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/*
Lokcontroller with Touchscreen shield V1 from Seeeduino on MEGA2560
MEGA2560 connected to Märklin Interface 6050 and Central Unit 6020
*/
#include <stdint.h>
#include "TouchScreen.h"
#include <TFT.h>

// These are the pins for the shield
#define YP A2 // Y+ is A2
#define XM A1 // X- is A1
#define YM A0 // Y- is A0
#define XP A3 // X+ is A3

#define MINPRESSURE 10
#define MAXPRESSURE 1000

#define TS_MINX 140
#define TS_MAXX 900

#define TS_MINY 120
#define TS_MAXY 940

TouchScreen ts = TouchScreen(XP, YP, XM, YM, 300);

int stelle_1 = 0;
int stelle_2 = 0;
int stelle_1_old = 0;
int stelle_2_old = 0;
char buffer [5]; // output string

int lokAdresse = 0; // Lok Adress [01 .. 80]
int lokAdresseOld = 0;
int lokSpeed = 0; // Lok speed [0..14]
int lokSpeedOld = 0;
int lokSpeed2 = 0; // = lokSpeed plus lightON
int lokSpeed3 = 0; // always speed 0 + lightON
int lightON = 0; // if Function = OFF then lightON has value 0; if Function =

void setup(void) {
    Serial1.begin(2400); // Maerklin Interface 6050 connected to Serial 1

    Tft.init(); //init TFT library

    Tft.fillRect(10,10, 220, 40, YELLOW); // output field

    Tft.fillRect(10, 55, 45, 45, WHITE); // Field for number 1
    Tft.drawString("1", 22, 65, 3, BLACK);

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Tft.fillRect(60, 55, 45, 45, WHITE); // Field for number 2
Tft.drawString("2", 72, 65, 3, BLACK);

Tft.fillRect(110, 55, 45, 45, WHITE); // Field for number 3
Tft.drawString("3", 122, 65, 3, BLACK);

Tft.fillRect(10, 105, 45, 45, WHITE); // Field for number 4
Tft.drawString("4", 22, 115, 3, BLACK);

Tft.fillRect(60, 105, 45, 45, WHITE); // Field for number 5
Tft.drawString("5", 72, 115, 3, BLACK);

Tft.fillRect(110, 105, 45, 45, WHITE); // Field for number 6
Tft.drawString("6", 122, 115, 3, BLACK);

Tft.fillRect(10, 155, 45, 45, WHITE); // Field for number 7
Tft.drawString("7", 22, 165, 3, BLACK);

Tft.fillRect(60, 155, 45, 45, WHITE); // Field for number 8
Tft.drawString("8", 72, 165, 3, BLACK);

Tft.fillRect(110, 155, 45, 45, WHITE); // Field for number 9
Tft.drawString("9", 122, 165, 3, BLACK);

Tft.fillRect(10, 205, 45, 45, WHITE); // Field for number 0
Tft.drawString("0", 22, 215, 3, BLACK);

Tft.fillRect(110, 205, 45, 45, WHITE); // Speed = 0 / Halt
Tft.drawString("H", 122, 215, 3, BLACK);

Tft.fillRect(60, 205, 45, 45, WHITE); // Function
Tft.drawString("F", 72, 215, 3, BLACK);

Tft.fillRect(10, 255, 95, 50, WHITE); // change direction
Tft.drawString("<>", 37, 268, 3, BLACK);

Tft.fillRect(110, 255, 45, 50, GREEN); // GO
Tft.drawString("GO", 118, 270, 2, BLACK);

Tft.fillRect(160, 255, 70, 50, RED); // STOP
Tft.drawString("STOP", 166, 270, 2, WHITE);

Tft.fillRect(160, 55, 70, 195, WHITE); // Speed
Tft.drawLine(195, 60, 195, 240, RED);
Tft.drawLine(194, 60, 194, 240, RED);
Tft.drawLine(195, 60, 165, 95, RED);
Tft.drawLine(194, 60, 164, 95, RED);
Tft.drawLine(195, 60, 225, 95, RED);
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Tft.drawLine(196,60,226,95,RED);

snprintf (buffer, sizeof (buffer),"LOK"); // Text "Lok" in output field
Tft.drawString(buffer, 15, 20, 3, BLACK);

snprintf (buffer, sizeof (buffer),"%d",stelle_1); //First digit of Lokadresse
Tft.drawString(buffer, 85, 20, 3, RED);
snprintf (buffer, sizeof (buffer),"%d",stelle_2); // Second digit of Lokadresse
Tft.drawString(buffer, 105, 20, 3, RED);

snprintf (buffer, sizeof (buffer),"FS");
Tft.drawString(buffer, 140, 20, 3, BLACK);

snprintf (buffer, sizeof (buffer),"%3d",lokSpeed );
Tft.drawString(buffer, 160, 20, 3, RED);
}

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void loop(void) {

    TSPoint p = ts.getPoint();// a point object holds x y and z coordinates

    if (p.z > MINPRESSURE && p.z < MAXPRESSURE) { // pressure of < MINPRESSURE
        p.x =map(p.x, TS_MINX, TS_MAXX, 240, 0); // mapping of X and Y
        p.y =map(p.y, TS_MINY, TS_MAXY, 320, 0); //      "

        if (p.x > 160 && p.x < 230 && p.y > 255 && p.y < 315){ // pressure 1
            Serial1.write(97);
            delay (100);
        }
        else if (p.x > 110 && p.x < 155 && p.y > 255 && p.y < 315){ // pressure 2
            Serial1.write(96);
            delay (100);
        }
        else if (p.x > 10 && p.x < 100 && p.y > 255 && p.y < 315){ // pressure 3
            lokSpeedOld = lokSpeed;
            snprintf (buffer, sizeof (buffer),"%3d",lokSpeedOld );
            Tft.drawString(buffer, 160, 20, 3, YELLOW);
            lokSpeed = 0; // send speed 0 prior to changing direction
            snprintf (buffer, sizeof (buffer),"%3d",lokSpeed );
            Tft.drawString(buffer, 160, 20, 3, RED);
            lokSpeed2 = 0 + lightON;
            lokSpeed3 = 15 + lightON; //15 = change direction

            if (lokAdresse > 0 && lokAdresse < 81) {
                Serial1.write(lokSpeed2); // send speed 0 prior to changing direction
                delay (10);
                Serial1.write(lokAdresse);
                delay (1000);
            }
        }
    }
}

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        Serial1.write(lokSpeed3); // change direction ; keep light ON
        delay (10);
        Serial1.write(lokAdresse);
        delay (100);
        Serial1.write(lokSpeed2); // speed 0 again to ensure that lok
        delay (10);
        Serial1.write(lokAdresse);
    }

    delay (100);
}

else if (p.x > 160  && p.x < 230 && p.y > 55 && p.y < 250){ // pressu
    sprintf (buffer, sizeof (buffer), "%3d", lokSpeed ); // overwrite
    Tft.drawString(buffer, 160, 20, 3, YELLOW);
    if (p.x > 160  && p.x < 230 && p.y > 55 && p.y < 69){
        lokSpeed = 14;
    }
    else if (p.x > 160  && p.x < 230 && p.y > 68 && p.y < 72){
        lokSpeed = 13;
    }
    else if (p.x > 160  && p.x < 230 && p.y > 71 && p.y < 85){
        lokSpeed = 12;
    }
    else if (p.x > 160  && p.x < 230 && p.y > 84 && p.y < 98){
        lokSpeed = 11;
    }
    else if (p.x > 160  && p.x < 230 && p.y > 97 && p.y < 111){
        lokSpeed = 10;
    }
    else if (p.x > 160  && p.x < 230 && p.y > 110 && p.y < 124){
        lokSpeed = 9;
    }
    else if (p.x > 160  && p.x < 230 && p.y > 123 && p.y < 137){
        lokSpeed = 8;
    }
    else if (p.x > 160  && p.x < 230 && p.y > 136 && p.y < 150){
        lokSpeed = 7;
    }
    else if (p.x > 160  && p.x < 230 && p.y > 149 && p.y < 163){
        lokSpeed = 6;
    }
    else if (p.x > 160  && p.x < 230 && p.y > 162 && p.y < 176){
        lokSpeed = 5;
    }
    else if (p.x > 160  && p.x < 230 && p.y > 175 && p.y < 189){
        lokSpeed = 4;
    }
    else if (p.x > 160  && p.x < 230 && p.y > 188 && p.y < 202){

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        lokSpeed = 3;
    }
    else if (p.x > 160  && p.x < 230 && p.y > 201 && p.y < 215){
        lokSpeed = 2;
    }
    else if (p.x > 160  && p.x < 230 && p.y > 214 && p.y < 228){
        lokSpeed = 1;
    }
    else {
        lokSpeed = 0;
    }

    sprintf (buffer, sizeof (buffer), "%3d",lokSpeed );
    Tft.drawString(buffer, 160, 20, 3, RED);
    lokSpeed2 = lokSpeed + lightON;

    if (lokAdresse > 0 && lokAdresse < 81) {
        Serial1.write(lokSpeed2);
        delay (10);
        Serial1.write(lokAdresse);
    }
}

else if (p.x > 10  && p.x < 155 && p.y > 55 && p.y < 250){// keys 0 ...
    if (p.x > 60  && p.x < 105 && p.y > 205 && p.y < 250){// Function F
        if (lightON == 0) {
            lightON = 16;// Function ON
            lokSpeed2 = lokSpeed + lightON;
            Tft.fillRect(60,205, 45, 45, YELLOW);
            Tft.drawString("F", 72, 215, 3, BLACK);

            if (lokAdresse > 0 && lokAdresse < 81) {
                Serial1.write(lokSpeed2);
                delay (10);
                Serial1.write(lokAdresse);
            }
            delay (300);
        }
        else if (lightON == 16){
            lightON = 0;// Function OFF
            lokSpeed2 = lokSpeed + lightON;
            Tft.fillRect(60,205, 45, 45, WHITE);
            Tft.drawString("F", 72, 215, 3, BLACK);

            if (lokAdresse > 0 && lokAdresse < 81) {
                Serial1.write(lokSpeed2);
                delay (10);
                Serial1.write(lokAdresse);
            }
        }
    }
}

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        delay (300);
    }
}
else if (p.x > 110  && p.x < 155 && p.y > 205 && p.y < 250){// H =
    lokSpeedOld = lokSpeed;
    sprintf (buffer, sizeof (buffer),"%3d",lokSpeedOld );
    Tft.drawString(buffer, 160, 20, 3, YELLOW);
    lokSpeed = 0;
    sprintf (buffer, sizeof (buffer),"%3d",lokSpeed );
    Tft.drawString(buffer, 160, 20, 3, RED);
    lokSpeed2 = lokSpeed + lightON;

    if (lokAdresse > 0 && lokAdresse < 81) {
        Serial1.write(lokSpeed2);
        delay (10);
        Serial1.write(lokAdresse);
    }

}
else if (p.x > 10  && p.x < 55 && p.y > 55 && p.y < 100){// Number
    stelle_1_old = stelle_1;
    stelle_2_old = stelle_2;
    stelle_1 = stelle_2;
    stelle_2 = 1;
    lokAdresse = stelle_1*10 + stelle_2;
    if (lokAdresse > 0 && lokAdresse < 81) {
        sprintf (buffer, sizeof (buffer),"%d",stelle_1_old); //First
        Tft.drawString(buffer, 85, 20, 3, YELLOW);
        sprintf (buffer, sizeof (buffer),"%d",stelle_2_old); // Second
        Tft.drawString(buffer, 105, 20, 3, YELLOW);
        sprintf (buffer, sizeof (buffer),"%d",stelle_1); //First
        Tft.drawString(buffer, 85, 20, 3, RED);
        sprintf (buffer, sizeof (buffer),"%d",stelle_2); // Second
        Tft.drawString(buffer, 105, 20, 3, RED);
    }
    else {// invalid address: numbers are shown white instead of red
        sprintf (buffer, sizeof (buffer),"%d",stelle_1_old); //First
        Tft.drawString(buffer, 85, 20, 3, YELLOW);
        sprintf (buffer, sizeof (buffer),"%d",stelle_2_old); // Second
        Tft.drawString(buffer, 105, 20, 3, YELLOW);
        sprintf (buffer, sizeof (buffer),"%d",stelle_1); //First
        Tft.drawString(buffer, 85, 20, 3, WHITE);
        sprintf (buffer, sizeof (buffer),"%d",stelle_2); // Second
        Tft.drawString(buffer, 105, 20, 3, WHITE);
        lokAdresse = lokAdresseOld;
    }
}
else if (p.x > 60  && p.x < 105 && p.y > 55 && p.y < 100){// Number
    stelle_1_old = stelle_1;

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    stelle_2_old = stelle_2;
    stelle_1 = stelle_2;
    stelle_2 = 2;
    lokAdresseOld = lokAdresse;
    lokAdresse = stelle_1*10 + stelle_2;

    if (lokAdresse > 0 && lokAdresse < 81) {
        snprintf (buffer, sizeof (buffer), "%d", stelle_1_old); //Fi
        Tft.drawString(buffer, 85, 20, 3, YELLOW);
        snprintf (buffer, sizeof (buffer), "%d", stelle_2_old); // Se
            Tft.drawString(buffer, 105, 20, 3, YELLOW);
        snprintf (buffer, sizeof (buffer), "%d", stelle_1); //First o
        Tft.drawString(buffer, 85, 20, 3, RED);
        snprintf (buffer, sizeof (buffer), "%d", stelle_2); // Second
        Tft.drawString(buffer, 105, 20, 3, RED);
    }
    else { // invalid address: numbers are shown white instead of red
        snprintf (buffer, sizeof (buffer), "%d", stelle_1_old); //Fi
        Tft.drawString(buffer, 85, 20, 3, YELLOW);
        snprintf (buffer, sizeof (buffer), "%d", stelle_2_old); // Se
            Tft.drawString(buffer, 105, 20, 3, YELLOW);
        snprintf (buffer, sizeof (buffer), "%d", stelle_1); //First o
        Tft.drawString(buffer, 85, 20, 3, WHITE);
        snprintf (buffer, sizeof (buffer), "%d", stelle_2); // Second
        Tft.drawString(buffer, 105, 20, 3, WHITE);
        lokAdresse = lokAdresseOld;
    }
}

else if (p.x > 110 && p.x < 155 && p.y > 55 && p.y < 100){ // Numb
    stelle_1_old = stelle_1;
    stelle_2_old = stelle_2;
    stelle_1 = stelle_2;
    stelle_2 = 3;
    lokAdresse = stelle_1*10 + stelle_2;

    if (lokAdresse > 0 && lokAdresse < 81) {
        snprintf (buffer, sizeof (buffer), "%d", stelle_1_old); //Fi
        Tft.drawString(buffer, 85, 20, 3, YELLOW);
        snprintf (buffer, sizeof (buffer), "%d", stelle_2_old); // Se
            Tft.drawString(buffer, 105, 20, 3, YELLOW);
        snprintf (buffer, sizeof (buffer), "%d", stelle_1); //First o
        Tft.drawString(buffer, 85, 20, 3, RED);
        snprintf (buffer, sizeof (buffer), "%d", stelle_2); // Second
        Tft.drawString(buffer, 105, 20, 3, RED);
    }
    else { // invalid address: numbers are shown white instead of red
        snprintf (buffer, sizeof (buffer), "%d", stelle_1_old); //Fi
        Tft.drawString(buffer, 85, 20, 3, YELLOW);
        snprintf (buffer, sizeof (buffer), "%d", stelle_2_old); // Se

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        Tft.drawString(buffer, 105, 20, 3, YELLOW);
        snprintf (buffer, sizeof (buffer), "%d", stelle_1); //First
        Tft.drawString(buffer, 85, 20, 3, WHITE);
        snprintf (buffer, sizeof (buffer), "%d", stelle_2); // Second
        Tft.drawString(buffer, 105, 20, 3, WHITE);
        lokAdresse = lokAdresseOld;
    }
}
else if (p.x > 10  && p.x < 55 && p.y > 105 && p.y < 150){// Number
    stelle_1_old = stelle_1;
    stelle_2_old = stelle_2;
    stelle_1 = stelle_2;
    stelle_2 = 4;
    lokAdresse = stelle_1*10 + stelle_2;

    if (lokAdresse > 0 && lokAdresse < 81) {
        snprintf (buffer, sizeof (buffer), "%d", stelle_1_old); //Fi
        Tft.drawString(buffer, 85, 20, 3, YELLOW);
        snprintf (buffer, sizeof (buffer), "%d", stelle_2_old); // Se
            Tft.drawString(buffer, 105, 20, 3, YELLOW);
        snprintf (buffer, sizeof (buffer), "%d", stelle_1); //First
        Tft.drawString(buffer, 85, 20, 3, RED);
        snprintf (buffer, sizeof (buffer), "%d", stelle_2); // Second
        Tft.drawString(buffer, 105, 20, 3, RED);
    }
    else {// invalid address: numbers are shown white instead of red
        snprintf (buffer, sizeof (buffer), "%d", stelle_1_old); //Fi
        Tft.drawString(buffer, 85, 20, 3, YELLOW);
        snprintf (buffer, sizeof (buffer), "%d", stelle_2_old); // Se
            Tft.drawString(buffer, 105, 20, 3, YELLOW);
        snprintf (buffer, sizeof (buffer), "%d", stelle_1); //First
        Tft.drawString(buffer, 85, 20, 3, WHITE);
        snprintf (buffer, sizeof (buffer), "%d", stelle_2); // Second
        Tft.drawString(buffer, 105, 20, 3, WHITE);
        lokAdresse = lokAdresseOld;
    }
}
else if (p.x > 60  && p.x < 105 && p.y > 105 && p.y < 150){// Number
    stelle_1_old = stelle_1;
    stelle_2_old = stelle_2;
    stelle_1 = stelle_2;
    stelle_2 = 5;
    lokAdresse = stelle_1*10 + stelle_2;

    if (lokAdresse > 0 && lokAdresse < 81) {
        snprintf (buffer, sizeof (buffer), "%d", stelle_1_old); //Fi
        Tft.drawString(buffer, 85, 20, 3, YELLOW);
        snprintf (buffer, sizeof (buffer), "%d", stelle_2_old); // Se
            Tft.drawString(buffer, 105, 20, 3, YELLOW);

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        snprintf (buffer, sizeof (buffer), "%d", stelle_1); //First o
        Tft.drawString(buffer, 85, 20, 3, RED);
        snprintf (buffer, sizeof (buffer), "%d", stelle_2); // Second
        Tft.drawString(buffer, 105, 20, 3, RED);
    }
else { // invalid address: numbers are shown white instead of red
    snprintf (buffer, sizeof (buffer), "%d", stelle_1_old); //Fi
    Tft.drawString(buffer, 85, 20, 3, YELLOW);
    snprintf (buffer, sizeof (buffer), "%d", stelle_2_old); // Se
        Tft.drawString(buffer, 105, 20, 3, YELLOW);
    snprintf (buffer, sizeof (buffer), "%d", stelle_1); //First o
    Tft.drawString(buffer, 85, 20, 3, WHITE);
    snprintf (buffer, sizeof (buffer), "%d", stelle_2); // Second
    Tft.drawString(buffer, 105, 20, 3, WHITE);
    lokAdresse = lokAdresseOld;
}
}
else if (p.x > 110  && p.x < 155 && p.y > 105 && p.y < 150){ // Num
    stelle_1_old = stelle_1;
    stelle_2_old = stelle_2;
    stelle_1 = stelle_2;
    stelle_2 = 6;
    lokAdresse = stelle_1*10 + stelle_2;

    if (lokAdresse > 0 && lokAdresse < 81) {
        snprintf (buffer, sizeof (buffer), "%d", stelle_1_old); //Fi
        Tft.drawString(buffer, 85, 20, 3, YELLOW);
        snprintf (buffer, sizeof (buffer), "%d", stelle_2_old); // Se
            Tft.drawString(buffer, 105, 20, 3, YELLOW);
        snprintf (buffer, sizeof (buffer), "%d", stelle_1); //First o
        Tft.drawString(buffer, 85, 20, 3, RED);
        snprintf (buffer, sizeof (buffer), "%d", stelle_2); // Second
        Tft.drawString(buffer, 105, 20, 3, RED);
    }
else { // invalid address: numbers are shown white instead of red
    snprintf (buffer, sizeof (buffer), "%d", stelle_1_old); //Fi
    Tft.drawString(buffer, 85, 20, 3, YELLOW);
    snprintf (buffer, sizeof (buffer), "%d", stelle_2_old); // Se
        Tft.drawString(buffer, 105, 20, 3, YELLOW);
    snprintf (buffer, sizeof (buffer), "%d", stelle_1); //First o
    Tft.drawString(buffer, 85, 20, 3, WHITE);
    snprintf (buffer, sizeof (buffer), "%d", stelle_2); // Second
    Tft.drawString(buffer, 105, 20, 3, WHITE);
    lokAdresse = lokAdresseOld;
}
}
else if (p.x > 10  && p.x < 55 && p.y > 155 && p.y < 200){ // Number
    stelle_1_old = stelle_1;
    stelle_2_old = stelle_2;

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stelle_1 = stelle_2;
stelle_2 = 7;
lokAdresse = stelle_1*10 + stelle_2;

if (lokAdresse > 0 && lokAdresse < 81) {
    snprintf (buffer, sizeof (buffer), "%d", stelle_1_old); //Fi
    Tft.drawString(buffer, 85, 20, 3, YELLOW);
    snprintf (buffer, sizeof (buffer), "%d", stelle_2_old); // Se
        Tft.drawString(buffer, 105, 20, 3, YELLOW);
    snprintf (buffer, sizeof (buffer), "%d", stelle_1); //First o
    Tft.drawString(buffer, 85, 20, 3, RED);
    snprintf (buffer, sizeof (buffer), "%d", stelle_2); // Second
    Tft.drawString(buffer, 105, 20, 3, RED);
}
else { // invalid address: numbers are shown white instead of red
    snprintf (buffer, sizeof (buffer), "%d", stelle_1_old); //Fi
    Tft.drawString(buffer, 85, 20, 3, YELLOW);
    snprintf (buffer, sizeof (buffer), "%d", stelle_2_old); // Se
        Tft.drawString(buffer, 105, 20, 3, YELLOW);
    snprintf (buffer, sizeof (buffer), "%d", stelle_1); //First o
    Tft.drawString(buffer, 85, 20, 3, WHITE);
    snprintf (buffer, sizeof (buffer), "%d", stelle_2); // Second
    Tft.drawString(buffer, 105, 20, 3, WHITE);
    lokAdresse = lokAdresseOld;
}
}

else if (p.x > 60 && p.x < 105 && p.y > 155 && p.y < 200){ // Numb
    stelle_1_old = stelle_1;
    stelle_2_old = stelle_2;
    stelle_1 = stelle_2;
    stelle_2 = 8;
    lokAdresse = stelle_1*10 + stelle_2;

    if (lokAdresse > 0 && lokAdresse < 81) {
        snprintf (buffer, sizeof (buffer), "%d", stelle_1_old); //Fi
        Tft.drawString(buffer, 85, 20, 3, YELLOW);
        snprintf (buffer, sizeof (buffer), "%d", stelle_2_old); // Se
            Tft.drawString(buffer, 105, 20, 3, YELLOW);
        snprintf (buffer, sizeof (buffer), "%d", stelle_1); //First o
        Tft.drawString(buffer, 85, 20, 3, RED);
        snprintf (buffer, sizeof (buffer), "%d", stelle_2); // Second
        Tft.drawString(buffer, 105, 20, 3, RED);
    }
    else { // invalid address: numbers are shown white instead of red
        snprintf (buffer, sizeof (buffer), "%d", stelle_1_old); //F
        Tft.drawString(buffer, 85, 20, 3, YELLOW);
        snprintf (buffer, sizeof (buffer), "%d", stelle_2_old); // Se
            Tft.drawString(buffer, 105, 20, 3, YELLOW);
        snprintf (buffer, sizeof (buffer), "%d", stelle_1); //First o

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        Tft.drawString(buffer, 85, 20, 3, WHITE);
        snprintf (buffer, sizeof (buffer), "%d", stelle_2); // Second
        Tft.drawString(buffer, 105, 20, 3, WHITE);
        lokAdresse = lokAdresseOld;
    }
}
else if (p.x > 110  && p.x < 155 && p.y > 155 && p.y < 200){// Number
    stelle_1_old = stelle_1;
    stelle_2_old = stelle_2;
    stelle_1 = stelle_2;
    stelle_2 = 9;
    lokAdresse = stelle_1*10 + stelle_2;

    if (lokAdresse > 0 && lokAdresse < 81) {
        snprintf (buffer, sizeof (buffer), "%d", stelle_1_old); //First
        Tft.drawString(buffer, 85, 20, 3, YELLOW);
        snprintf (buffer, sizeof (buffer), "%d", stelle_2_old); // Second
            Tft.drawString(buffer, 105, 20, 3, YELLOW);
        snprintf (buffer, sizeof (buffer), "%d", stelle_1); //First
        Tft.drawString(buffer, 85, 20, 3, RED);
        snprintf (buffer, sizeof (buffer), "%d", stelle_2); // Second
        Tft.drawString(buffer, 105, 20, 3, RED);
    }
    else {// invalid address: numbers are shown white instead of red
        snprintf (buffer, sizeof (buffer), "%d", stelle_1_old); //First
        Tft.drawString(buffer, 85, 20, 3, YELLOW);
        snprintf (buffer, sizeof (buffer), "%d", stelle_2_old); // Second
            Tft.drawString(buffer, 105, 20, 3, YELLOW);
        snprintf (buffer, sizeof (buffer), "%d", stelle_1); //First
        Tft.drawString(buffer, 85, 20, 3, WHITE);
        snprintf (buffer, sizeof (buffer), "%d", stelle_2); // Second
        Tft.drawString(buffer, 105, 20, 3, WHITE);
        lokAdresse = lokAdresseOld;
    }
}
else if (p.x > 10  && p.x < 55 && p.y > 205 && p.y < 250){// Number
    stelle_1_old = stelle_1;
    stelle_2_old = stelle_2;
    stelle_1 = stelle_2;
    stelle_2 = 0;
    lokAdresse = stelle_1*10 + stelle_2;

    if (lokAdresse > 0 && lokAdresse < 81) {
        snprintf (buffer, sizeof (buffer), "%d", stelle_1_old); //First
        Tft.drawString(buffer, 85, 20, 3, YELLOW);
        snprintf (buffer, sizeof (buffer), "%d", stelle_2_old); // Second
            Tft.drawString(buffer, 105, 20, 3, YELLOW);
        snprintf (buffer, sizeof (buffer), "%d", stelle_1); //First
        Tft.drawString(buffer, 85, 20, 3, RED);
    }
}

```

```
        snprintf (buffer, sizeof (buffer), "%d", stelle_2); // Second
        Tft.drawString(buffer, 105, 20, 3, RED);
    }
else { // invalid address: numbers are shown white instead of red
    snprintf (buffer, sizeof (buffer), "%d", stelle_1_old); // First
    Tft.drawString(buffer, 85, 20, 3, YELLOW);
    snprintf (buffer, sizeof (buffer), "%d", stelle_2_old); // Second
        Tft.drawString(buffer, 105, 20, 3, YELLOW);
    snprintf (buffer, sizeof (buffer), "%d", stelle_1); // First
    Tft.drawString(buffer, 85, 20, 3, WHITE);
    snprintf (buffer, sizeof (buffer), "%d", stelle_2); // Second
    Tft.drawString(buffer, 105, 20, 3, WHITE);
    lokAdresse = lokAdresseOld;
}
}
}
}
delay (50);
}
```