마이크로 컨트롤러 5주차 과제

BUZZER Project No. 2

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순서

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# Source Code

#include <avr/io.h>

#include <avr/interrupt.h>

#define *F\_CPU* 16000000UL

#define \_\_DELAY\_BACKWARD\_COMPATIBLE\_\_

#include <util/delay.h>

#define DO 0

#define RE 1

#define MI 2

#define FA 3

#define SOL 4

#define RA 5

#define SI 6

#define DDO 7

#define REST 8

#define EOS -1

#define ON 0

#define OFF 1

#define N2 1250

#define N4 (N2/2)

#define N8 (N2/4)

#define N16 (N2/8)

#define N8N16 (N8+N16)

#define R 1

volatile int state, tone;

char f\_table[] = {17, 43, 66, 77, 97, 114, 129, 137, 255};

int song[] = {SOL, MI, REST, MI, SOL, MI, DO, RE, MI, RE, DO, MI, SOL, DDO, SOL, DDO, SOL, DDO, SOL, MI, SOL, RE, FA, MI, RE, DO, EOS};

int time[] = {N4, N8, R, N8, N8, N8, N4, N4, N8, N8, N8, N8, N4, N8N16, N16, N8, N8, N8, N8, N4, N4, N8, N8, N8, N8, N4, N4};

char LED[] = {0x01, 0x03, 0x07, 0x0f, 0x1f, 0x3f, 0x7f, 0xff, 0x00};

ISR (TIMER0\_OVF\_vect)

{

TCNT0 = f\_table[tone];

if (state == OFF)

{

PORTB |= 1 << 4;

state = ON;

}

else

{

PORTB &= ~(1<<4);

state = OFF;

}

}

int main(void)

{

int i = 0;

DDRC = 0xff;

DDRB |= 0x1;

TCCR0 = 0x03;

TIMSK = 0x01;

TCNT0 = f\_table[song[i]];

sei();

while(1)

{

i = 0;

do{

tone = song[i];

if(tone == REST) PORTC = LED[song[i-1]]; //REST일 때, 이전 음계 정보 Display

else PORTC = LED[tone]; //현제 음계 정보 Display

*\_delay\_ms*(time[i++]);

}while(song[i]!=EOS); //EOS == End Of Song

}

}

# Implementation

