**Testing of LCD 1602**

#include <LiquidCrystal.h>

const int rs = 8, en = 9, d4 = 10, d5 = 11, d6 = 12, d7 = 13;

LiquidCrystal lcd(rs, en, d4, d5, d6, d7);

void setup() {

lcd.begin(16, 2); // set up the LCD's number of columns and rows:

lcd.print("hello, world!"); // Print a message to the LCD.

}

void loop()

{

// set the cursor to column 0, line 1

// (note: line 1 is the second row, since counting begins with 0):

lcd.setCursor(0, 1);

// print the number of seconds since reset:

lcd.print(millis() / 1000);

}

**Testing of BUTTONS**

#define leftButton 2

#define rightButton 3

void setup() {

Serial.begin(9600);

pinMode(leftButton, INPUT\_PULLUP);

pinMode(rightButton, INPUT\_PULLUP);

}

void loop() {

Serial.print(digitalRead(rightButton));

Serial.println();

Serial.print(digitalRead(leftButton));

Serial.println();

delay(1000);

}

**Testing of STEPPER**

const int stepPin = 7;

const int dirPin = 6;

void setup() {

// Sets the two pins as Outputs

pinMode(stepPin,OUTPUT);

pinMode(dirPin,OUTPUT);

}

void loop() {

digitalWrite(dirPin,HIGH); // Enables the motor to move in a particular direction

// Makes 200 pulses for making one full cycle rotation

for(int x = 0; x < 200; x++) {

digitalWrite(stepPin,HIGH);

delayMicroseconds(500);

digitalWrite(stepPin,LOW);

delayMicroseconds(500);

}

delay(1000); // One second delay

}

**Testing of SERVO**

#include <Servo.h>

Servo myservo; // create servo object to control a servo

// twelve servo objects can be created on most boards

int pos = 0; // variable to store the servo position

void setup() {

myservo.attach(4); // attaches the servo on pin 9 to the servo object

}

void loop() {

for (pos = 0; pos <= 180; pos += 1) { // goes from 0 degrees to 180 degrees

// in steps of 1 degree

myservo.write(pos); // tell servo to go to position in variable 'pos'

delay(15); // waits 15ms for the servo to reach the position

}

for (pos = 180; pos >= 0; pos -= 1) { // goes from 180 degrees to 0 degrees

myservo.write(pos); // tell servo to go to position in variable 'pos'

delay(15); // waits 15ms for the servo to reach the position

}

}

**Working Code Wire Cutting Machine**

#include <LiquidCrystal.h>

LiquidCrystal lcd(8, 9, 10, 11, 12, 13); // LCD connected to these pins as rs = 8, en = 9, d4 = 10, d5 = 11, d6 = 12, d7 = 13

#include <Servo.h>

Servo myservo;

const int stepPin = 7; // Stepper Motor as Extruder step pin 7

const int dirPin = 6; // stepper Motor as Extruder Direction pin 6

#define leftButton 2

#define rightButton 3

int cm = 0;

void setup()

{

lcd.begin(16, 2); // Define columns and rows on LCD

lcd.print("By: ");// Display Initial Massage on the display

lcd.setCursor(0, 1);

lcd.print("Gurpreet SINGH");

delay(5000);

lcd.clear();

lcd.setCursor(0, 0);

lcd.print("SEL LENGTH IN CM");

lcd.setCursor(0, 1);

lcd.print("DEC");

lcd.setCursor(13, 1);

lcd.print("INC");

delay(100);

myservo.attach(4); // Servo motor for cutting attached to Pin 4

myservo.write(20); // Write servo with initial open angle for cutter

pinMode(stepPin, OUTPUT); // Define two pins as Outputs for Stepper

pinMode(dirPin, OUTPUT);

Serial.begin(9600);

Serial.print("System is Started");

Serial.println();

pinMode(leftButton, INPUT\_PULLUP);

pinMode(rightButton, INPUT\_PULLUP);

}

void loop()

{

if (digitalRead(rightButton)&& !digitalRead(leftButton) == 1)

{

if (cm == 8)

{

cm = 8;

}

else

{

cm += 1;

}

lcd.clear();

lcd.setCursor(5, 0);

lcd.print("CM =");

lcd.setCursor(0, 1);

lcd.print("DEC");

lcd.setCursor(10, 0);

lcd.print(cm);

lcd.setCursor(13, 1);

lcd.print("INC");

}

if (digitalRead(leftButton)&& !digitalRead(rightButton) == 1)

{

if (cm == 0)

{

cm = 0;

}

else

{

cm -= 1;

}

lcd.clear();

lcd.setCursor(5, 0);

lcd.print("CM =");

lcd.setCursor(0, 1);

lcd.print("DEC");

lcd.setCursor(10, 0);

lcd.print(cm);

lcd.setCursor(13, 1);

lcd.print("INC");

}

Serial.print(cm);

delay(500);

if (digitalRead(rightButton)&& digitalRead(leftButton) == 1)

{

lcd.clear();

lcd.setCursor(0, 0);

lcd.print("Processing......");

digitalWrite(dirPin,LOW);

for(int x = 0; x < cm\*160; x++)

{

digitalWrite(stepPin,HIGH);

delayMicroseconds(500);

digitalWrite(stepPin,LOW);

delayMicroseconds(500);

}

delay(2000);

myservo.write(90);

delay(2000);

myservo.write(20);

delay(2000);

lcd.clear();

lcd.setCursor(0, 0);

lcd.print("Cutting Done");

delay(5000);

lcd.clear();

lcd.setCursor(5, 0);

lcd.print("CM =");

lcd.setCursor(0, 1);

lcd.print("DEC");

lcd.setCursor(10, 0);

lcd.print(cm);

lcd.setCursor(13, 1);

lcd.print("INC");

}

}