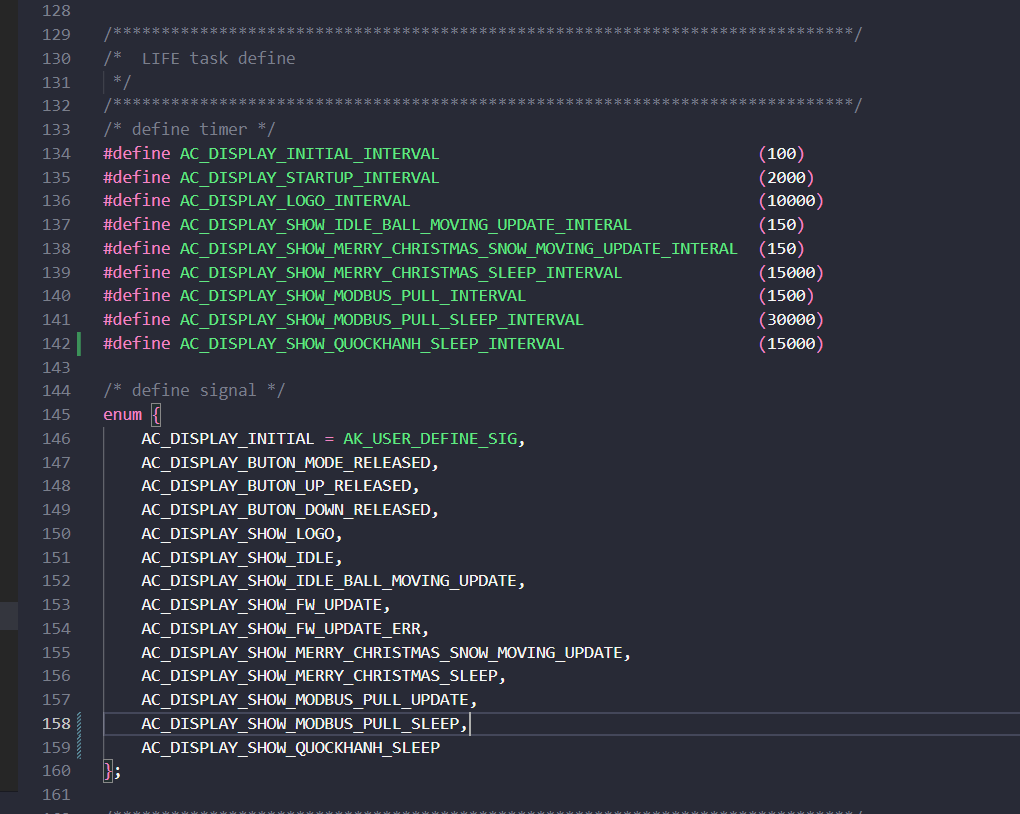
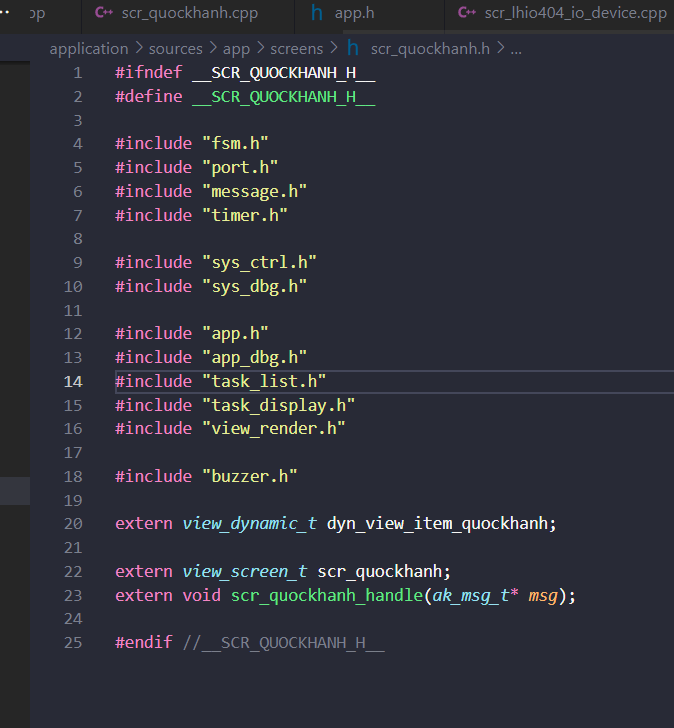
**Quốc Khánh 2/9**

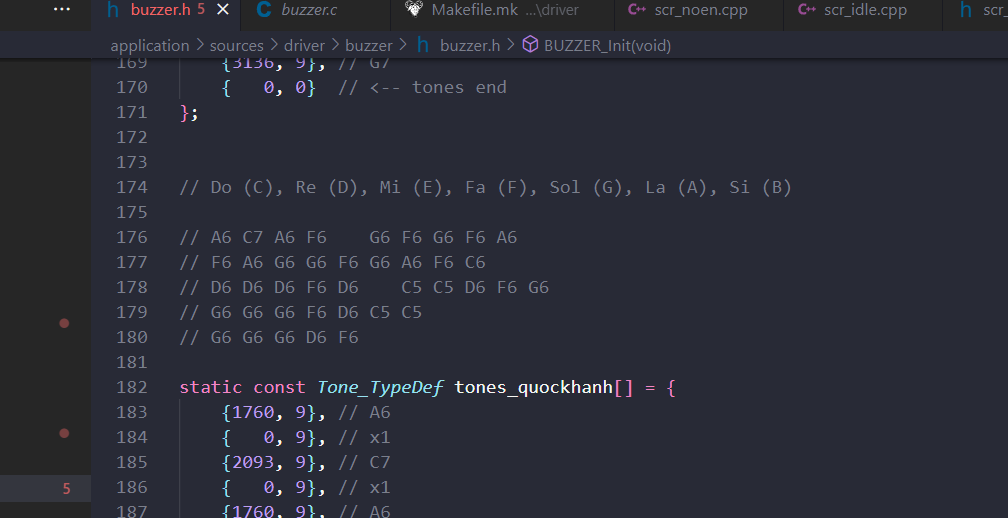
Bước 1: Define timer và signal trong app.h thuộc LIFE



Thêm scr\_quockhanh.h vào screens



Thêm tone quockhanh vào buzzer.h



static const *Tone\_TypeDef* tones\_quockhanh[] = {

    {1760, 9}, // A6

    {   0, 9}, // x1

    {2093, 9}, // C7

    {   0, 9}, // x1

    {1760, 9}, // A6

    {1397, 9}, // F6

    {   0, 18}, // x2

    {1586,9}, // G6

    {   0, 9}, // x1

    {1397, 9}, // F6

    {   0, 9}, // x1

    {1586,9}, // G6

    {   0, 9}, // x1

    {1397, 18}, // F6

    {   0, 9}, // x1

    {1760, 9}, // A6

    {   0, 18}, // x2

    {1397, 9}, // F6

    {   0, 9}, // x1

    {1760, 9}, // A6

    {   0, 9}, // x1

    {1586,12}, // G6

    {   0, 9}, // x1

    {1586,12}, // G6

    {   0, 9}, // x1

    {1397, 9}, // F6

    {   0, 9}, // x1

    {1586,12}, // G6

    {   0, 9}, // x1

    {1760, 9}, // A6

    {   0, 9}, // x1

    {1397, 18}, // F6

    {   0, 9}, // x1

    {1048, 9}, // C6

    {   0, 18}, // x2

    {1174, 9}, // D6

    {   0, 9}, // x1

    {1174, 9}, // D6

    {   0, 9}, // x1

    {1174, 9}, // D6

    {   0, 9}, // x1

    {1397, 9}, // F6

    {   0, 9}, // x1

    {1174, 9}, // D6

    {   0, 9}, // x1

    {524, 9}, // C5

    {   0, 9}, // x1

    {524, 9}, // C5

    {   0, 9}, // x1

    {1174, 9}, // D6

    {   0, 9}, // x1

    {1397, 9}, // F6

    {   0, 9}, // x1

    {1586,12}, // G6

    {   0, 18}, // x2

    {1586,12}, // G6

    {   0, 9}, // x1

    {1586,12}, // G6

    {   0, 9}, // x1

    {1586,12}, // G6

    {   0, 9}, // x1

    {1397, 9}, // F6

    {   0, 9}, // x1

    {1174, 9}, // D6

    {   0, 9}, // x1

    {524, 9}, // C5

    {   0, 9}, // x1

    {524, 9}, // C5

    {   0, 18}, // x2

    {1586,12}, // G6

    {   0, 9}, // x1

    {1586,12}, // G6

    {   0, 9}, // x1

    {1586,12}, // G6

    {   0, 9}, // x1

    {1174, 9}, // D6

    {   0, 9}, // x1

    {1397, 9}, // F6

    {   0, 9}, // x1

    {   0, 0}  // <-- tones end

};

Thêm scr\_quockhanh.cpp vào screens

#include "scr\_quockhanh.h"

static const unsigned char PROGMEM logo\_quockhanh[] = {

    0xff, 0xff, 0xff, 0xff, 0xff, 0xff, 0xff, 0xff, 0xff, 0xff, 0xff, 0xff, 0xff, 0xff, 0xff, 0xff,

    0xff, 0xff, 0xff, 0xff, 0xff, 0xff, 0xff, 0xff, 0xff, 0xff, 0xff, 0xff, 0xff, 0xff, 0xff, 0xff,

    0xff, 0xff, 0xff, 0xff, 0xff, 0xff, 0xff, 0xff, 0xff, 0xff, 0xff, 0xff, 0xff, 0xff, 0xff, 0xff,

    0xff, 0xff, 0xff, 0xff, 0xff, 0xff, 0xff, 0xfe, 0x3f, 0xff, 0xff, 0xff, 0xff, 0xff, 0xff, 0xff,

    0xff, 0xff, 0xff, 0xff, 0xff, 0xff, 0xff, 0xfc, 0x1f, 0xff, 0xff, 0xff, 0xff, 0xff, 0xff, 0xff,

    0xff, 0xff, 0xff, 0xff, 0xff, 0xff, 0xff, 0xfc, 0x1f, 0xff, 0xff, 0xff, 0xff, 0xff, 0xff, 0xff,

    0xff, 0xff, 0xff, 0xff, 0xff, 0xff, 0xff, 0xfc, 0x0f, 0xff, 0xff, 0xff, 0xff, 0xff, 0xff, 0xff,

    0xff, 0xff, 0xff, 0xff, 0xff, 0xff, 0xff, 0xf8, 0x0f, 0xff, 0xff, 0xff, 0xff, 0xff, 0xff, 0xff,

    0xff, 0xff, 0xff, 0xff, 0xff, 0xff, 0xff, 0xf8, 0x0f, 0xff, 0xff, 0xff, 0xff, 0xff, 0xff, 0xff,

    0xff, 0xff, 0xff, 0xff, 0xff, 0xff, 0xff, 0xf0, 0x07, 0xff, 0xff, 0xff, 0xff, 0xff, 0xff, 0xff,

    0xff, 0xff, 0xff, 0xff, 0xff, 0xff, 0xff, 0xf0, 0x07, 0xff, 0xff, 0xff, 0xff, 0xff, 0xff, 0xff,

    0xff, 0xff, 0xff, 0xff, 0xff, 0xff, 0xff, 0xf0, 0x07, 0xff, 0xff, 0xff, 0xff, 0xff, 0xff, 0xff,

    0xff, 0xff, 0xff, 0xff, 0xff, 0xff, 0xff, 0xe0, 0x03, 0xff, 0xff, 0xff, 0xff, 0xff, 0xff, 0xff,

    0xff, 0xff, 0xff, 0xff, 0xff, 0xff, 0xff, 0xe0, 0x83, 0xff, 0xff, 0xff, 0xff, 0xff, 0xff, 0xff,

    0xff, 0xff, 0xff, 0xff, 0xff, 0xff, 0xff, 0xe0, 0x81, 0xff, 0xff, 0xff, 0xff, 0xff, 0xff, 0xff,

    0xff, 0xff, 0xff, 0xff, 0xff, 0xff, 0xff, 0xc1, 0xc1, 0xff, 0xff, 0xff, 0xff, 0xff, 0xff, 0xff,

    0xff, 0xff, 0xff, 0xff, 0xff, 0xf0, 0x00, 0x01, 0xc0, 0x00, 0x07, 0xff, 0xff, 0xff, 0xff, 0xff,

    0xff, 0xff, 0xff, 0xff, 0xff, 0xe0, 0x00, 0x01, 0xc0, 0x00, 0x01, 0xff, 0xff, 0xff, 0xff, 0xff,

    0xff, 0xff, 0xff, 0xff, 0xff, 0xc0, 0x00, 0x03, 0xe0, 0x00, 0x01, 0xff, 0xff, 0xff, 0xff, 0xff,

    0xff, 0xff, 0xff, 0xff, 0xff, 0xc0, 0x00, 0x03, 0xe0, 0x00, 0x01, 0xff, 0xff, 0xff, 0xff, 0xff,

    0xff, 0xff, 0xff, 0xff, 0xff, 0xe0, 0x00, 0x07, 0xf0, 0x00, 0x03, 0xff, 0xff, 0xff, 0xff, 0xff,

    0xff, 0xff, 0xff, 0xff, 0xff, 0xf0, 0x07, 0xff, 0xff, 0xf0, 0x07, 0xff, 0xff, 0xff, 0xff, 0xff,

    0xff, 0xff, 0xff, 0xff, 0xff, 0xfc, 0x01, 0xff, 0xff, 0xc0, 0x1f, 0xff, 0xff, 0xff, 0xff, 0xff,

    0xff, 0xff, 0xff, 0xff, 0xff, 0xfe, 0x00, 0xff, 0xff, 0x80, 0x3f, 0xff, 0xff, 0xff, 0xff, 0xff,

    0xff, 0xff, 0xff, 0xff, 0xff, 0xff, 0x80, 0x3f, 0xfe, 0x00, 0xff, 0xff, 0xff, 0xff, 0xff, 0xff,

    0xff, 0xff, 0xff, 0xff, 0xff, 0xff, 0xc0, 0x1f, 0xfc, 0x01, 0xff, 0xff, 0xff, 0xff, 0xff, 0xff,

    0xff, 0xff, 0xff, 0xff, 0xff, 0xff, 0xf0, 0x1f, 0xfc, 0x07, 0xff, 0xff, 0xff, 0xff, 0xff, 0xff,

    0xff, 0xff, 0xff, 0xff, 0xff, 0xff, 0xf8, 0x1f, 0xfc, 0x0f, 0xff, 0xff, 0xff, 0xff, 0xff, 0xff,

    0xff, 0xff, 0xff, 0xff, 0xff, 0xff, 0xf8, 0x1f, 0xfe, 0x0f, 0xff, 0xff, 0xff, 0xff, 0xff, 0xff,

    0xff, 0xff, 0xff, 0xff, 0xff, 0xff, 0xf8, 0x3f, 0xfe, 0x0f, 0xff, 0xff, 0xff, 0xff, 0xff, 0xff,

    0xff, 0xff, 0xff, 0xff, 0xff, 0xff, 0xf8, 0x3c, 0x1e, 0x0f, 0xff, 0xff, 0xff, 0xff, 0xff, 0xff,

    0xff, 0xff, 0xff, 0xff, 0xff, 0xff, 0xf0, 0x78, 0x0f, 0x07, 0xff, 0xff, 0xff, 0xff, 0xff, 0xff,

    0xff, 0xff, 0xff, 0xff, 0xff, 0xff, 0xf0, 0x60, 0x03, 0x07, 0xff, 0xff, 0xff, 0xff, 0xff, 0xff,

    0xff, 0xff, 0xff, 0xff, 0xff, 0xff, 0xf0, 0x00, 0x00, 0x03, 0xff, 0xff, 0xff, 0xff, 0xff, 0xff,

    0xff, 0xff, 0xff, 0xff, 0xff, 0xff, 0xe0, 0x00, 0x00, 0x03, 0xff, 0xff, 0xff, 0xff, 0xff, 0xff,

    0xff, 0xff, 0xff, 0xff, 0xff, 0xff, 0xe0, 0x00, 0x80, 0x03, 0xff, 0xff, 0xff, 0xff, 0xff, 0xff,

    0xff, 0xff, 0xff, 0xff, 0xff, 0xff, 0xe0, 0x03, 0xe0, 0x01, 0xff, 0xff, 0xff, 0xff, 0xff, 0xff,

    0xff, 0xff, 0xff, 0xff, 0xff, 0xff, 0xc0, 0x0f, 0xf8, 0x01, 0xff, 0xff, 0xff, 0xff, 0xff, 0xff,

    0xff, 0xff, 0xff, 0xff, 0xff, 0xff, 0xc0, 0x1f, 0xfc, 0x01, 0xff, 0xff, 0xff, 0xff, 0xff, 0xff,

    0xff, 0xff, 0xff, 0xff, 0xff, 0xff, 0xc0, 0x7f, 0xff, 0x01, 0xff, 0xff, 0xff, 0xff, 0xff, 0xff,

    0xff, 0xff, 0xff, 0xff, 0xff, 0xff, 0xc1, 0xff, 0xff, 0xc1, 0xff, 0xff, 0xff, 0xff, 0xff, 0xff,

    0xff, 0xff, 0xff, 0xff, 0xff, 0xff, 0xe3, 0xff, 0xff, 0xe3, 0xff, 0xff, 0xff, 0xff, 0xff, 0xff,

    0xff, 0xff, 0xff, 0xff, 0xff, 0xff, 0xff, 0xff, 0xff, 0xff, 0xff, 0xff, 0xff, 0xff, 0xff, 0xff,

    0xff, 0xff, 0xff, 0xff, 0xff, 0xff, 0xff, 0xff, 0xff, 0xff, 0xff, 0xff, 0xff, 0xff, 0xff, 0xff,

    0xff, 0xff, 0xff, 0xff, 0xff, 0xff, 0xff, 0xff, 0xff, 0xff, 0xff, 0xff, 0xff, 0xff, 0xff, 0xff,

    0xff, 0xff, 0xff, 0xff, 0xff, 0xff, 0xff, 0xff, 0xff, 0xff, 0xff, 0xff, 0xff, 0xff, 0xff, 0xff,

    0xff, 0xff, 0xff, 0xff, 0xff, 0xff, 0xff, 0xff, 0xff, 0xff, 0xff, 0xff, 0xff, 0xff, 0xff, 0xff,

    0xff, 0xff, 0xff, 0xff, 0xff, 0xff, 0xff, 0xff, 0xff, 0xff, 0xff, 0xff, 0xff, 0xff, 0xff, 0xff,

    0xff, 0xff, 0xff, 0xff, 0xf9, 0x7f, 0xff, 0xf7, 0xfe, 0x7f, 0xe7, 0xff, 0xff, 0xbf, 0xff, 0xff,

    0xff, 0xff, 0xe1, 0xff, 0xf0, 0xff, 0xf3, 0xb3, 0xfe, 0xff, 0xe7, 0xfe, 0x1f, 0x38, 0x7f, 0xff,

    0xff, 0xff, 0x80, 0xff, 0xff, 0xff, 0xf3, 0x33, 0xff, 0xff, 0xe7, 0xfc, 0x0f, 0x30, 0x7f, 0xff,

    0xff, 0xff, 0x9e, 0x6e, 0xf9, 0xf3, 0xf2, 0x72, 0x78, 0xfc, 0xe4, 0xff, 0x8f, 0x77, 0x3f, 0xff,

    0xff, 0xff, 0x9e, 0x66, 0x60, 0x61, 0xf0, 0xf0, 0x30, 0x60, 0x60, 0x7f, 0x9e, 0x73, 0x3f, 0xff,

    0xff, 0xff, 0xbe, 0x66, 0x66, 0x47, 0xf0, 0xf3, 0x3e, 0x66, 0x66, 0x7f, 0x9e, 0x70, 0x3f, 0xff,

    0xff, 0xff, 0x9e, 0x66, 0x6e, 0x4f, 0xf2, 0x73, 0x30, 0x67, 0x66, 0x7f, 0x3e, 0xfd, 0x3f, 0xff,

    0xff, 0xff, 0x9c, 0x66, 0x66, 0x4f, 0xf2, 0x33, 0x32, 0x67, 0x66, 0x7e, 0x7c, 0xff, 0x7f, 0xff,

    0xff, 0xff, 0x80, 0xe0, 0x60, 0x61, 0xf3, 0x33, 0x30, 0x67, 0x66, 0x7c, 0x0c, 0xf0, 0x7f, 0xff,

    0xff, 0xff, 0xe0, 0x72, 0xf1, 0xf3, 0xfb, 0xb7, 0xb9, 0x67, 0x67, 0x7c, 0x0d, 0xf8, 0xff, 0xff,

    0xff, 0xff, 0xff, 0x3f, 0xff, 0xff, 0xff, 0xff, 0xff, 0xff, 0xff, 0xff, 0xf9, 0xff, 0xff, 0xff,

    0xff, 0xff, 0xff, 0xff, 0xff, 0xff, 0xff, 0xff, 0xff, 0xff, 0xff, 0xff, 0xf9, 0xff, 0xff, 0xff,

    0xff, 0xff, 0xff, 0xff, 0xff, 0xff, 0xff, 0xff, 0xff, 0xff, 0xff, 0xff, 0xff, 0xff, 0xff, 0xff,

    0xff, 0xff, 0xff, 0xff, 0xff, 0xff, 0xff, 0xff, 0xff, 0xff, 0xff, 0xff, 0xff, 0xff, 0xff, 0xff,

    0xff, 0xff, 0xff, 0xff, 0xff, 0xff, 0xff, 0xff, 0xff, 0xff, 0xff, 0xff, 0xff, 0xff, 0xff, 0xff,

    0xff, 0xff, 0xff, 0xff, 0xff, 0xff, 0xff, 0xff, 0xff, 0xff, 0xff, 0xff, 0xff, 0xff, 0xff, 0xff

};

static void view\_scr\_quockhanh();

*view\_dynamic\_t* dyn\_view\_item\_quockhanh = {

    {

        .item\_type = ITEM\_TYPE\_DYNAMIC,

    },

    view\_scr\_quockhanh

};

*view\_screen\_t* scr\_quockhanh = {

    &dyn\_view\_item\_quockhanh,

    ITEM\_NULL,

    ITEM\_NULL,

    .focus\_item = 0,

};

void view\_scr\_quockhanh() {

    view\_render.clear();

    view\_render.drawBitmap(0,0,logo\_quockhanh, 128, 64, 1);

    view\_render.update();

}

void scr\_quockhanh\_handle(*ak\_msg\_t*\* *msg*) {

    switch (*msg*->sig) {

    case SCREEN\_ENTRY: {

        APP\_DBG\_SIG("SCREEN\_ENTRY\n");

        BUZZER\_PlayTones(tones\_quockhanh);

        timer\_set(AC\_TASK\_DISPLAY\_ID, \

                  AC\_DISPLAY\_SHOW\_QUOCKHANH\_SLEEP, \

                  AC\_DISPLAY\_SHOW\_QUOCKHANH\_SLEEP\_INTERVAL, \

                  TIMER\_ONE\_SHOT);

    }

        break;

    case AC\_DISPLAY\_SHOW\_QUOCKHANH\_SLEEP: {

        APP\_DBG\_SIG("AC\_DISPLAY\_SHOW\_MERRY\_CHRISTMAS\_SLEEP\n");

        SCREEN\_TRAN(scr\_idle\_handle, &scr\_idle);

    }

        break;

    case AC\_DISPLAY\_BUTON\_MODE\_RELEASED: {

        APP\_DBG\_SIG("AC\_DISPLAY\_BUTON\_MODE\_RELEASED\n");

        SCREEN\_TRAN(scr\_idle\_handle, &scr\_idle);

    }

        break;

    case AC\_DISPLAY\_BUTON\_UP\_RELEASED: {

        APP\_DBG\_SIG("AC\_DISPLAY\_BUTON\_UP\_RELEASED\n");

        SCREEN\_TRAN(scr\_idle\_handle, &scr\_idle);

    }

        break;

    case AC\_DISPLAY\_BUTON\_DOWN\_RELEASED: {

        APP\_DBG\_SIG("AC\_DISPLAY\_BUTON\_DOWN\_RELEASED\n");

        SCREEN\_TRAN(scr\_idle\_handle, &scr\_idle);

    }

        break;

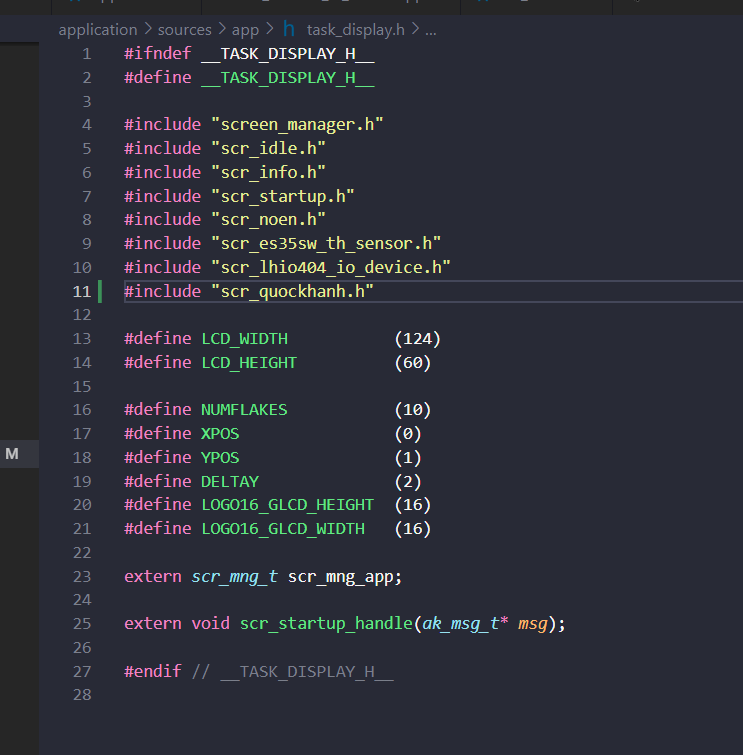
    default:

        break;

    }

}

Khai báo thư viện scr\_quockhanh.h vào task\_display.h



Chỉnh sửa file scr\_idle.cpp

