Desi Battle

CPE301 – SPRING 2016

Design Assignment 4

**DO NOT REMOVE THIS PAGE DURING SUBMISSION:**

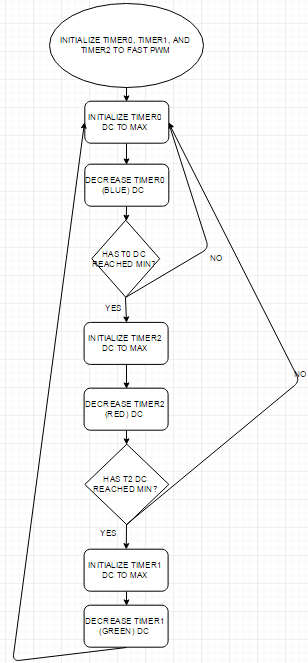
The student understands that all required components should be submitted in complete for grading of this assignment.

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| --- | --- | --- | --- |
| **NO** | **SUBMISSION ITEM** | **COMPLETED (Y/N)** | **MARKS**  **(/MAX)** |
| 0. | COMPONENTS LIST AND Flowchart |  |  |
| 1. | INITIAL CODE OF TASK 1/A |  |  |
| 2. | SCHEMATICS |  |  |
| 4. | SCREENSHOT OF EACH DEMO |  |  |
| 5. | VIDEO LINKS OF EACH DEMO |  |  |
| 6. | GOOGLECODE LINK OF THE DA |  |  |
|  |  |  |  |
|  |  |  |  |

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| --- | --- | --- | --- |
| 0. | COMPONENTS LIST AND FlowChart |  |  |

RGB LED

Atmega328P



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| --- | --- | --- | --- |
| 1. | INITIAL CODE OF TASK 1/A |  |  |

/\*

\* DA4.c

\*

\* Created: 4/8/2016 7:01:29 PM

\* Author: battled

\*/

#define F\_CPU 8000000UL

#include <util/delay.h>

#include <avr/io.h>

#define DEL 5

int main(void)

{

//configure timer0; set up fast pwm TOP = OCRA;

//inverting mode OC0B (set on match, clear at BOTTOM)

//use OCRA for frequency changes, OCRB for duty cycle

TCCR0A = (0<<COM0A1)|(0<<COM0A0)|(1<<COM0B1)|(1<<COM0B0)|(1<<WGM01) | (1<<WGM00);

TCCR0B = (0<<FOC0A )|(0<<FOC0B) |(1<<WGM02) |(0<<CS02) |(0<<CS01) | (1<<CS00);

//configure timer1

TCCR1A = (0<<COM1A1)|(0<<COM1A0)|(1<<COM1B1)|(1<<COM1B0)|(1<<WGM11)|(1<<WGM10);

TCCR1B = (0<<ICNC1) |(0<<ICES1) |(1<<WGM13) |(1<<WGM12) |(0<<CS12) |(0<< CS11)|(1<<CS10);

//configure timer2

TCCR2A = (0<<COM2A1)|(0<<COM2A0)|(1<<COM2B1)|(1<<COM2B0)|(1<<WGM21) | (1<<WGM20);

TCCR2B = (0<<FOC2A )|(0<<FOC2B) |(1<<WGM22) |(0<<CS22) |(0<<CS21) | (1<<CS20);

DDRB=0XFF;

DDRD=0xFF;

while(1)

{

for (int r\_freq=225; r\_freq > 25; r\_freq -=25)

{

OCR2A = r\_freq;

for (int b\_freq=225; b\_freq > 25; b\_freq -= 25)

{

OCR0A = b\_freq;

for(int g\_freq=225; g\_freq > 25; g\_freq -= 25)

{

OCR1A = g\_freq;

for(int g\_dc=0; g\_dc <= g\_freq; g\_dc+=15)

{

\_delay\_ms(DEL);

OCR1B = g\_dc;

for (int r\_dc=0; r\_dc <= r\_freq;r\_dc+=9)

{

\_delay\_ms(DEL);

OCR2B = r\_dc;

for (int b\_dc=0; b\_dc <= b\_freq; b\_dc+=2)

{

\_delay\_ms(DEL);

OCR0B = b\_dc;

}

}

}

}

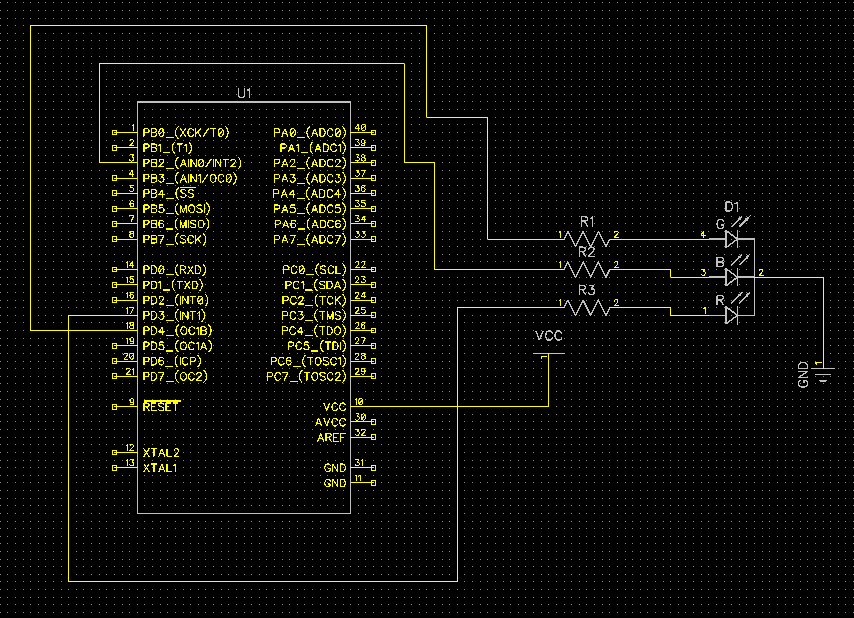
}

}

}

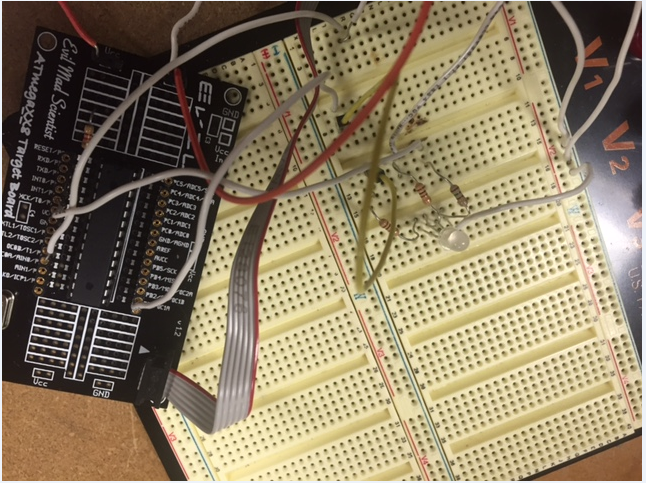
}

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| 2. | SCHEMATICS |  |  |



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| --- | --- | --- | --- |
| 3. | SCREENSHOT OF EACH DEMO |  |  |

New clearer photo coming soon..



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| --- | --- | --- | --- |
| 4. | VIDEO LINKS OF EACH DEMO |  |  |
| https://www.youtube.com/watch?feature=youtube\_gdata\_player&v=LTRjRfcrSY0 | | | |
| 5. | GOOGLECODE LINK OF THE DA |  |  |
| https://github.com/battled/DA1.git | | | |

**Student Academic Misconduct Policy**

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

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

Desi Battle