Alan Rodriguez
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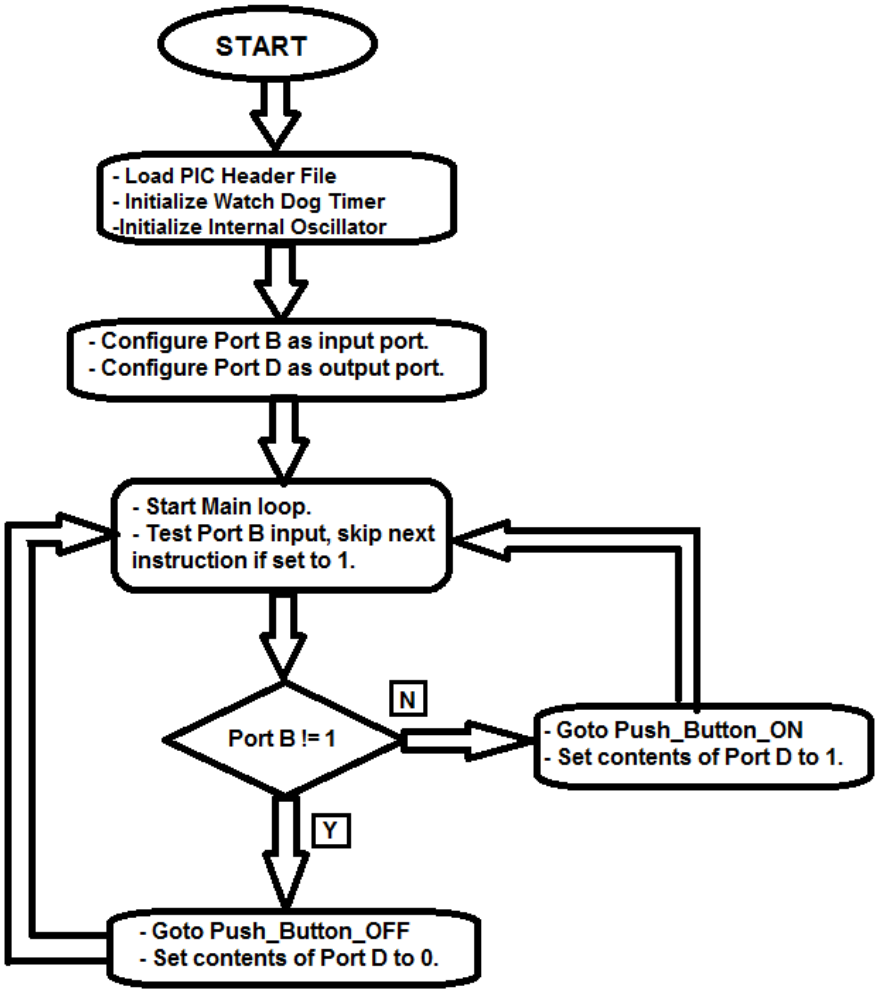
Assignment #1

Problem Description:

The following simple circuit implements a LED light that is controlled by an input supplied by a small push button. The PIC18F4550 microcontroller was used to construct the circuit. Four LEDs are connected to the output pins contained in Port D (RD0-RD3), while the small push button is connected to an input pin contained in Port B (RB0). The assembly code stored in the PIC18F4550 will make the LEDs turn off when the small button is pushed, and turn on when the button is released.

Pseudocode Flow Chart:



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Assembly Code:

```
#include <P18F4550.inc>
   CONFIG WDT=OFF          ; disable watchdog timer
   CONFIG MCLRE = ON       ; MCLEAR Pin on
   CONFIG DEBUG = ON       ; Enable Debug Mode
   CONFIG LVP = OFF        ; Low-Voltage programming disabled (necessary for debugging)
   CONFIG FOSC = INTOSCIO_EC ; Internal oscillator, port function on RA6 ;count equ 0x00
   org 0;
Start:
   CLRF PORTB              ;Clear PORTB
   SETF TRISB              ;Set TRISB to input
   MOVLW B'11111111'
   MOVWF ADCON1
   CLRF PORTD              ;Clear PORTD
   CLRF TRISD              ;Set PORTD to output

MainLoop:
   BTFSS PORTB,0           ;Test bit if set, skip next instruction if not
   goto Push_Button_OFF

Push_Button_ON:
   MOVLW B'11111111'       ;Move literal ‘11111111’ to working register
   MOVWF PORTD             ;Move contents of working register to port D
   goto MainLoop

Push_Button_OFF:
   MOVLW B'00000000'       ;Move literal ‘00000000’ to working register
   MOVWF PORTD             ;Move contents of working register to to port D
   goto MainLoop
 end
```

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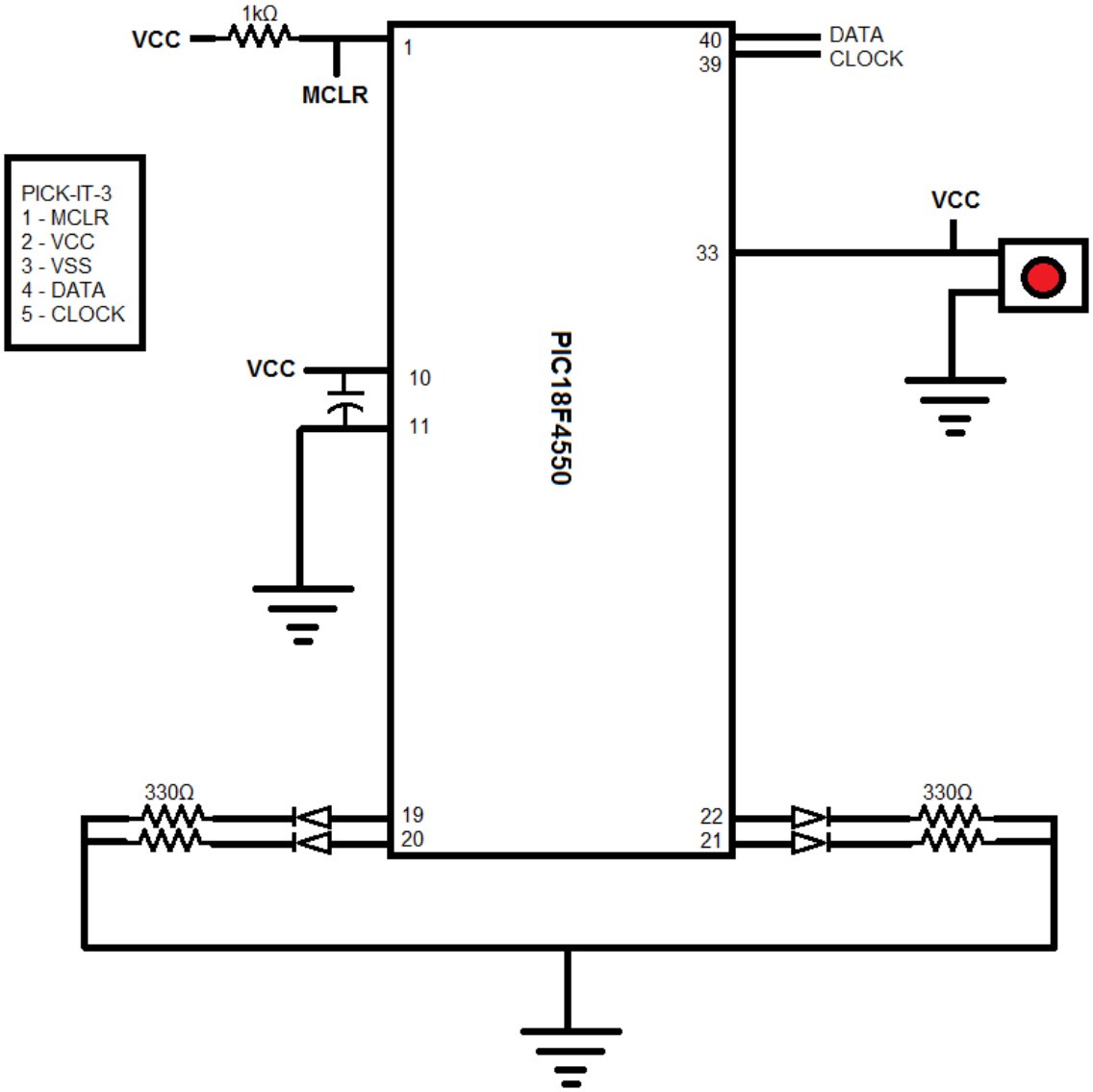
Circuit Diagram:



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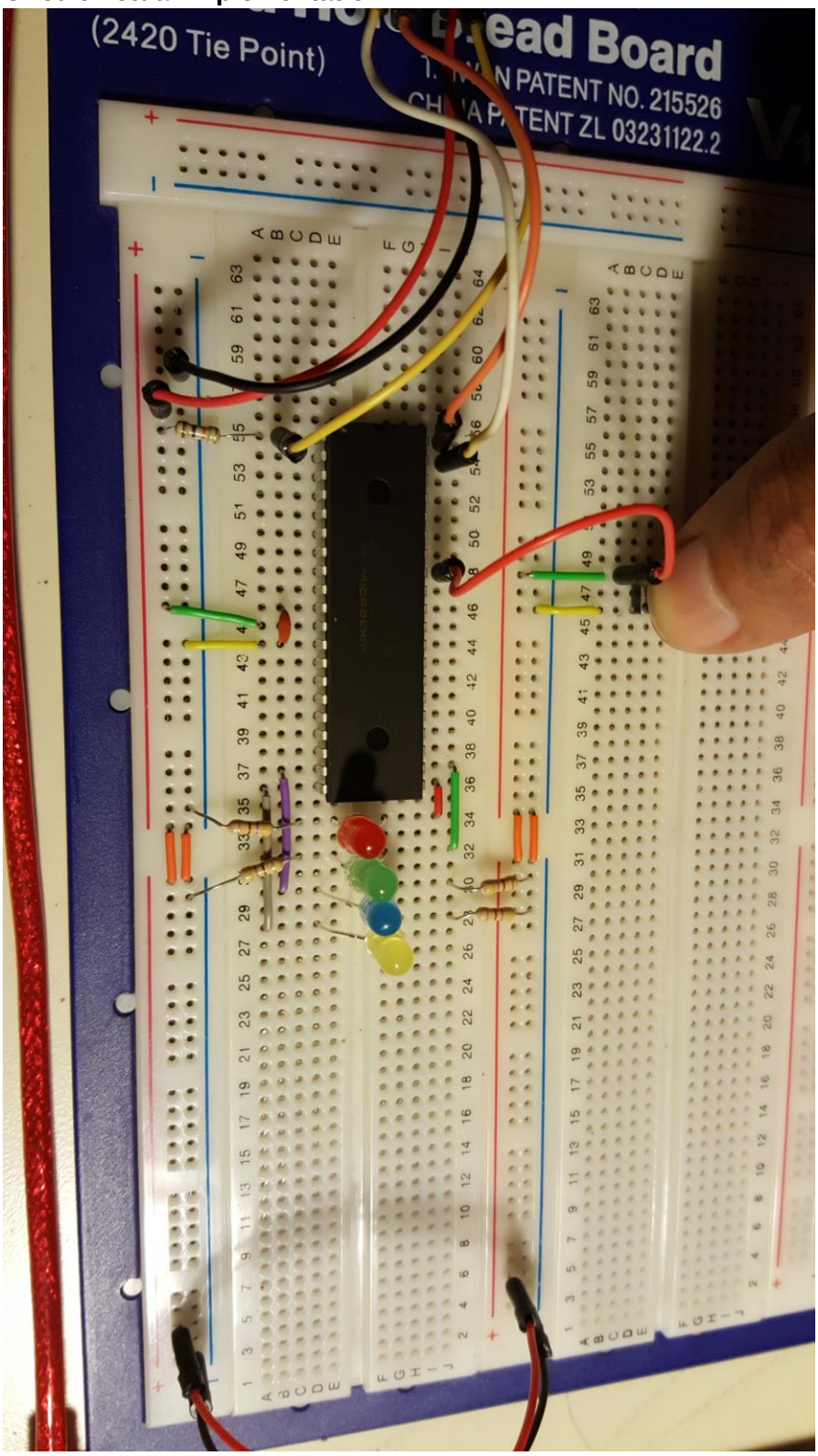
Circuit Actual Implementation:



(Figure 1: button active, PortD LED's off)

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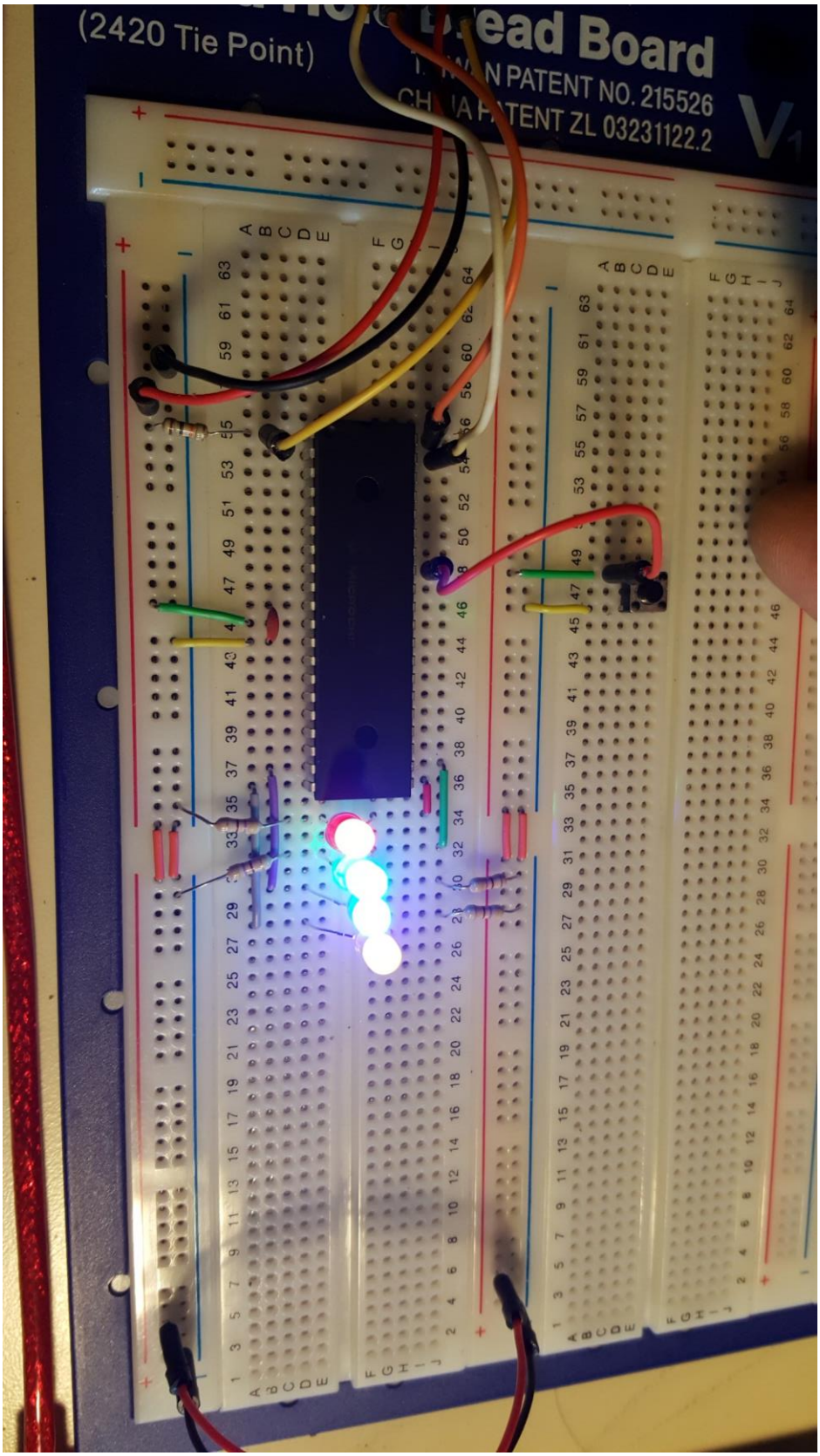

(Figure 2: button released, PortD LEDs on)