/\*--------------------VenDuino---------------
Vending machine using FULL ROTATION servos.
V0.32 2017 Ryan Bates, RetroBuiltGames.com
copy and paste into arduino sketch
I/O PIN#
ServoA ~11
ServoB ~10
ServoC ~9
ServoD ~6
ButtonA 8
ButtonB 7
ButtonC 5
ButtonD 4
LEDready 13
LEDdispense 12
coinInsert - 3
A0-A4 Nokia5110 LCD
\*/
#include <LCD5110\_Graph.h>

LCD5110 myGLCD(A0,A1,A2,A3,A4);

extern uint8\_t SmallFont[];

const int ServoA = 11;
const int ServoB = 10;
const int ServoC = 9;
const int ServoD = 6;

const int clockwise = 1700;
const int counterclockwise = 1300;

const int ButtonA = 8;
const int ButtonB = 7;
const int ButtonC = 5;
const int ButtonD = 4;

const int LEDready = 13;
const int coinInsert = 12;

long previousMillis = 0;
long intervalIdle = 500;
int LEDreadyState = LOW;

int y1= 0; int y2= 10; //position shifters for LCD txt

void setup() {

 myGLCD.InitLCD();
 myGLCD.setFont(SmallFont);
 myGLCD.setContrast(70);

 pinMode(ButtonA, INPUT\_PULLUP);
 pinMode(ButtonB, INPUT\_PULLUP);
 pinMode(ButtonC, INPUT\_PULLUP);
 pinMode(ButtonD, INPUT\_PULLUP);

 pinMode(LEDready, OUTPUT);
 pinMode(coinInsert, INPUT\_PULLUP);

 myGLCD.invert(true);
 myGLCD.print("VenDuino", CENTER, 1);
 myGLCD.print("by Ryan", CENTER, 10);
 myGLCD.print("(c) 2017", CENTER, 30);
 myGLCD.drawRoundRect(13, 0, 70, 8);
 myGLCD.drawRect(0, 20, 83, 47);
 myGLCD.update(); delay(1000); myGLCD.clrScr(); myGLCD.update(); }

void loop()
{
//--Blink Ready LED---------------------------------------------------
 unsigned long currentMillis = millis();
 if(currentMillis - previousMillis >= intervalIdle) { // save the last time you blinked the LED
 previousMillis = currentMillis;

 if (LEDreadyState == LOW){ // if the LED is off turn it on and vice-versa:
 LEDreadyState = HIGH;

 myGLCD.clrScr();
 myGLCD.print("Please insert", CENTER, y1);
 myGLCD.print(" $0.25. ", CENTER, y2);
 myGLCD.invert(false);
 myGLCD.update(); }

 else
 LEDreadyState = LOW;
 digitalWrite(LEDready, LEDreadyState);// set the LED with the ledState of the variable:
 y1=y1 +5; y2=y2+5; //shift the text position down
 if ((y1==35) && (y2== 45)) //when the text almost goes off-screen, move it back up
 {y1=0; y2=10; }
 }

//---Wait for Coin/Credit---------------------------------------------------------------
while (digitalRead(coinInsert)==LOW) { //if coin inserted stay in servo enable loop
 digitalWrite(LEDready, HIGH);

 myGLCD.clrScr(); myGLCD.update();
 myGLCD.print("Please make", CENTER, 0);
 myGLCD.print(" a selection. ", CENTER, 10);
 myGLCD.drawRect(20, 20, 63, 47);
 myGLCD.drawRect(20, 20, 41, 47);
 myGLCD.drawRect(20, 20, 63, 34);
 myGLCD.update();
 servoEnable(); }
}

void servoEnable(){

while (digitalRead(ButtonA) == HIGH || digitalRead(ButtonB) == HIGH ||
digitalRead(ButtonC) == HIGH || digitalRead(ButtonD) == HIGH) {

 //---------Servo A----------------------------------------------------
 if ((digitalRead(ButtonA) == LOW) ) {
 for(int i=0; i<2; i++)
 {digitalWrite(LEDready, HIGH); delay(50); digitalWrite(LEDready, LOW); delay(50); }

 myGLCD.clrScr(); myGLCD.print("Vending", CENTER, 0);
 myGLCD.drawRect(20, 20, 63, 47); myGLCD.drawRect(20, 20, 41, 47);
 myGLCD.drawRect(20, 20, 63, 34); myGLCD.print("A1", 25, 24);
 myGLCD.update();

 for(int i=0; i<57; i++) // change this to adjust +- full revolution
 {
 digitalWrite(ServoA,HIGH);
 delayMicroseconds(clockwise);
 digitalWrite(ServoA,LOW);
 delay(18.5); // 18.5ms
 //delay(50); enable this line to slow servo rotation
 }
 break; } // when item is dispensed exit loop and return to wait for coin

 //---------Servo B----------------------------------------------------

 if ((digitalRead(ButtonB) == LOW) ) {
 for(int i=0; i<2; i++)
 {digitalWrite(LEDready, HIGH); delay(50); digitalWrite(LEDready, LOW); delay(50); }

 myGLCD.clrScr(); myGLCD.print("Vending", CENTER, 0);
 myGLCD.drawRect(20, 20, 63, 47); myGLCD.drawRect(20, 20, 41, 47);
 myGLCD.drawRect(20, 20, 63, 34); myGLCD.print("B1", 46, 24);
 myGLCD.update();

 for(int i=0; i<57; i++)
 {
 digitalWrite(ServoB,HIGH);
 delayMicroseconds(clockwise);
 digitalWrite(ServoB,LOW);
 delay(18.5); // 18.5ms
 //delay(50);
 }
 break; }

 //---------Servo C----------------------------------------------------

 if ((digitalRead(ButtonC) == LOW) ) {
 for(int i=0; i<2; i++)
 {digitalWrite(LEDready, HIGH); delay(50); digitalWrite(LEDready, LOW); delay(50); }

 myGLCD.clrScr(); myGLCD.print("Vending", CENTER, 0);
 myGLCD.drawRect(20, 20, 63, 47); myGLCD.drawRect(20, 20, 41, 47);
 myGLCD.drawRect(20, 20, 63, 34); myGLCD.print("C2", 25, 37);
 myGLCD.update();

 for(int i=0; i<57; i++)
 {
 digitalWrite(ServoC,HIGH);
 delayMicroseconds(clockwise);
 digitalWrite(ServoC,LOW);
 delay(18.5); // 18.5ms
 //delay(50);
 }
 break; }

 //---------Servo D----------------------------------------------------

 if ((digitalRead(ButtonD) == LOW) ) {
 for(int i=0; i<2; i++)
 {digitalWrite(LEDready, HIGH); delay(50); digitalWrite(LEDready, LOW); delay(50); }

myGLCD.clrScr(); myGLCD.print("Vending", CENTER, 0);
 myGLCD.drawRect(20, 20, 63, 47); myGLCD.drawRect(20, 20, 41, 47);
 myGLCD.drawRect(20, 20, 63, 34); myGLCD.print("D2", 46, 37);
 myGLCD.update();

 for(int i=0; i<57; i++)
 {
 digitalWrite(ServoD,HIGH);
 delayMicroseconds(clockwise);
 digitalWrite(ServoD,LOW);
 delay(18.5); // 18.5ms
 //delay(50);
 }
 break; }
 }
}