



Instituto Politécnico Nacional



Escuela Superior de Computo

Materia:

Introducción a los microcontroladores.

Profesor:

Sanchez Aguilar Fernando

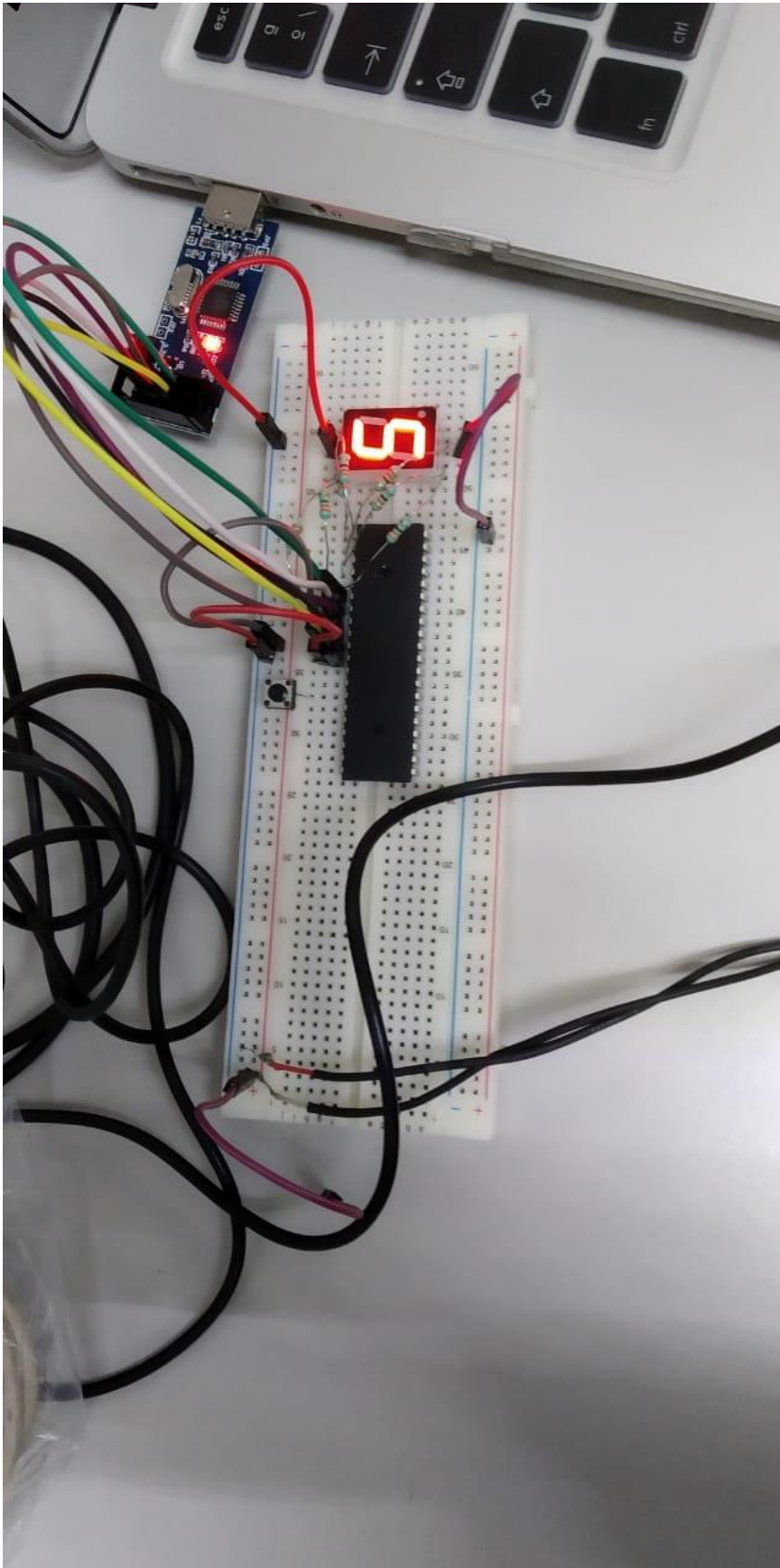
Alumnos:

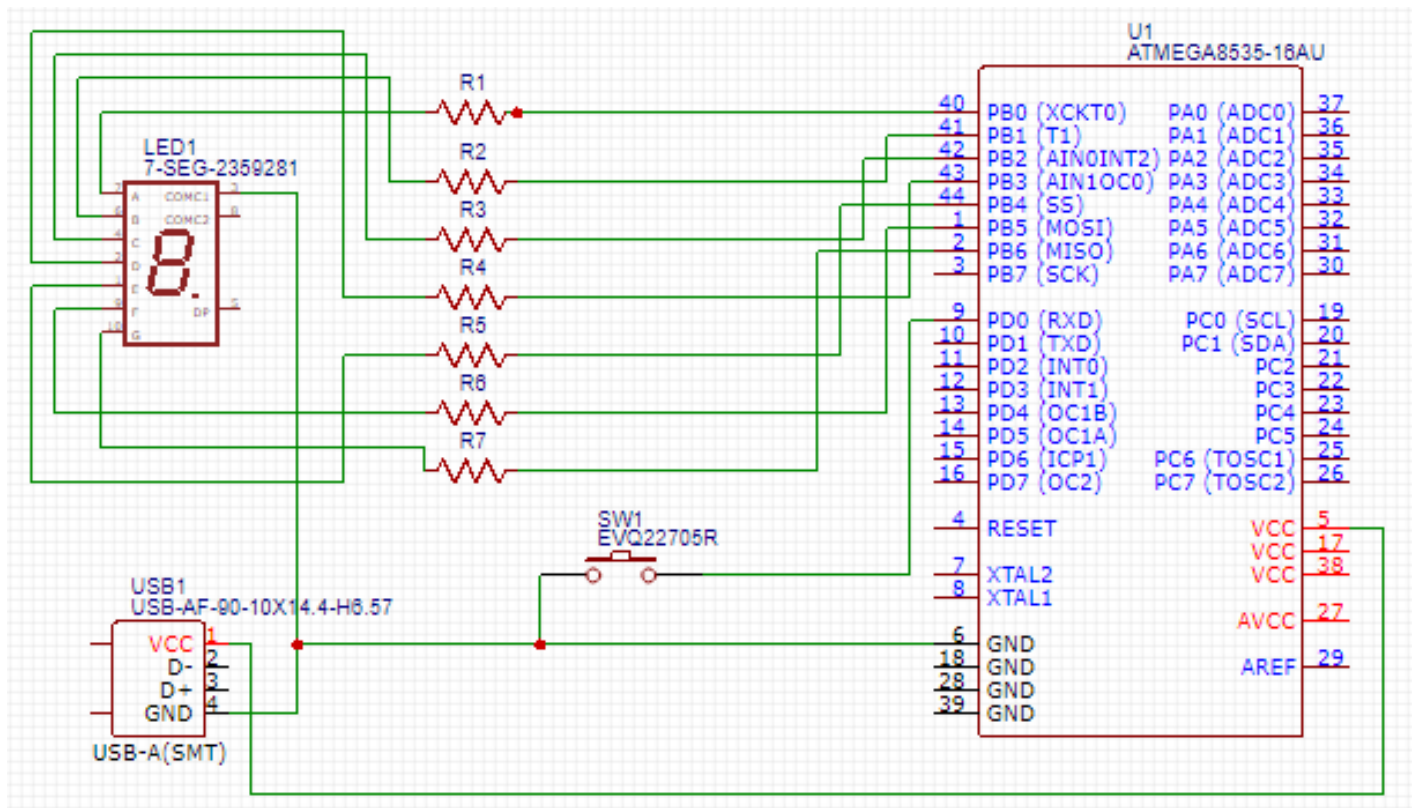
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Practica N°4





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1.
2. /*****
3. This program was created by the
4. CodeWizardAVR V2.60 Evaluation
5. Automatic Program Generator
6. © Copyright 1998-2012 Pavel Haiduc, HP InfoTech s.r.l.
7. http://www.hpinfotech.com
8.
9. Project :
10. Version :
11. Date   : 28/01/2019
12. Author :
13. Company :
14. Comments:
15.
16.
17. Chip type           : ATmega8535L
18. Program type        : Application
19. AVR Core Clock frequency: 1,000000 MHz
20. Memory model        : Small
21. External RAM size    : 0
22. Data Stack size     : 128
23. *****/
24.
25. #include <mega8535.h>

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26. #define boton PIND.0
27. unsigned char var1;
28. const char tabla7segmentos [10]={0x3f,0x06,0x5b,0x4f,0x66,0x6d,0x7d,0x07,0x7f,0x6f
    };
29.
30.
31. // Declare your global variables here
32.
33. void main(void)
34. {
35. // Declare your local variables here
36.
37. // Input/Output Ports initialization
38. // Port A initialization
39. // Function: Bit7=In Bit6=In Bit5=In Bit4=In Bit3=In Bit2=In Bit1=In Bit0=In
40. DDRA=(0<<DDA7) | (0<<DDA6) | (0<<DDA5) | (0<<DDA4) | (0<<DDA3) | (0<<DDA2) | (0<<D
    DA1) | (0<<DDA0);
41. // State: Bit7=T Bit6=T Bit5=T Bit4=T Bit3=T Bit2=T Bit1=T Bit0=T
42. PORTA=(0<<PORTA7) | (0<<PORTA6) | (0<<PORTA5) | (0<<PORTA4) | (0<<PORTA3) | (0<<PO
    RTA2) | (0<<PORTA1) | (0<<PORTA0);
43.
44. // Port B initialization
45. // Function: Bit7=Out Bit6=Out Bit5=Out Bit4=Out Bit3=Out Bit2=Out Bit1=Out Bit0=O
    ut
46. DDRB=(1<<DDB7) | (1<<DDB6) | (1<<DDB5) | (1<<DDB4) | (1<<DDB3) | (1<<DDB2) | (1<<D
    DB1) | (1<<DDB0);
47. // State: Bit7=0 Bit6=0 Bit5=0 Bit4=0 Bit3=0 Bit2=0 Bit1=0 Bit0=0
48. PORTB=(0<<PORTB7) | (0<<PORTB6) | (0<<PORTB5) | (0<<PORTB4) | (0<<PORTB3) | (0<<PO
    RTB2) | (0<<PORTB1) | (0<<PORTB0);
49.
50. // Port C initialization
51. // Function: Bit7=In Bit6=In Bit5=In Bit4=In Bit3=In Bit2=In Bit1=In Bit0=In
52. DDRC=(0<<DDC7) | (0<<DDC6) | (0<<DDC5) | (0<<DDC4) | (0<<DDC3) | (0<<DDC2) | (0<<D
    DC1) | (0<<DDC0);
53. // State: Bit7=T Bit6=T Bit5=T Bit4=T Bit3=T Bit2=T Bit1=T Bit0=T
54. PORTC=(0<<PORTC7) | (0<<PORTC6) | (0<<PORTC5) | (0<<PORTC4) | (0<<PORTC3) | (0<<PO
    RTC2) | (0<<PORTC1) | (0<<PORTC0);
55.
56. // Port D initialization
57. // Function: Bit7=In Bit6=In Bit5=In Bit4=In Bit3=In Bit2=In Bit1=In Bit0=In
58. DDRD=(0<<DDD7) | (0<<DDD6) | (0<<DDD5) | (0<<DDD4) | (0<<DDD3) | (0<<DDD2) | (0<<D
    DD1) | (0<<DDD0);
59. // State: Bit7=P Bit6=P Bit5=P Bit4=P Bit3=P Bit2=P Bit1=P Bit0=P
60. PORTD=(1<<PORTD7) | (1<<PORTD6) | (1<<PORTD5) | (1<<PORTD4) | (1<<PORTD3) | (1<<PO
    RTD2) | (1<<PORTD1) | (1<<PORTD0);
61.
62. // Timer/Counter 0 initialization
63. // Clock source: System Clock
64. // Clock value: Timer 0 Stopped
65. // Mode: Normal top=0xFF
66. // OC0 output: Disconnected
67. TCCR0=(0<<WGM00) | (0<<COM01) | (0<<COM00) | (0<<WGM01) | (0<<CS02) | (0<<CS01) |
    (0<<CS00);
68. TCNT0=0x00;
69. OCR0=0x00;
70.
71. // Timer/Counter 1 initialization
72. // Clock source: System Clock
73. // Clock value: Timer1 Stopped
74. // Mode: Normal top=0xFFFF
75. // OC1A output: Disconnected

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76. // OC1B output: Disconnected
77. // Noise Canceler: Off
78. // Input Capture on Falling Edge
79. // Timer1 Overflow Interrupt: Off
80. // Input Capture Interrupt: Off
81. // Compare A Match Interrupt: Off
82. // Compare B Match Interrupt: Off
83. TCCR1A=(0<<COM1A1) | (0<<COM1A0) | (0<<COM1B1) | (0<<COM1B0) | (0<<WGM11) | (0<<WGM10);
84. TCCR1B=(0<<ICNC1) | (0<<ICES1) | (0<<WGM13) | (0<<WGM12) | (0<<CS12) | (0<<CS11) | (0<<CS10);
85. TCNT1H=0x00;
86. TCNT1L=0x00;
87. ICR1H=0x00;
88. ICR1L=0x00;
89. OCR1AH=0x00;
90. OCR1AL=0x00;
91. OCR1BH=0x00;
92. OCR1BL=0x00;
93.
94. // Timer/Counter 2 initialization
95. // Clock source: System Clock
96. // Clock value: Timer2 Stopped
97. // Mode: Normal top=0xFF
98. // OC2 output: Disconnected
99. ASSR=0<<AS2;
100. TCCR2=(0<<WGM20) | (0<<COM21) | (0<<COM20) | (0<<WGM21) | (0<<CS22) | (0<<CS21) | (0<<CS20);
101. TCNT2=0x00;
102. OCR2=0x00;
103.
104. // Timer(s)/Counter(s) Interrupt(s) initialization
105. TIMSK=(0<<OCIE2) | (0<<TOIE2) | (0<<TICIE1) | (0<<OCIE1A) | (0<<OCIE1B) | (0<<TOIE1) | (0<<OCIE0) | (0<<TOIE0);
106.
107. // External Interrupt(s) initialization
108. // INT0: Off
109. // INT1: Off
110. // INT2: Off
111. MCUCR=(0<<ISC11) | (0<<ISC10) | (0<<ISC01) | (0<<ISC00);
112. MCUCSR=(0<<ISC2);
113.
114. // USART initialization
115. // USART disabled
116. UCSRB=(0<<RXCIE) | (0<<TXCIE) | (0<<UDRIE) | (0<<RXEN) | (0<<TXEN) | (0<<UCSZ2) | (0<<RXB8) | (0<<TXB8);
117.
118. // Analog Comparator initialization
119. // Analog Comparator: Off
120. ACSR=(1<<ACD) | (0<<ACBG) | (0<<ACO) | (0<<ACI) | (0<<ACIE) | (0<<ACIC) | (0<<ACIS1) | (0<<ACIS0);
121. SFIOR=(0<<ACME);
122.
123. // ADC initialization
124. // ADC disabled
125. ADCSRA=(0<<ADEN) | (0<<ADSC) | (0<<ADATE) | (0<<ADIF) | (0<<ADIE) | (0<<ADPS2) | (0<<ADPS1) | (0<<ADPS0);
126.
127. // SPI initialization
128. // SPI disabled

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129.     SPCR=(0<<SPIE) | (0<<SPE) | (0<<DORD) | (0<<MSTR) | (0<<CPOL) | (0<<CPHA)
    | (0<<SPR1) | (0<<SPR0);
130.
131.     // TWI initialization
132.     // TWI disabled
133.     TWCR=(0<<TWEA) | (0<<TWSTA) | (0<<TWSTO) | (0<<TWEN) | (0<<TWIE);
134.
135.     while (1)
136.     {
137.         if(boton==0)
138.             var1++;
139.         if(var1==10)
140.             var1=0;
141.         PORTB=tabla7segmentos [var1];
142.     };
143. }
```