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]