Motor Test\_M3\_72522

[code]

// Motor Test\_M3\_72522

//compiled: 7/24/22 Tests:7/24/22 with M3+ ->ok,7/25 M3- --> board failure

// stepper code credits:

// DroneBot Workshop 2018

// https://dronebotworkshop.com

// LIBRARIES

#include "Arduino.h"

#include <Stepper.h>

// CONSTANTS

// Constants for switch and sensor

const int Switch = 12; //The input pin where the

//switch is connected

const int analogPin = A0;

int analogValue = 0;

int photocellReading;

int sensorValue;

int sensorMin = 1260;

int sensor1 = 0;

// constants for stepper motor ULN2003 driver //Constants placed inside the functions

// Number of steps per internal motor revolution

//const float STEPS\_PER\_REV = 32;

// Amount of gear reduction

//const float GEAR\_RED = 64;

// Number of steps per geared output rotation

//const float STEPS\_PER\_OUT\_REV = STEPS\_PER\_REV \* GEAR\_RED;

int val = 0;

int k=0;

void setup() {

 // Setup code for Serial programing

 Serial.begin (9600);

 // Setup Code for Switch and Sensor

 pinMode(Switch, INPUT); //and SWITCH is an input (digital pin 12).

 pinMode (analogPin, INPUT); // A0 is used for analog input (Serial Monitor used)

 //Function call and setup (4 functions)

 //Stepper motor model 28BYJ-48, NEMA 11, ULN2003 controller

 //Stepper1A() // M3 Shutter open

 // Stepper1B() //M3 Shutter close

}

void loop() {

 while (digitalRead(Switch) == LOW) {

 //DO NOTHING

 //Serial.print ("Switch= ");

 //Serial.println( Switch);

 }

 // else start the program

 Stepper1A();

 Serial.print("k= ");

 Serial.println (k);

 // Acquire analog reading from A0 and check alarm status

 analogValue = analogRead(analogPin);

 // Instruction to invert reading

 photocellReading = 1023 - analogValue;

 Serial.print ("photocellReading ");

 Serial.println (photocellReading); //Low light level ~ 0

 sensorMin= photocellReading;

 delay (1000);

 Serial.print ("sensorMin= ");

 Serial.println (sensorMin, DEC);

 if (sensorMin < 20) { //smoke or obstruction of sensor

 sensor1 = 1;}

 else sensor1 = 2;

 switch (sensor1) {

 case 1:

 Serial.print( "sensorMin= ");

 Serial.println (sensorMin);

 Serial.print ("sensor1= ");

 Serial.println(sensor1);

 Serial.print("Obstruction in Light Path");

 Stepper1B();

 Serial.print ("End of Case 1 ");

 delay (10000);

 break;

 case 2:

 //For other motor options and test of sensor

 Serial.print("sensorMin ");

 Serial.println (sensorMin);

 Serial.print ("sensor1 ");

 Serial.println (sensor1);

 Serial.print ("Case 2 ");

 delay(1000);

 break;

 }

 Serial.print ("End Program ");

 Serial.print ( "k = ");

 // Timing loop

 for (int k=0; k<100;k++) {

 Serial.println (k);

 delay (1000);

 }

}

 // STEPPER FUNCTION M3 SHUTTER // divide M3 cw and M3 ccw\_\_\_7/09\_\_

 /\*

 Stepper motor M3 Shutter

 Uses 28BYJ-48 Unipolar stepper with ULN2003 Darlington driver

 Uses Arduino Stepper Library

 \*/

 void Stepper1A () { //Open Shutter

 // Define Variables

 //review and consider break statement

 // Number of Steps Required

 int StepsRequired;

 //Create Instance of Stepper Class

 //Specify Pins Used for Motor Coils

 //The Pins Used are 8,9,10,11

 // Connected to the ULN2003 Motor Driver In1, In2, In3, In4

 // Pins entered in sequence 1-3-2-4 for proper step sequencing

 // constants for stepper motors

// Number of steps per internal motor revolution

const float STEPS\_PER\_REV = 32;

// Amount of gear reduction

const float GEAR\_RED = 64;

// Number of steps per geared output rotation

const float STEPS\_PER\_OUT\_REV = STEPS\_PER\_REV \* GEAR\_RED;

 Stepper steppermotor(STEPS\_PER\_REV, 8, 10, 9, 11);

 //Slow- 4 step CW sequence to observe lights on Driver Board. edit 6/30/20 slow CW and CCW, 2000 ms delays.

 steppermotor.setSpeed(50);

 StepsRequired = 5;

 steppermotor.step(StepsRequired);

 delay(2000);

 // Rotate CW 1/4 turn slowly

 StepsRequired = STEPS\_PER\_OUT\_REV / 5;

 steppermotor.setSpeed(50);

 steppermotor.step(StepsRequired);

 delay (2000);

 }

 void Stepper1B () { //Close Shutter

 // Number of Steps Required

 int StepsRequired;

 //Create Instance of Stepper Class

 //Specify Pins Used for Motor Coils

 //The Pins Used are 8,9,10,11

 // Connected to the ULN2003 Motor Driver In1, In2, In3, In4

 // Pins entered in sequence 1-3-2-4 for proper step sequencing

 // constants for stepper motors

// Number of steps per internal motor revolution

const float STEPS\_PER\_REV = 32;

// Amount of gear reduction

const float GEAR\_RED = 64;

// Number of steps per geared output rotation

const float STEPS\_PER\_OUT\_REV = STEPS\_PER\_REV \* GEAR\_RED;

 Stepper steppermotor(STEPS\_PER\_REV, 8, 10, 9, 11);

 steppermotor.setSpeed(50);

 StepsRequired = 5;

 steppermotor.step(StepsRequired);

 delay(2000);

 //RotateCCW 1/4 turn slowly, NOTE NEGATIVE SIGN BELOW separate function\_\_\_7/09\_

 StepsRequired = -STEPS\_PER\_OUT\_REV / 5;

 steppermotor.setSpeed(50);

 steppermotor.step(StepsRequired);

 delay (2000);

 }

[/code]