Ex.No**:DEVELOP AN APPLICATION USING STEPPER MOTOR INTERFACE TO ROTATE IN CLOCKWISE**

Date :

## AIM:

To Interface a stepper motor using a driver circuit with Arduino and to write a program to Rotate clockwise direction.

## COMPONENTSREQUIRED:

| COMPONENTS | NOS |
|---|---|
| ARDUINOUNOR3 | 1 |
| MOTOR-BISTEPPER | 1 |
| L293D | 1 |
| USB2.0 CABLE A/B | 1 |

## PROCEDURE:

Step1:Wiring the Stepper Motor to the Arduino

Step2:Connect the ULN2003 Driver to Arduino

Step3:Connect IN1, IN2, IN3, IN4 pins of the ULN2003 driver to Arduino pins (pins 9, 10, 11 and 12).

Step4:Connect the GND of ULN2003 to GND on Arduino

Step5:Connect VCC of ULN2003 to 5V on Arduino

Step6: Connect the Stepper Motor to the ULN2003 Driver

Step 7: Connect the 4 wires from the stepper motor to the 4 output pins of the ULN2003 driver (pins 1, 2, 3, 4).

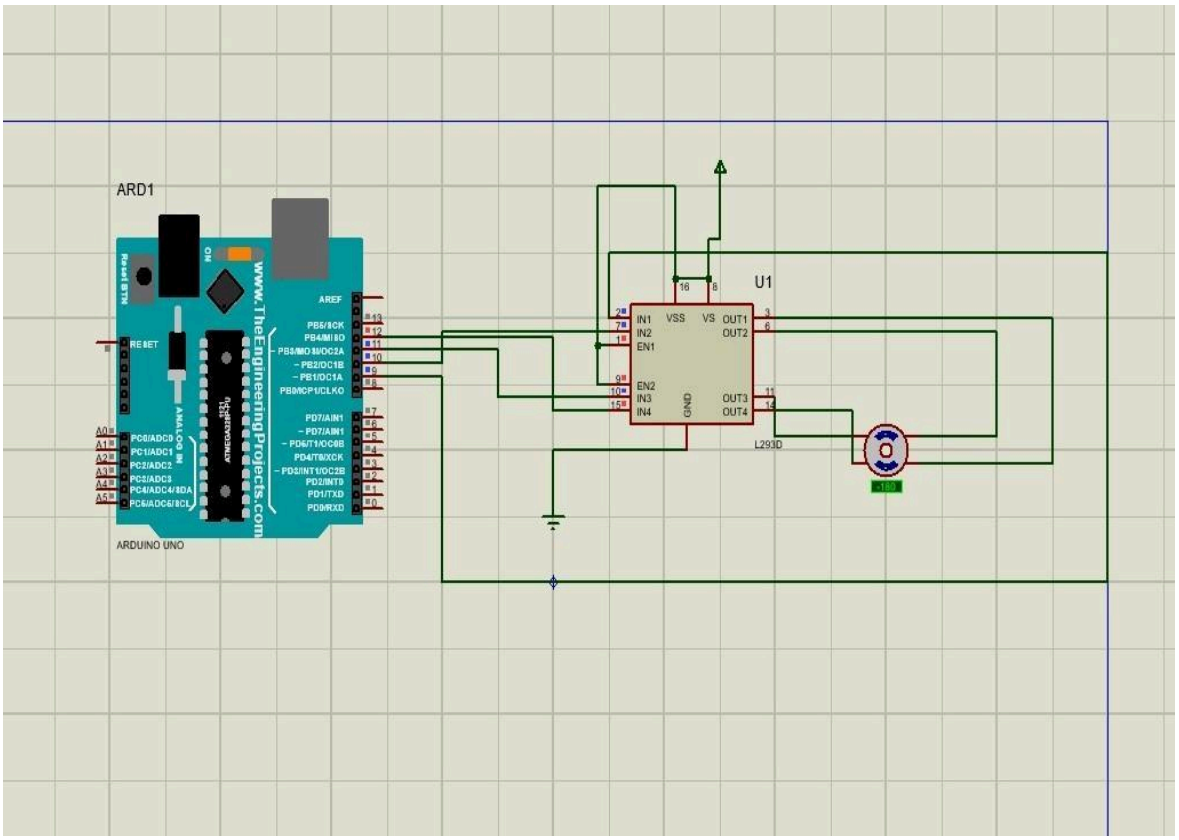
Step8:Connect your Arduino to the computer via USB.

Step 9: Open the Arduino IDE and select your board type and COM port.

Step10:Type the code and Click on the Upload button to upload the code to your Arduino.

Step11:Once the code is uploaded, the stepper motor should start rotating according to the instructions in the code.

## SCHEMATICDIAGRAM:

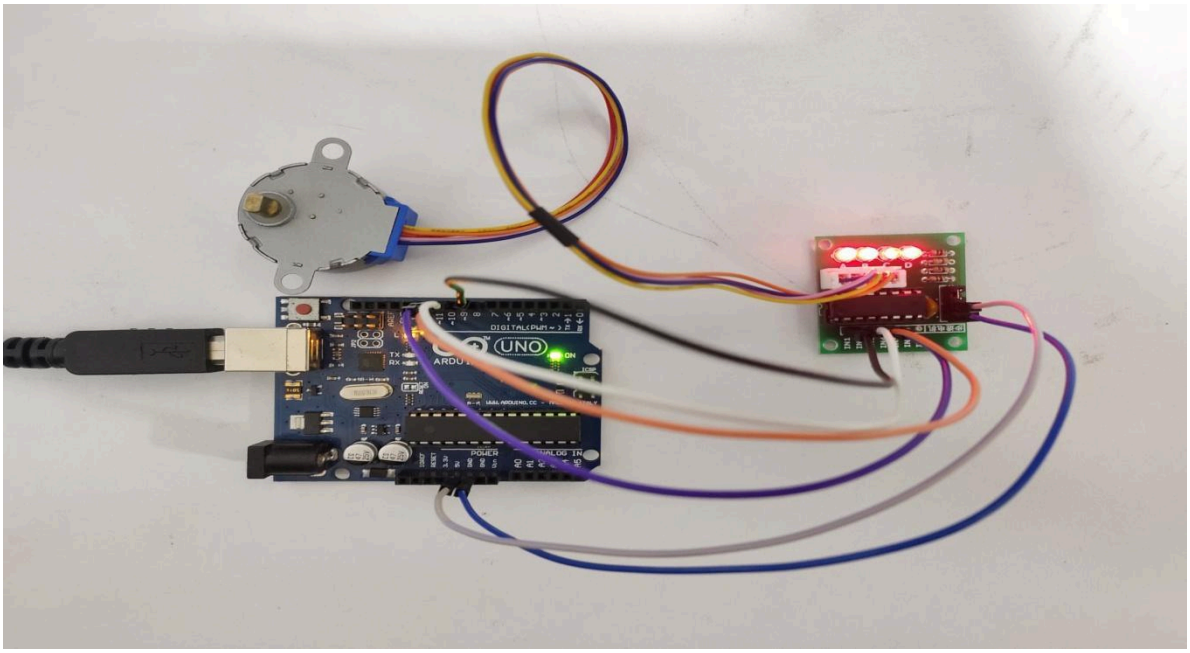


## PROGRAM:

```
#define STEPPER_PIN_1 9
#define STEPPER_PIN_2 10
#define STEPPER_PIN_3 11
#define STEPPER_PIN_4 12
int step_number = 0;
void setup() {
pinMode(STEPPER_PIN_1, OUTPUT);
pinMode(STEPPER_PIN_2, OUTPUT);
pinMode(STEPPER_PIN_3, OUTPUT);
pinMode(STEPPER_PIN_4, OUTPUT);

}

void loop() {

OneStep(false);
delay(2);
}

void OneStep(bool dir){
if(dir){
switch(step_number){
case 0:
digitalWrite(STEPPER_PIN_1, HIGH);
digitalWrite(STEPPER_PIN_2, LOW);
digitalWrite(STEPPER_PIN_3, LOW);
digitalWrite(STEPPER_PIN_4, LOW);
break;
case 1:
digitalWrite(STEPPER_PIN_1, LOW);
digitalWrite(STEPPER_PIN_2, HIGH);
digitalWrite(STEPPER_PIN_3, LOW);
digitalWrite(STEPPER_PIN_4, LOW);
break;
case 2:
digitalWrite(STEPPER_PIN_1, LOW);
digitalWrite(STEPPER_PIN_2, LOW);
digitalWrite(STEPPER_PIN_3, HIGH);
digitalWrite(STEPPER_PIN_4, LOW);
break;
case 3:
digitalWrite(STEPPER_PIN_1, LOW);
digitalWrite(STEPPER_PIN_2, LOW);
digitalWrite(STEPPER_PIN_3, LOW);
digitalWrite(STEPPER_PIN_4, HIGH);
break;
```

```
}
  }else{
  switch(step_number){
case 0:
digitalWrite(STEPPER_PIN_1, LOW);
digitalWrite(STEPPER_PIN_2, LOW);
digitalWrite(STEPPER_PIN_3, LOW);
digitalWrite(STEPPER_PIN_4, HIGH);
  break;
  case 1:
digitalWrite(STEPPER_PIN_1, LOW);
digitalWrite(STEPPER_PIN_2, LOW);
digitalWrite(STEPPER_PIN_3, HIGH);
digitalWrite(STEPPER_PIN_4, LOW);
break;
case 2:
digitalWrite(STEPPER_PIN_1, LOW);
digitalWrite(STEPPER_PIN_2, HIGH);
digitalWrite(STEPPER_PIN_3, LOW);
digitalWrite(STEPPER_PIN_4, LOW);
break;
case 3:
digitalWrite(STEPPER_PIN_1, HIGH);
digitalWrite(STEPPER_PIN_2, LOW);
digitalWrite(STEPPER_PIN_3, LOW);
digitalWrite(STEPPER_PIN_4, LOW);


                  }
}
step_number++;
if(step_number> 3){
step_number = 0;
  }
}
```

**OUTPUT:**




**RESULT:**

Thus Interfacing a stepper motor using a driver circuit with Arduino and programming to rotate clockwise direction has been executed successfully.