/\*--------------------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; }  
 }   
}