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const int controlPin1 = 2;
const int controlPin2 = 3;
const int enablePin = 6;//green wire on the H bridge6
const int directionSwitchPin = 13;
const int onOffSwitchStateSwitchPin = 12;
const int potPin = A1; //this is the potentiometer pin
const int led = 5;
const int redled = 7;
int temp = A0;

int onOffSwitchState = 0;
int previousOnOffSwitchState = 0;
int directionSwitchState = 0;
int previousDirectionSwitchState = 0;

int motorEnabled = 0;
int motorSpeed = 0;
int motorDirection = 0;

void setup()
{
  pinMode(controlPin1, OUTPUT);
  pinMode(controlPin2, OUTPUT);
  pinMode(enablePin, OUTPUT);
  pinMode(directionSwitchPin,INPUT);
  pinMode(onOffSwitchStateSwitchPin,INPUT);
  pinMode(led, INPUT);
  pinMode(redled, OUTPUT);
  pinMode(temp, INPUT);
  digitalWrite(enablePin,LOW);//The motor then initializes at OFF
  Serial.begin(9600);
}

void loop()
{
  int temp = analogRead(A0);
  temp = map(((analogRead(A0) - 20) * 3.04), 0, 1023, -40, 125);
  Serial.print("Temperature: ");
  Serial.print(temp);
  Serial.println(" C");

  if (temp>40) {
    Serial.println("Fan Auto Shutdown");
    digitalWrite(controlPin1, LOW);
  }
}

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digitalWrite(controlPin2, LOW);
} else if (temp<20) {
  Serial.println("Fan Auto Shutdown");
  digitalWrite(controlPin1, LOW);
  digitalWrite(controlPin2, LOW);
} else if(digitalRead(led) == HIGH){
  Motor_Pot();
  MotorControl();
  digitalWrite(redled, LOW);
} else{
  digitalWrite(redled, HIGH);
}
previousDirectionSwitchState = directionSwitchState;
previousOnOffSwitchState = onOffSwitchState;
}

```

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void Motor_Pot()
{
  onOffSwitchState = digitalRead(onOffSwitchStateSwitchPin);
  delay(1);

  directionSwitchState = digitalRead(directionSwitchPin);
  motorSpeed = analogRead(potPin)/4;

  if(onOffSwitchState != previousOnOffSwitchState){
    if(onOffSwitchState == HIGH){
      motorEnabled = !motorEnabled;
    }
  }
}

```

```

void MotorControl()
{
  if(directionSwitchState != previousDirectionSwitchState){
    if(directionSwitchState == HIGH){
      motorDirection = !motorDirection;}
    }if(motorDirection == 1){// if the direction is 1, turn left.
      digitalWrite(controlPin1, HIGH);
      digitalWrite(controlPin2, LOW);
    }
    else{//if the direction is 0, turn right.
      digitalWrite(controlPin1, LOW);
      digitalWrite(controlPin2, HIGH);
    }
  }
}

```

```
}  
if(motorEnabled == 1){  
  analogWrite(enablePin, motorSpeed);  
}  
else{  
  analogWrite(enablePin, 0); //if the motor is turned off ser EN to low  
}  
}
```