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1   //Experiment2 Design and implement a system to
2   //interface LEDs,relays, buzzers, and switches with
3   //an 8051 microcontroller to demonstrate basic
4   //peripheral control
5   //Name : Harshali Itkar
6   //Batch : C2
7   //Roll No : 213051
8   //PRN no : 22311604
9
10
11
12  LED EQU P0; Assign LED to port 0
13  SW EQU  P1.0; Assign Switch to pin 1.0
14  RELAY EQU P1.1; Assign Relay to pin 1.1
15  BUZZ EQU P1.2; Assign Buzzer to pin 1.2
16
17  ORG 0000; Start of program memory
18
19  START:
20  JB SW, CASE1 ; If switch is pressed (HIGH), jump to CASE1
21  SJMP CASE2; Otherwise, jump to CASE2
22
23  CASE1:
24  SETB RELAY; Turn ON relay
25  SETB BUZZ; Turn ON buzzer
26  MOV LED, #0FFH; Set LED pattern to 10101010
27  ACALL DELAY; Call delay subroutine
28  MOV LED, #00H; Set LED pattern to 01010101
29  ACALL DELAY; Call delay subroutine
30  SJMP START; Repeat from the start
31
32  CASE2:
33  CLR RELAY; Turn OFF relay
34  CLR BUZZ; Turn OFF buzzer
35  MOV LED, #0AAH; Set LED pattern to all ON (11111111)
36  ACALL DELAY; Call delay subroutine
37
38  MOV LED, #55H; Set LED pattern to all OFF (00000000)
39  ACALL DELAY; Call delay subroutine
40  SJMP START; Return to start to check switch again
41
42  DELAY:
43  MOV R2, #18; Set outer loop count
44  L3:MOV R1, #100; Set middle loop count
45  L2:MOV R0, #250; Set inner loop count
46  L1:DJNZ R0,L1; Decrement and loop inner delay
47  DJNZ R1, L2; Decrement and loop middle delay
48
49  DJNZ R2, L3; Decrement and loop outer delay
50  RET; Return from subroutine
51  END; End of program
```