Código Simulador MP3

1. MAIN

```
#include "config.h"
#include "bits.h"
#include "lcd.h"
#include "keypad.h"
#include "delay.h"
#include "musicas.h"
#include "ssd.h"
#include"config.h"
#include <pic18f4520.h>
#include"io.h"
#include"pwm.h"



void main(void) {



   char text6[8]="  UNIFEI";
   char text7[10]="Joao Pedro   ";
   char text8[16]="      2018004282";







   iniciaMusica();
   lcdInit();
   ssdInit();
   kpInit();
   kpDebounce();
   lcdCommand(ON);
```

```
char logo[48] = {
   0x01, 0x03, 0x03, 0x0E, 0x1C, 0x18, 0x08, 0x08,
   0x11, 0x1F, 0x00, 0x01, 0x1F, 0x12, 0x14, 0x1F,
   0x10, 0x18, 0x18, 0x0E, 0x07, 0x03, 0x02, 0x02,
   0x08, 0x18, 0x1C, 0x0E, 0x03, 0x03, 0x01, 0x00,
   0x12, 0x14, 0x1F, 0x08, 0x00, 0x1F, 0x11, 0x00,
   0x02, 0x03, 0x07, 0x0E, 0x18, 0x18, 0x10, 0x00,
};
```

```
lcdCommand(CLR);
lcdPosition(0,3);
for(char i=0;i<8;i++){
lcdData(text6[i]);}
lcdPosition(1,3);
for(char i=0;i<10;i++){
lcdData(text7[i]);}
lcdPosition(2,4);
for(char i=0;i<16;i++){
lcdData(text8[i]);}
lcdPosition(0,0);
lcdData(0);
lcdData(1);
lcdData(2);
lcdPosition(1,0);
lcdData(3);
lcdData(4);
lcdData(5);
lcdCommand(0x40);
  for(char i=0;i<48;i++){
    lcdData(logo[i]);}
atraso_ms(4000);
lcdCommand(CLR);
```

```
    lcdPosition(0, 6);
    lcdStr("MP3");
    lcdPosition(1, 4);
    lcdStr("Player");
    lcdPosition(0,0);
            lcdData(0);
            lcdData(1);
            lcdData(2);
            lcdPosition(1,0);
            lcdData(3);
            lcdData(4);
            lcdData(5);
            lcdCommand(0x40);
            for(char i=0;i<48;i++){
            lcdData(logo[i]);
            }
    atraso_ms(5000);

    lcdCommand(CLR);
    lcdPosition(0, 0);
    lcdStr("Escolha a musica");
    for (;;) {
       lcdPosition(1, 0);
       lcdStr("<-(1) (*)  (2)->");
       escolheMusica();
    }
}
```

2. MÚSICAS.C

```
#include "musicas.h"
#include <string.h>
#include <pic18f4520.h>
#include "lcd.h"
#include "bits.h"
#include "keypad.h"
#include "ssd.h"
```

```
#include "delay.h"
#include "pwm.h"

typedef struct {
   unsigned int duracao;
   unsigned char nome[17];
} musica;

unsigned char nomes[10][17] = {"Paranoid", "Highway Star", "Born To
Be Wild", "Bad To The Bone", "Down The Road", "Wonderwall", "Blue
Monday",
   "Back In Black", "Hey Jude", "Kashmir"};
unsigned int duracoes[10] = {16, 15, 170, 45, 8, 10, 80, 130, 11, 12};
musica musicas[10];

unsigned char tecla = 16, indice = 0, flag = 0, tempo, minuto1, minuto2,
segundo1, segundo2, cnt = 0, pause = 1, volume = 3;

void iniciaMusica(void) {
   TRISC = 0x00;
   for (unsigned int i = 0; i < 10; i++) {
      musicas[i].duracao = duracoes[i];
      strcpy(musicas[i].nome, (char*) nomes[i]);
   }
   return;
}

void escolheMusica(void) {
   kpDebounce();
   tecla = kpRead();
   ssdUpdate();
   if (bitTst(tecla, 3) || bitTst(tecla, 7)) { //Tecla *
      flag = 1;
      for (;;) {
         ssdUpdate();
         kpDebounce();
         atraso_ms(10);
         if ((kpRead() != tecla) || flag == 1) {
            tecla = kpRead();
            if (bitTst(tecla, 3)) { //1
               if (indice == 0) {
                  indice = 9;
               } else {
                  indice -= 1;
```

```
            }
        } else if (bitTst(tecla, 7)) { //2
            if (indice == 9) {
                indice = 0;
            } else {
                indice += 1;
            }
        } else if (bitTst(tecla, 0)) { //*
            flag = 0;
            break;
        }
        lcdCommand(CLR);
        lcdPosition(1, 0);
        lcdStr("<-(1) (*)  (2)->");
        lcdPosition(0, 0);
        lcdStr(musicas[indice].nome);
        ssdDigit(indice, 3);
        flag = 0;
      }
    }
    tocaMusica();
  }
}

void tocaMusica() {
  pwmInit();
  lcdCommand(CLR);
  lcdPosition(0, 0);
  lcdStr(musicas[indice].nome);
  lcdPosition(1, 0);
  lcdStr("-(1)  (*)  (2)+");

  tempo = musicas[indice].duracao;
  pwmSet(100);
  while (tempo != 0) {

    minuto1 = (tempo / 60) % 10;
    minuto2 = (tempo / 60) / 10;
    segundo1 = (tempo % 60) % 10;
    segundo2 = (tempo % 60) / 10;

    ssdDigit(minuto2, 0);
    ssdDigit(minuto1, 1);
    ssdDigit(segundo2, 2);
```

```
ssdDigit(segundo1, 3);

for (unsigned char j = 0; j < 100; j++) {
   ssdUpdate();
   atraso_ms(10);
   kpDebounce();
   tecla = kpRead();
   if (bitTst(tecla, 3)) {
      while(bitTst(tecla, 3)) {
         ssdUpdate();
         kpDebounce();
         tecla = kpRead();
      }
      alterarVolume(0);
   }
   else if (bitTst(tecla, 7)) {
      while(bitTst(tecla, 7)) {
         ssdUpdate();
         kpDebounce();
         tecla = kpRead();
      }
      alterarVolume(1);
   }
   else if (bitTst(tecla, 0)) {
      while(bitTst(tecla, 0)) {
         ssdUpdate();
         kpDebounce();
         tecla = kpRead();
      }
      if (pause == 0) {pause = 1;} else {pause = 0;}
   }
   else if (bitTst(tecla, 4)) {
      while(bitTst(tecla, 4)) {
         ssdUpdate();
         kpDebounce();
         tecla = kpRead();
      }
      ssdDigit(0, 0);
      ssdDigit(0, 1);
      ssdDigit(0, 2);
      ssdDigit(0, 3);
      return;
   }
}
```

```
        if (pause == 0) {
            tempo -= 1;
            pwmSet(100);
        } else {
            pwmSet(0);
        }
    }
    TRISA=0x00;
    pwmSet(0);
    bitSet(TRISC, 1);
    atraso_ms(500);
    bitClr(TRISC, 1);
    return;
}

void alterarVolume(char opt) {
    if (opt == 1) {
        if(volume!=8){volume += 1;}
    } else {
        if(volume!=0){volume -= 1;}
    }
    unsigned char old_D, old_A;
    old_D = TRISD;

    PORTA=0x00;
    TRISD = 0x00;

    if (volume == 0) {
        PORTD = 0b00000000;
    } else if (volume == 1) {
        PORTD = 0b10000000;
    } else if (volume == 2) {
        PORTD = 0b11000000;
    } else if (volume == 3) {
        PORTD = 0b11100000;
    } else if (volume == 4) {
        PORTD = 0b11110000;
    } else if (volume == 5) {
        PORTD = 0b11111000;
    } else if (volume == 6) {
        PORTD = 0b11111100;
    } else if (volume == 7) {
        PORTD = 0b11111110;
    } else if (volume == 8) {
```

```
        PORTD = 0b11111111;
    }
    atraso_ms(500);
    TRISD=old_D;
}
```

3.MUSICAS.H

```
#ifndef MUSICAS_H
#define        MUSICAS_H

void iniciaMusica(void);
void escolheMusica(void);
void tocaMusica(void);
void alterarVolume(char opt);

#endif/* MUSICAS_H */
```