```c
1  /*
2   * read_modify_write_sftw_sw0.c
3   *
4   * Created: 2/18/2021 6:37:20 PM
5   * Author : Judah Ben-Eliezer
6   */
7
8  #include <avr/io.h>
9
10 #define PORTA_INPUT_CONFIGURATION_gc 0x03
11 #define PORTC_INPUT_CONFIGURATON_gc 0xFC
12 #define PORTD_OUTPUT_CONFIGURATION_gc 0xFF
13
14 int main(void)
15 {
16
17     PORTA_DIR &= PORTA_INPUT_CONFIGURATION_gc;
18     PORTC_DIR &= PORTC_INPUT_CONFIGURATON_gc;
19     PORTD_DIR |= PORTD_OUTPUT_CONFIGURATION_gc;
20     PORTB_DIR &= ~PIN3_bm;
21
22     uint8_t* ctrl_ptr = (uint8_t*)&PORTA_PIN2CTRL;
23
24     for (uint8_t i = 0; i < 6; ++i) {
25         *(ctrl_ptr + i) |= PORT_PULLUPEN_bm;
26     }
27
28     PORTC_PIN0CTRL |= PORT_PULLUPEN_bm;
29     PORTC_PIN1CTRL |= PORT_PULLUPEN_bm;
30
31     uint8_t out;
32
33     while (1)
34     {
35         out = (PORTA_IN | PORTA_INPUT_CONFIGURATION_gc) & (PORTC_IN |
             PORTC_INPUT_CONFIGURATON_gc);
36         PORTD_OUT = (PORTB_IN & PIN3_bm) ? (out | 0x3C) & ((out << 2) | 0xC3):
             out;
37     }
38 }
39
```