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/**************************************
    スタートゲート制御基板用スケッチ
    LCD Keypad Shield 使用
 **************************************/

//Sample using LiquidCrystal library
#include <LiquidCrystal.h>
#include <Boards.h>
#include <Firmata.h>
#include <Servo.h>



/*select the pins used on the LCD panel
      lcd の使っているピン番号
   LiquidCrystal(rs, enable, d4, d5, d6, d7)
   rs: LCD の RS ピンに接続する Arduino 側のピン番号
   rw: LCD の RW ピンに接続する Arduino 側のピン番号
   enable: LCD の enable ピンに接続する Arduino 側のピン番号
   d0～d7: LCD の data ピンに接続する Arduino 側のピン番号

   d0～d3 はオプションで、省略すると 4 本のデータライン(d4～d7)だけで制御します。
*/
LiquidCrystal lcd(8, 9, 4, 5, 6, 7);

// define some values used by the panel and buttons
int pushbutton = 0;
//パターン
int INTimepattern = 0;
int OUTTimepattern = 0;
int pattern = 0;
/*I = IN
   O = OUT
   cnts = second
   cntm = minute
   分秒表示*/
int Icnts = 0;
int Icntm = 0;
int Ocnts = 0;
int Ocntm = 0;
```

```
//時間計算
unsigned long Itimemillis = 0;
unsigned long Otimemillis = 0;
unsigned long Itime1 = 0;
unsigned long Itime2 = 0;
unsigned long Itime3 = 0;
unsigned long Otime1 = 0;
unsigned long Otime2 = 0;
unsigned long Otime3 = 0;
//時間
unsigned long millis();
//時間その他
int IcntIN = 0;
int OcntOUT = 0;
//定義
#define LEFT     0
#define UP       1
#define DOWN     2
#define RIGHT    3
#define SELECT 4
#define NONE     5

#define analogswitch A0

// read the buttons
int button() {
   pushbutton = (analogRead(analogswitch) / 4);
   if (pushbutton > 240) return NONE;
   if (pushbutton < 10) return    RIGHT;
   if (pushbutton < 50) return    UP;
   if (pushbutton < 100) return DOWN;
   if (pushbutton < 150) return LEFT;
   if (pushbutton < 200) return SELECT;
   // return NONE;
}


void timerIN() {
   switch (INTimepattern) {
```

```
      case 0:
        Itimemillis = millis();
        Itime2 = Itimemillis - Itime1;
        if (Itime2 > 999) {
          Itime1 = Itimemillis;
          Icnts += 1;
        }
        if (Icnts > 59) {
          Icnts = 0;
          Icntm += 1;
        }
        IcntIN = 0;
        break;

      case 2:
        IcntIN++;
        if (pattern == 0) {
          Itime2 = 0;
          INTimepattern = 4;
        }
        break;

      case 4:
        IcntIN++;
        Itimemillis = millis();
        Itime1 = Itimemillis;
        Itime2 = Itimemillis - Itime1;
        if (IcntIN > 10 && pattern == 2) {
          Itime1 = Itimemillis;
          INTimepattern = 0;
        }
        break;
    }
}

void timerOUT() {

  switch (OUTTimepattern) {
    case 0:
      Otimemillis = millis();
```

```
      Otime2 = Otimemillis - Otime1;
      if (Otime2 > 999) {
        Otime1 = Otimemillis;
        Ocnts += 1;
      }
      if (Ocnts > 59) {
        Ocnts = 0;
        Ocntm += 1;
      }
      break;

    case 1:
      break;
  }
}

void switcher() {
  pattern = button();   // read the buttons

  switch (pattern) {
    case LEFT:
      Itimemillis = millis();
      Itime1 = Itimemillis;
      Itime2 = Itimemillis - Itime1;
      Icnts = 0;
      Icntm = 0;
      break;

    case UP:
      if (INTimepattern < 1) {
        INTimepattern = 2;
      }
      /*      if (INTimepattern > 0) {
              INTimepattern = 0;
            }*/
      break;

    case NONE:

      break;
```

```
    }
}

void LCD() {
    lcd.setCursor(5, 1);
    lcd.print(Icntm);
    lcd.print(" ");
    lcd.print(Icnts);
    lcd.print(" ");
    lcd.print(Itime2);
    lcd.print("     ");
    lcd.setCursor(5, 0);
    lcd.print(Ocntm);
    lcd.print(" ");
    lcd.print(Ocnts);
    lcd.print(" ");
    lcd.print(Otime2);
    lcd.print("     ");
}
void printer() {
    Serial.print("IN");
    Serial.print(" ");
    Serial.print(Icntm);
    Serial.print(" ");
    Serial.print(Icnts);
    Serial.print(" ");
    Serial.print(Itime2);
    Serial.print(" ");
    Serial.print("OUT");
    Serial.print(" ");
    Serial.print(Ocntm);
    Serial.print(" ");
    Serial.print(Ocnts);
    Serial.print(" ");
    Serial.print(Otime2);
    Serial.print(" ");
    Serial.print(INTimepattern);
    Serial.print(" ");
    Serial.print(pattern);
    Serial.print(" ");
```

```
  Serial.println(IcntIN);
}



void setup()
{
  Serial.begin(250000);
  lcd.begin(16, 2);                    // start the library
  lcd.setCursor(0, 0);
  lcd.print("OUT"); // print a simple message
  lcd.setCursor(0, 1);     // move to the begining of the second line
  lcd.print("IN");
}

void loop()
{
  timerIN();
  timerOUT();
  switcher();
  LCD();
  printer();
}
```