BECS 31421
EXPERIMENT 02

Introduction to Input and Output in PIC Programming

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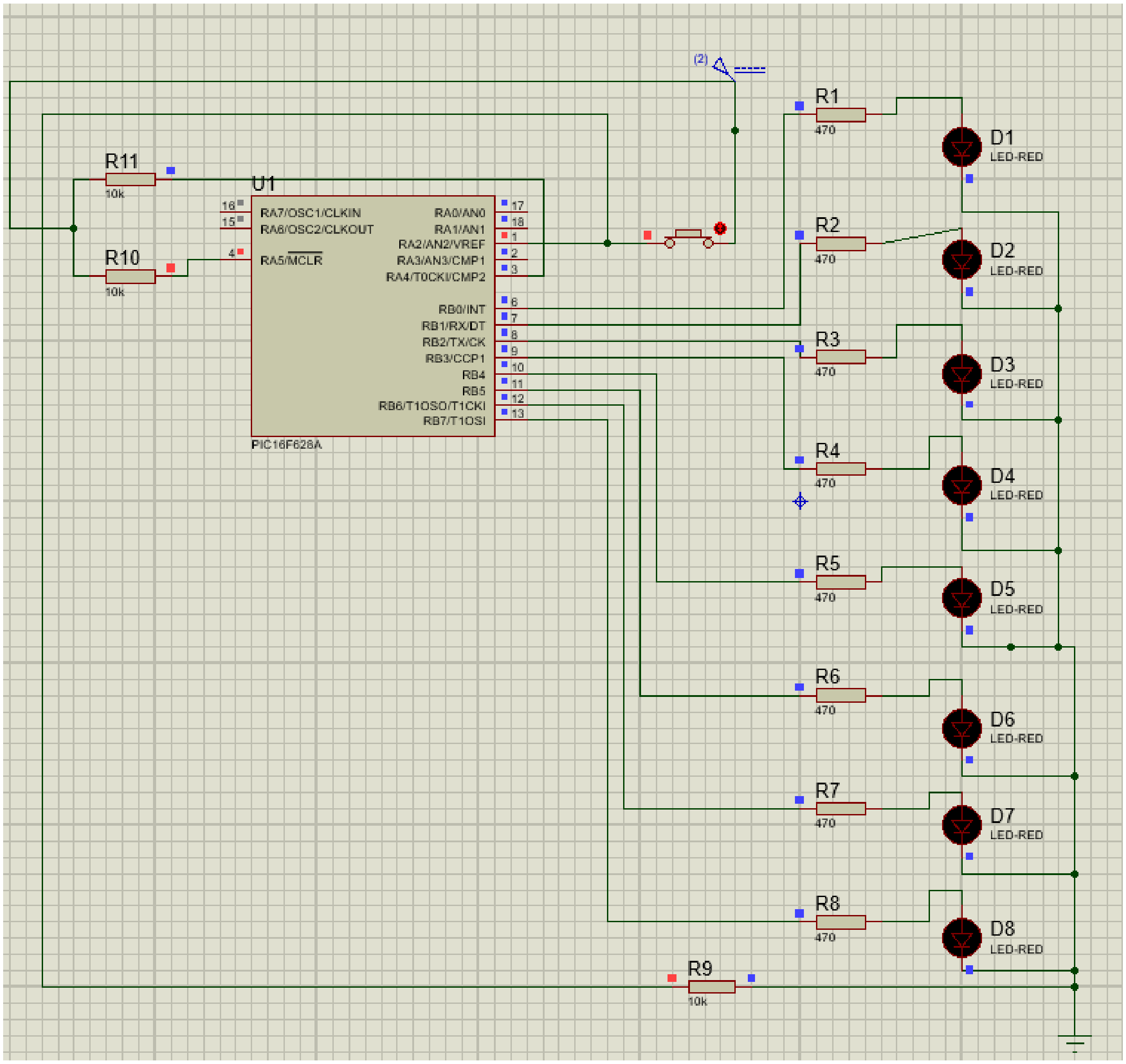
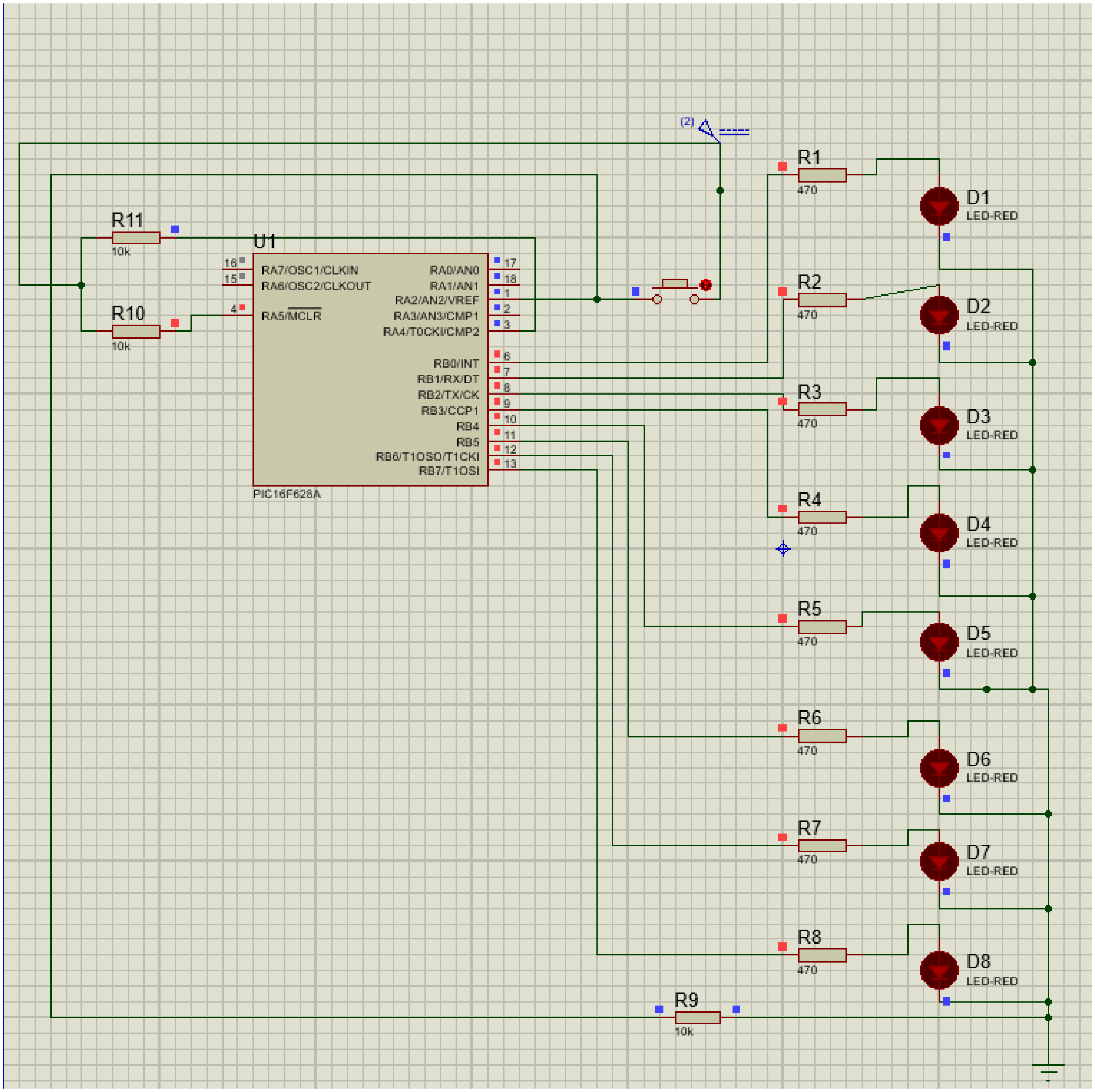
Source Code

```
sbit sw at RA2_bit;
void main() {
       CMCON = 0x07 ;    // Disable Comparator
       TRISA = 0x04 ;   //configure TRISA register
       TRISB = 0x00 ;   // Configure TRSB register
       PORTB =  0xFF;   //Intialize PORTB register
       RA2_bit = 0x00;    // Set RA_2bit to low state

       //Enter the first loop
       do{
         //Check the state of the switch
           if(sw==1){
               PORTB = 0x00;
            //If the switch is pressed ,set PORTB to be low
           }
           else{
           //If the switch is not pressed,set PORTB to be high
            PORTB = 0xFF;
           }

       }while(1);       // Enter a condition for the infinite loop

}
```

When the switch is pressed.



When the switch is released.



Discussion

The experiment, implemented through the provided code, effectively illustrated the critical role of the TRIS register in PIC microcontroller programming. Configuring TRISA = 0x04 and TRISB = 0x00 successfully designated RA2 as an input and PORTB as an output, enabling precise interaction with a switch and LEDs. The **sbit sw at RA2_bit** declaration facilitated real-time switch state detection, driving the conditional logic within an infinite **do-while(1)** loop. This resulted in PORTB transitioning to 0x00 when the switch was pressed **(sw == 1)** and reverting to **0xFF** when released **(sw==0)**, demonstrating dynamic input-output synchronization. Disabling the comparator **(CMCON = 0x07)** optimized performance by eliminating potential disruptions. Through this, I learned the practical significance of TRIS register manipulation, binary notation for pin control, and conditional programming, deepening my understanding of embedded systems design and microcontroller applications.