#include <Wire.h>

#include <HX711.h>

#include <DS3231.h>

#include <LiquidCrystal.h>

#include <motor.h>

float Weight = 0;

DS3231 Clock;

LiquidCrystal lcd(12,11,10,9,8,7);

#define seat 4 //位置调节键

#define plus 5 //加键

#define reduce 6 //减键

bool h12, PM, Century=false;

unsigned long seconds;

int s = 0, m = 0, h = 0, d = 0, mon = 0, y = 0; //时间进位

int second = 0, minute = 0, hour = 0, day = 0, month = 0, year = 0, week=0,temperature; //当前时间

int SECOND, MINUTE, HOUR, DAY, MONTH, YEAR, WEEK; //初始时间

int ButtonDelay = 5,chose = 0;

int z,i,q=19;

void setup()

{ digitalWrite(seat, HIGH);

digitalWrite(plus, HIGH);

digitalWrite(reduce, HIGH);

Wire.begin();

lcd.begin(16,2);

/\*SECOND = 0;

MINUTE = 51;

HOUR = 18;

DAY = 11;

MONTH = 7;

YEAR = 2019;

WEEK=4; //初始时间\*/

SECOND = Clock.getSecond();

MINUTE = Clock.getMinute();

HOUR = Clock.getHour(h12, PM);

DAY = Clock.getDate();

MONTH = Clock.getMonth(Century);

YEAR = Clock.getYear()+2000;

Clock.setSecond(SECOND); //Set the second 设置秒数

Clock.setMinute(MINUTE); //Set the minute 设置分钟

Clock.setHour(HOUR); //Set the hour 设置小时

Clock.setDoW(WEEK); //Set the day of the week 设置星期几

Clock.setDate(DAY); //Set the date of the month 设置月份

Clock.setMonth(MONTH); //Set the month of the year 设置一年中的月份

Clock.setYear(q); //Set the year (Last two digits of the year)

Init\_motor();

Init\_Hx711();

Get\_Maopi();

delay(3000);

}

/\*\* 格式化输出 \*/

void FormatDisplay(int col, int row,int num)

{

lcd.setCursor(col, row);

if(num < 10)

lcd.print("0");

lcd.print(num);

}

/\* 显示光标 \*/

void DisplayCursor(int rol, int row) {

lcd.setCursor(rol, row);

lcd.cursor();

delay(80);

lcd.noCursor();

delay(80);

}

/\* 计算时间 \*/

void time()

{

second = (SECOND + seconds) % 60; //计算秒

m = (SECOND + seconds) / 60; //分钟进位

FormatDisplay(6,1,second);

minute = (MINUTE + m) % 60; //计算分钟

h = (MINUTE + m) / 60; //小时进位

FormatDisplay(3,1,minute);

hour = (HOUR + h) % 24; //计算小时

d = (HOUR + h) / 24; //天数进位

FormatDisplay(0,1,hour);

lcd.setCursor(2, 1);

lcd.print(":");

lcd.setCursor(5, 1);

lcd.print(":");

}

//算月份天数

int Days(int year, int month){

int days = 0;

if (month != 2){

switch(month){

case 1: case 3: case 5: case 7: case 8: case 10: case 12: days = 31; break;

case 4: case 6: case 9: case 11: days = 30; break;

}

}else{ //闰年

if(year % 4 == 0 && year % 100 != 0 || year % 400 == 0)

{

days = 29;

}

else{

days = 28;

}

}

return days;

}

/\*\* 计算当月天数 \*/

void Day(){

int days = Days(year,month);

int days\_up;

if(month == 1){

days\_up = Days(year - 1, 12);

}

else{

days\_up = Days(year, month - 1);

}

day = (DAY + d) % days;

if(day == 0){

day = days;

}

if((DAY + d) == days + 1 ){

DAY -= days;

mon++;

}

if((DAY + d) == 0){

DAY += days\_up;

mon--;

}

FormatDisplay(8,0,day);

}

/\*\* 计算月份 \*/

void Month(){

month = (MONTH + mon) % 12;

if(month == 0){

month = 12;

}

y = (MONTH + mon - 1) / 12;

FormatDisplay(5,0,month);

lcd.setCursor(7, 0);

lcd.print('-');

}

/\*\* 计算年份 \*/

void Year(){

year = ( YEAR + y ) % 9999;

if(year == 0){

year = 9999;

}

lcd.setCursor(0, 0);

if(year < 1000){

lcd.print("0");

}

if(year < 100){

lcd.print("0");

}

if(year < 10){

lcd.print("0");

}

lcd.print(year);

lcd.setCursor(4, 0);

lcd.print('-');

}

/\*\* 根据年月日计算星期几 \*/

void Week(int y,int m, int d){

if(m == 1){

m = 13;

}

if(m == 2){

m = 14;

}

int week = (d+2\*m+3\*(m+1)/5+y+y/4-y/100+y/400)%7+1;

String weekstr = "";

switch(week){

case 1: weekstr = "Mon "; break;

case 2: weekstr = "Tues"; break;

case 3: weekstr = "Wed "; break;

case 4: weekstr = "Thur"; break;

case 5: weekstr = "Fri "; break;

case 6: weekstr = "Sat "; break;

case 7: weekstr = "Sun "; break;

}

lcd.setCursor(12, 0);

lcd.print(weekstr);

}

/\*\* 设置初始时间 \*/

void set(int y, int mon, int d, int h, int m, int s){

YEAR = y;

MONTH = mon;

DAY = d;

HOUR = h;

MINUTE = m;

SECOND = s;

}

/\* 显示时间、日期、星期 \*/

void Display() {

time();

Day();

Month();

Year();

Week(year,month,day);

temperature=Clock.getTemperature();

lcd.setCursor(12, 1);

lcd.print(temperature); // 显示温度

lcd.write(0xdf); // 显示温度单位

lcd.print("C");

}

/\*\* 通过按键设置时间 \*/

void Set\_Time(int rol, int row, int &Time){

DisplayCursor(rol, row);

if(digitalRead(plus) == LOW){

delay(ButtonDelay);

if(digitalRead(plus) == LOW){

Time ++;

}

Display();

}

if(digitalRead(reduce) == LOW){

delay(ButtonDelay);

if(digitalRead(reduce) == LOW){

Time --;

}

Display();

}

}

void Set\_Clock(){

if(digitalRead(seat)==LOW){

while(1){

if(digitalRead(seat) == LOW){

delay(ButtonDelay);

if(digitalRead(seat) ==LOW){

chose++;

}

}

seconds = millis()/1000;

Display();

if(chose == 1){

Set\_Time(3, 0, YEAR);

}else if(chose == 2){

Set\_Time(6, 0, MONTH);

}else if(chose == 3){

Set\_Time(9, 0, DAY);

}else if(chose == 4){

Set\_Time(1, 1, HOUR);

}else if(chose == 5){

Set\_Time(4, 1, MINUTE);

}else if(chose == 6){

Set\_Time(7, 1, SECOND);

}else if(chose >= 7)

{

lcd.clear();

delay (100);

chose = 0;

break;

}

}

}

}

/\*\* 显示时间、日期、星期 \*/

void Pritime()

{

if(i==0)

{

lcd.clear();

i++;

}

seconds = millis()/1000;

Display();

Set\_Clock(); //设置时间

}

void Weigh(){

lcd.setCursor(5,0);

int x = 0;

Weight = Get\_Weight(); //计算放在传感器上的重物重量

if (Weight){

lcd.print((Weight/1000),3); //串口显示重量

lcd.print(" kg"); //显示单位

delay(50);//延时1s

}

x = abs(Weight);

int x\_1 = x/100;//x/100 \*1 circle

PUT\_N\_ForwardCircle(x\_1);

int x\_2 = (x%100)/100; //x%100/10 1/10;

PUT\_N\_ForwardCircle(x\_2);

int x\_3 = (((x%100)/10)%10)\*2;

PUT\_N\_Up\_Step(x\_3);

delay(1000);

PUT\_N\_BackCircle((x\_1)+(x\_2));

PUT\_N\_Down\_Step(x\_3);

delay(1);

lcd.clear();

}

void loop()

{

Weight = Get\_Weight();

if(Weight>0.028){

lcd.clear();

Weigh();

}else

Pritime();

}