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/** FM radio
    Built with WinAVR 20090313, avr-libc 1.6.6

    User interface: pushbuttons at PD2 and PD3 (connected to the GND), used
        internal pull-ups.
    Using internal 2 MHz oscillator (see makefile).
    Use external pullups (i.e. 3k9) at SDA and SCL.
*/
#include "TEA5767.h"
#include "NokiaLCD.h"
#include "uart.h"
#include <avr/io.h>
#include <util/delay.h>

#define LOCAL_DEBUG
#ifdef LOCAL_DEBUG
#define LOG(args) (printf("MAIN "), printf args)
#endif

void init(void)
{
    DDRB = 0xFF;
    PORTB = 0xFF;

    /** \note PD2, PD3: input pushbuttons */
    DDRD = 0xB1110000;
    PORTD = 0xFF;

    DDRC = 0xB0000000;
    PORTC = 0xFF;

    _delay_ms(100);

    /** \note SCL = F_CPU/(16 + 2*TWBR*Prescaler) */
    TWSR = 0; /* no prescaler */
    /** \note TWBR should be 10 or higher if the TWI operates in Master mode. If
        TWBR is lower than
    10, the Master may produce an incorrect output on SDA and SCL for the remainder
    of the
    byte. The problem occurs when operating the TWI in Master mode, sending Start +
    SLA
    + R/W to a Slave (a Slave does not need to be connected to the bus for the
    condition to
    happen). */
    TWBR = 12;
    TWCR = (1<<TWEN);

    LcdInit();

#ifdef LOCAL_DEBUG
    UART_Init();
#endif
}
#endif
```

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}

int main(void)
{
    uint8_t searching = 0;
    struct TEA5767_status status;
    uint8_t counter = 0;

    init();
    LcdGotoXY(0,5);

    LOG(("FM radio starting...\n"));

    TEA5767_init();
    uint32_t tune = 99900UL;
    TEA5767_tune(tune);
    TEA5767_write();
    while(1)
    {
        uint8_t pb_state = PIND;
        if (searching == 0)
        {
#if 1
            // auto search
            if ((pb_state & (1<<2)) == 0)
            {
                TEA5767_search(0);
                searching = 1;
                _delay_ms(500);
            }
            else if ((pb_state & (1<<3)) == 0)
            {
                TEA5767_search(1);
                searching = 2;
                _delay_ms(500);
            }
#else
            // manual search
            if ((pb_state & (1<<2)) == 0)
            {
                tune -= 50;
                if (tune >= 87500UL)
                {
                    TEA5767_tune(tune);
                    TEA5767_write();
                }
                else
                {
                    tune = 87500UL;
                }
            }
            else if ((pb_state & (1<<3)) == 0)

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{
    tune += 50;
    if (tune <= 108000UL)
    {
        TEA5767_tune(tune);
        TEA5767_write();
    }
    else
    {
        tune = 108000UL;
    }
}
#endif

// wait for keys release
while ((pb_state & (1<<2)) == 0 || (pb_state & (1<<3)) == 0)
{
    pb_state = PIND;
}
else
{
    if (counter % 20 == 0)
    {
        TEA5767_get_status(&status);
        if (status.ready)
        {
            if (status.band_limit)
            {
                if (searching == 1)
                {
                    // searching down, wrap
                    TEA5767_tune(108000UL);
                    TEA5767_search(0);
                }
                else
                {
                    // searching up, wrap
                    TEA5767_tune(87500UL);
                    TEA5767_search(1);
                }
                _delay_ms(500);
            }
            else
            {
                searching = 0;
                TEA5767_exit_search();
            }
        }
    }
}
_delay_ms(20);

if (++counter == 200)
{
    PORTB ^= 0x02;
}
```

```
    counter = 0;
    TEA5767_get_status(&status);
  }
}
```