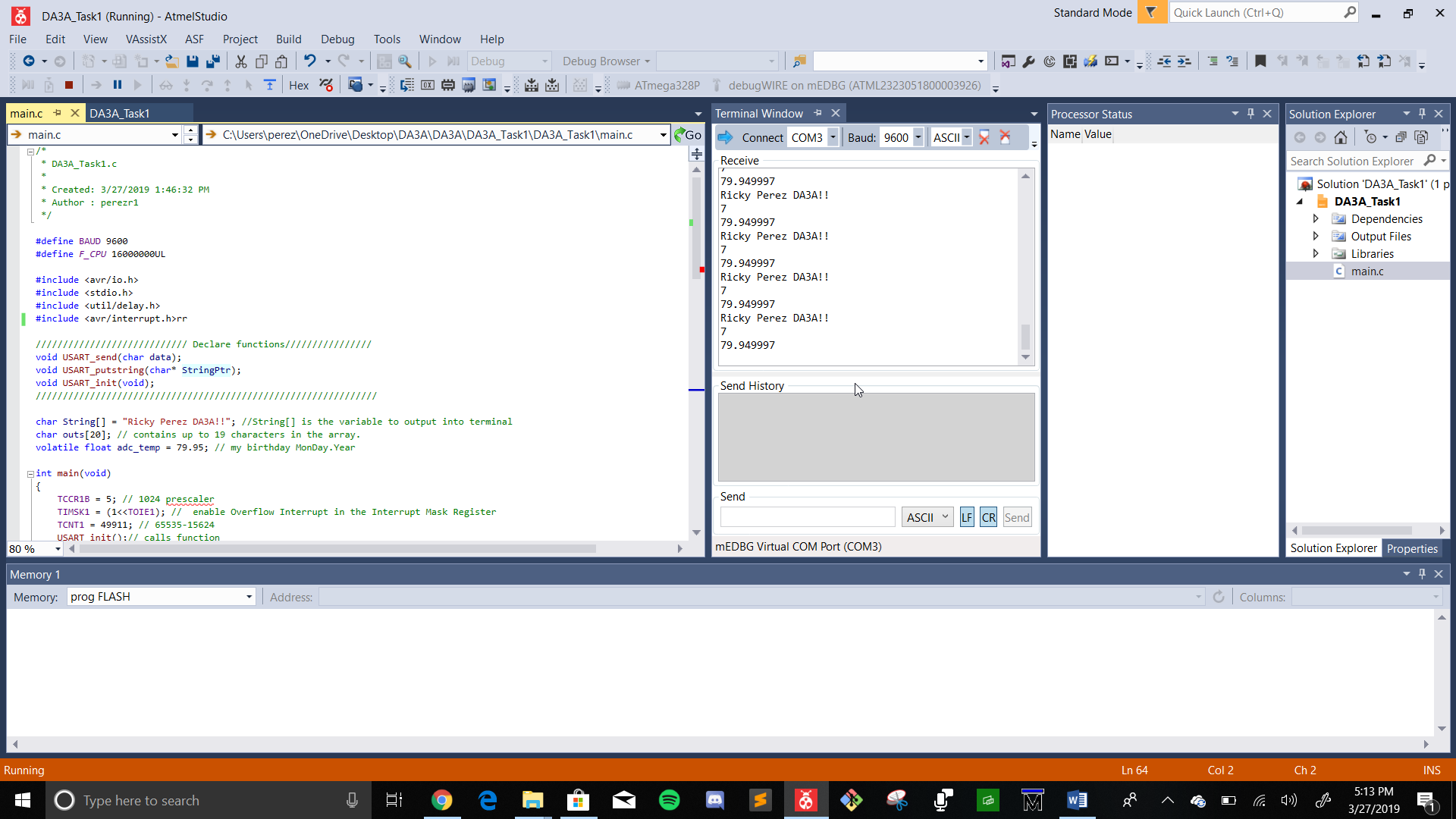
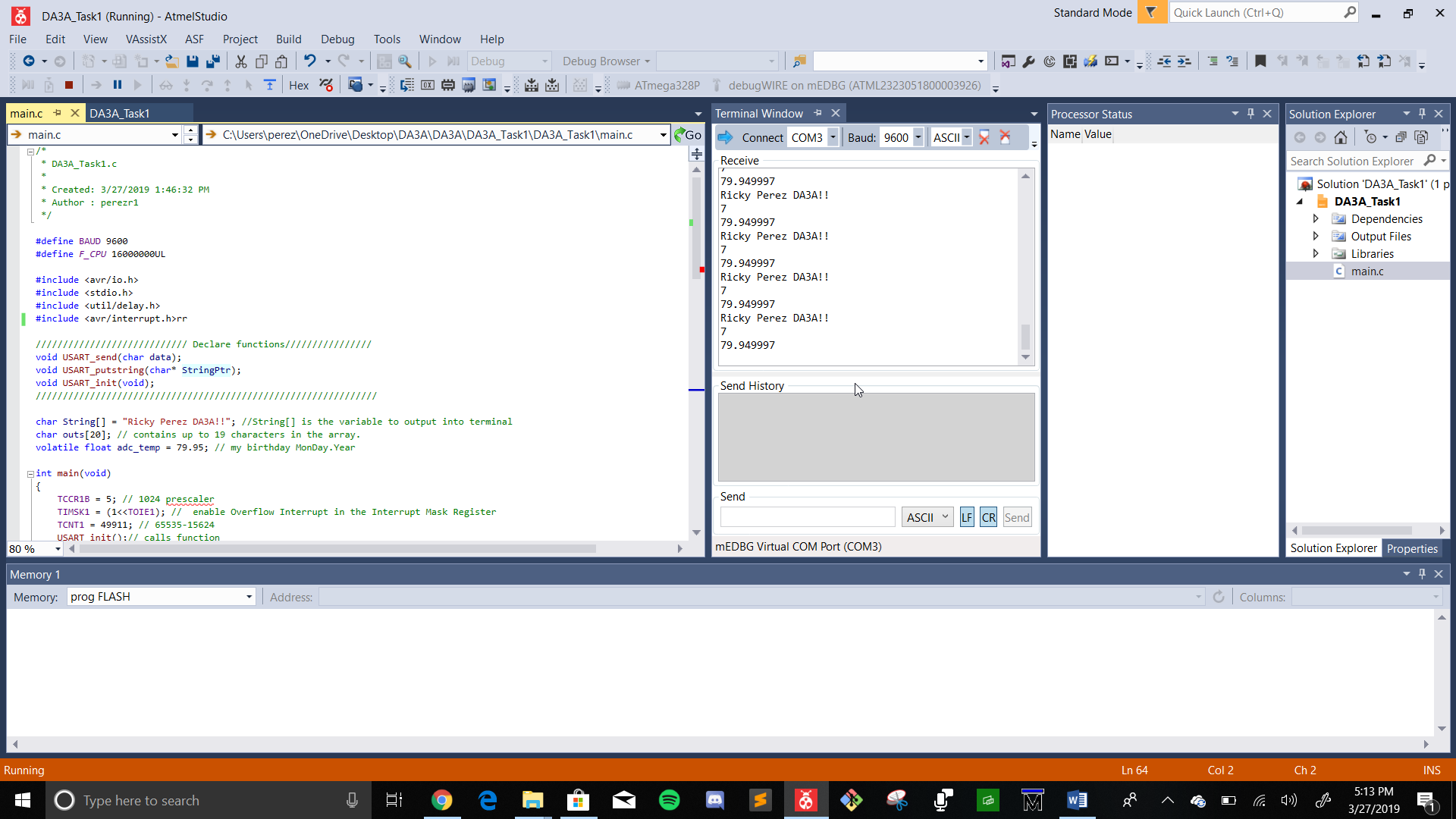
}

}

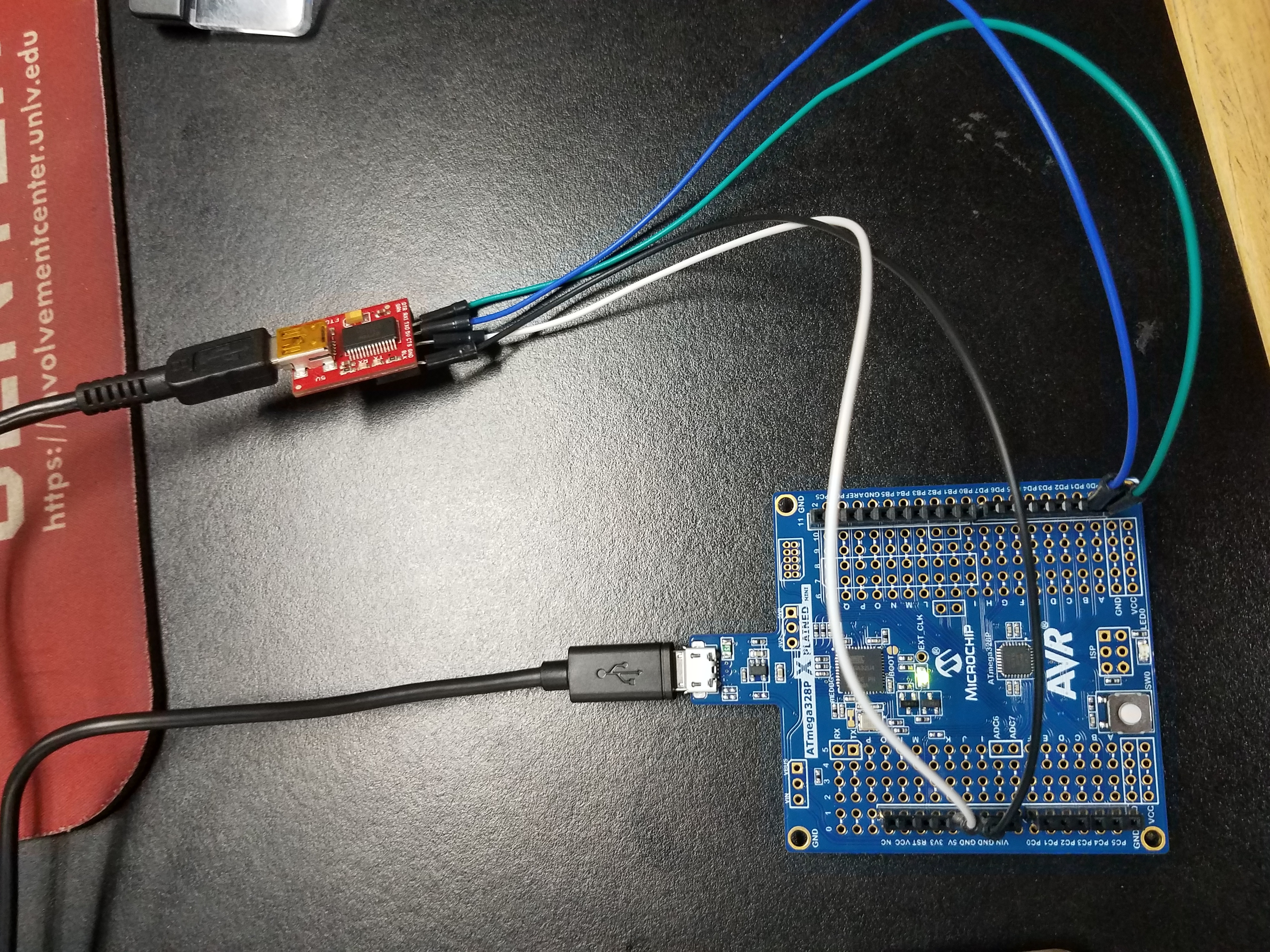
1. **SCHEMATICS**



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



1. **SCREENSHOT OF EACH DEMO (BOARD SETUP)**



1. **VIDEO LINKS OF EACH DEMO**

<https://youtu.be/_BMCoUl0NbQ>

1. **GITHUB LINK OF THIS DA**

<https://github.com/RickyPerez79/submission_da.git>

**Student Academic Misconduct Policy**

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

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

RICKY PEREZ