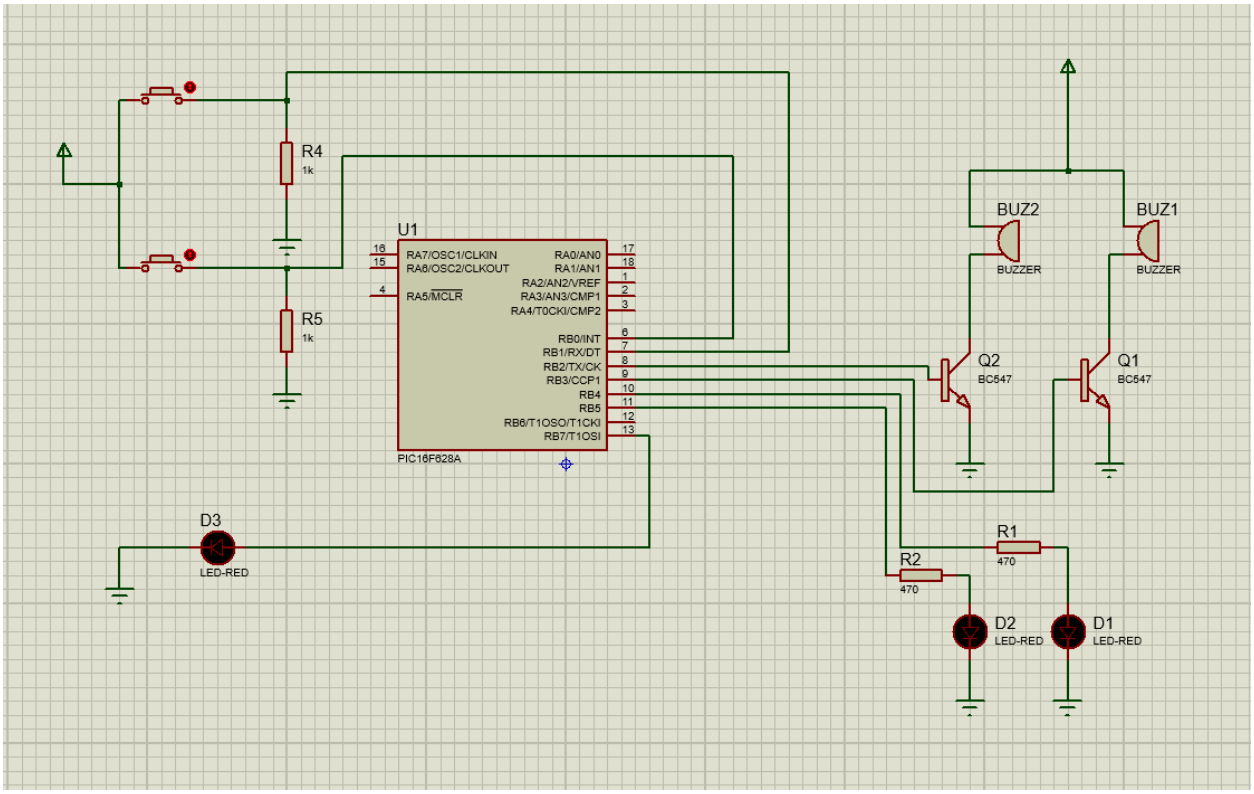
EXERCISE 07

Source Code

```
void delay_1s() {
  Delay_ms(1000); // Use mikroC's built-in delay
}

void delay_5s() {
  int k;
  for(k = 0; k < 5; k++) delay_1s();
}

void main() {
  int i;

  TRISB = 0b11000011; // RB7, RB6, RB1, RB0 as input; others output
  PORTB = 0b00000000; // All outputs off

  while(1) {
    // Wait for either player to press their button
    if(PORTB.F0 == 1 && PORTB.F1 == 0) {
      // Player 1 pressed
      PORTB.F2 = 1; // Player 1 LED ON (assuming RB2)
      PORTB.F4 = 1; // Player 1 Buzzer ON (assuming RB4)
      // 10 beeps, 1s each
      for(i = 0; i < 10; i++) {
        PORTB.F4 = 1; // Buzzer ON
        delay_1s();
        PORTB.F4 = 0; // Buzzer OFF
        delay_1s();
      }
      // Game Over: RB7 ON, Buzzer ON for 5s
      PORTB.F7 = 1; // Game Over LED ON
      PORTB.F4 = 1; // Buzzer ON
      delay_5s();
      PORTB.F4 = 0; // Buzzer OFF
      // Wait for both players to press for reset
      while(!(PORTB.F0 && PORTB.F1));
      PORTB = 0b00000000; // Reset all
    }
```

```
    else if(PORTB.F1 == 1 && PORTB.F0 == 0) {
      // Player 2 pressed
      PORTB.F3 = 1; // Player 2 LED ON (assuming RB3)
      PORTB.F5 = 1; // Player 2 Buzzer ON (assuming RB5)
      // 10 beeps, 1s each
      for(i = 0; i < 10; i++) {
        PORTB.F5 = 1; // Buzzer ON
        delay_1s();
        PORTB.F5 = 0; // Buzzer OFF
        delay_1s();
      }
      // Game Over: RB7 ON, Buzzer ON for 5s
      PORTB.F7 = 1; // Game Over LED ON
      PORTB.F5 = 1; // Buzzer ON
      delay_5s();
      PORTB.F5 = 0; // Buzzer OFF
      // Wait for both players to press for reset
      while(!(PORTB.F0 && PORTB.F1));
      PORTB = 0b00000000; // Reset all
    }
    // Game Over LED OFF after reset
    PORTB.F7 = 0;
  }
}
```

Circuit


R4
1k
R5
1k
U1
RA7/OSC1/CLKIN
RA6/OSC2/CLKOUT
RA5/MCLR
RA0/AN0
RA1/AN1
RA2/AN2/VREF
RA3/AN3/CMP1
RA4/T0CKI/CMP2
RB0/INT
RB1/RX/DT
RB2/TX/CK
RB3/CCP1
RB4
RB5
RB6/T1OSO/T1CKI
RB7/T1OSI
PIC16F628A
BUZ2
BUZZER
BUZ1
BUZZER
Q2
BC547
Q1
BC547
D3
LED-RED
R1
470
R2
470
D2
LED-RED
D1
LED-RED