

KÜSTENEBELMACHINE



Hochschule für
Angewandte Wissenschaften
Hamburg

Medientechnik, Technische Projekt 2019
Haw Hamburg



ÜBERSICHT



SENSOR

Ultrasonic Ranging Module HC – SR04
Ultraschall Sensor

Max Range : 4m

Min Range : 2cm

5V Supply

Trigger Pulse Input

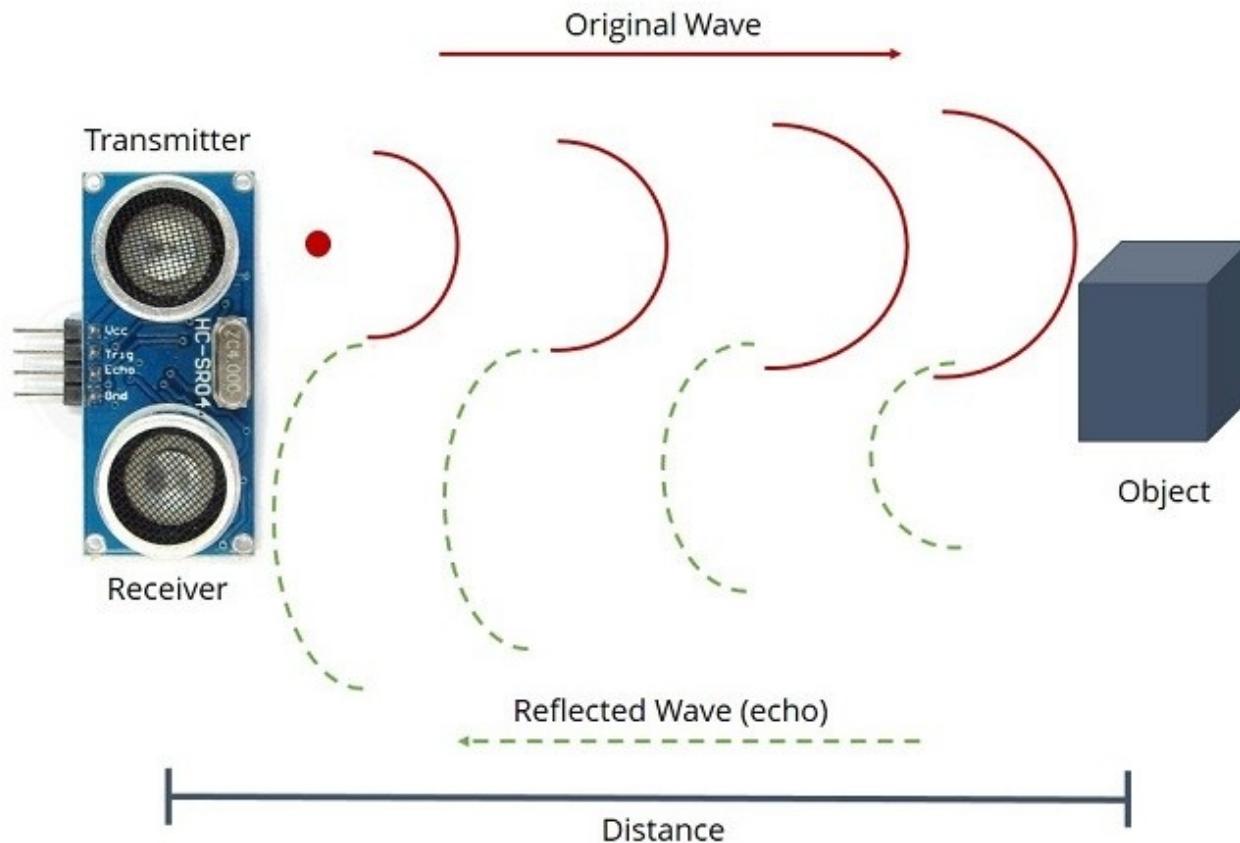
Echo Pulse Output

0V Ground

Wir arbeiten
zwischen 0 und
52 cm !



HC-SR-04 IN BETRIEB

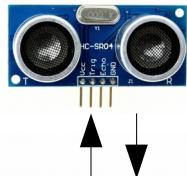


ROLLE & STEILUNG

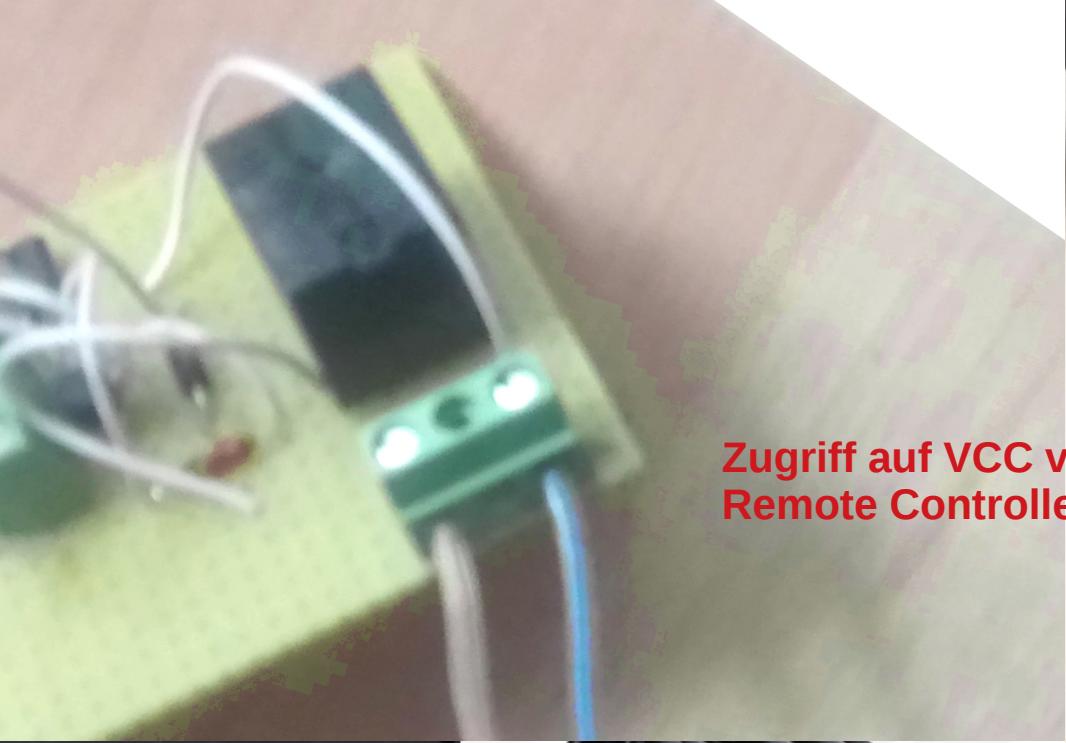


ÜBERBLICK

Ausgabe (output)= Schalle Hinweg
Input (input)= Schalle Ruckweg



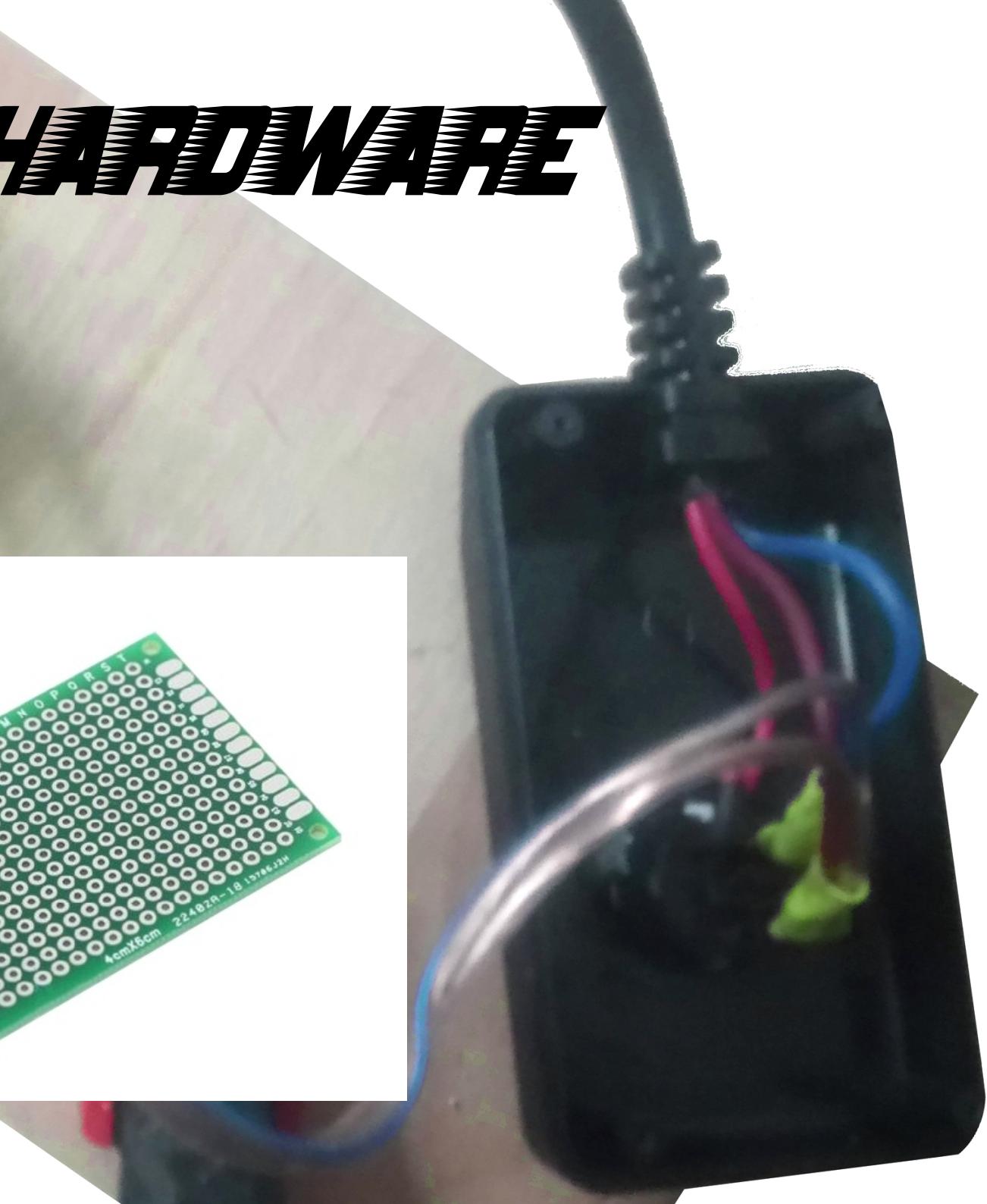
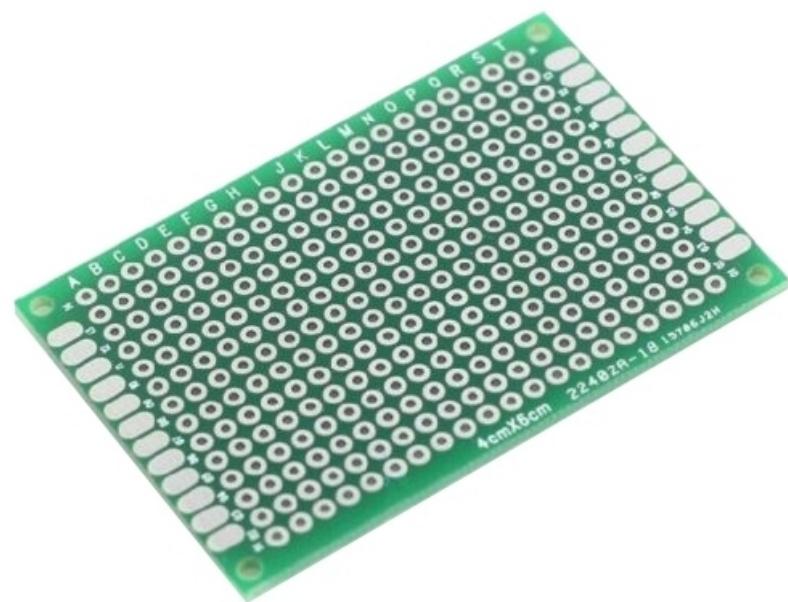
Ausgabe (Output) = Nebel



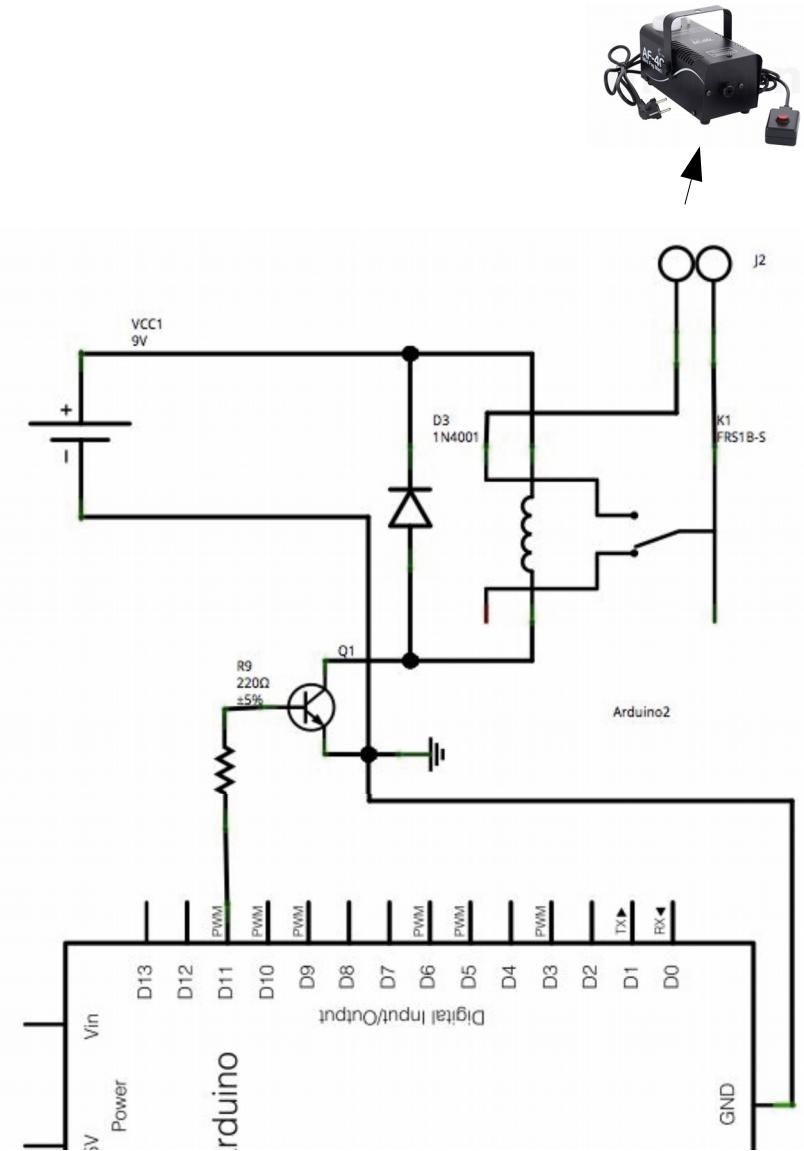
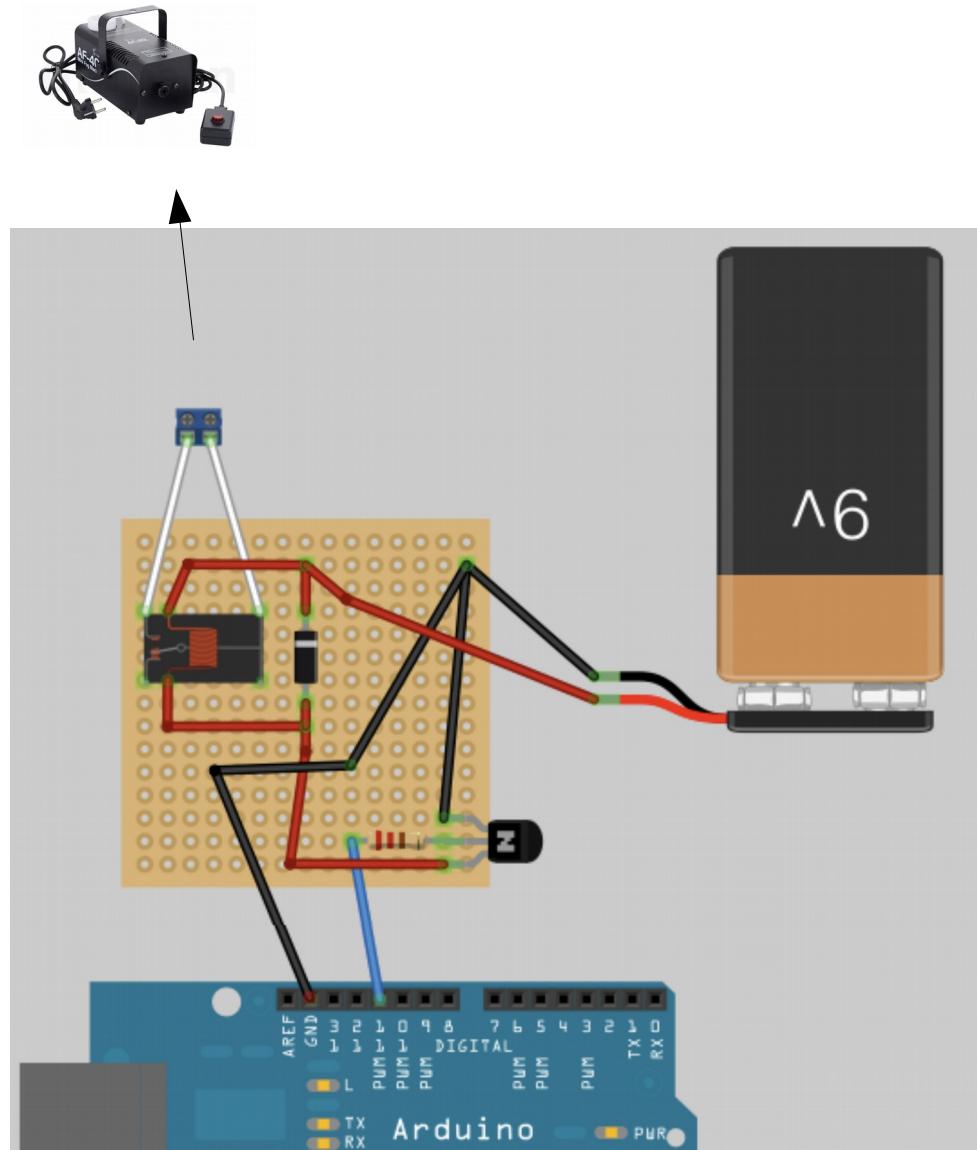
Zugriff auf VCC von dem
Remote Controller



HARDWARE

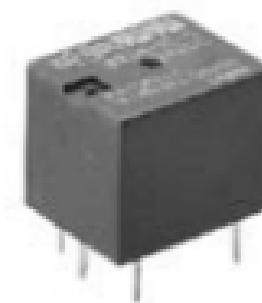
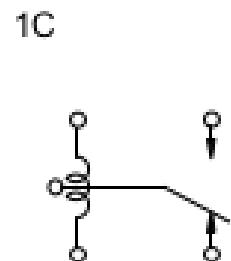


SCHALPLAN

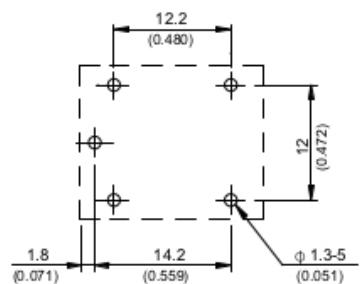


RELAY 833H-1C-C-12VDC

>>> Wiring Diagram BOTTOM VIEW



>>> PC Board Layout BOTTOM VIEW



SOFTWARE 1

AUSSAGE UND SETUP

```
#define trigPin 6 //Define the HC-SE04 triger on pin 6 on the arduino  
#define echoPin 5 //Define the HC-SE04 echo on pin 5 on the arduino  
#define bulb 9 //Define the relay signal on pin 9 on the arduino
```

```
void setup()  
{  
Serial.begin (9600); //Start the serial monitor  
pinMode(trigPin, OUTPUT); //set the trigpin to output  
pinMode(echoPin, INPUT); //set the echopin to input  
pinMode (bulb, OUTPUT); //set the bulb on pin 9 to output  
}
```

SOFTWARE //

LOOP

```
void loop()
{
int duration, distance; //Define two intregers duration and distance to be used to save data
digitalWrite(trigPin, HIGH); //write a digital high to the trigpin to send out the pulse
delayMicroseconds(500); //wait half a millisecond
digitalWrite(trigPin, LOW); //turn off the trigpin
duration = pulseIn(echoPin, HIGH); //measure the time using pulsein when the echo receives a signal set it to high
distance = (duration/2) * 0.03432 ; //distance is the duration devided by 2 becasue the signal traveled from
the trigpin then back to the echo pin, then multiply by 0,03432 to convert to centimeters.

if (distance < 52) //if the distance is less than 52cm

{
Light(); //execute the Light subroutine below
}
Serial.print(distance); //Dispaly the distance on the serial monitor
Serial.println(" CM"); //in centimeters
delay(500); //delay half a second
}
void Light() //Start the Light subroutine
{ digitalWrite(bulb, HIGH); //turn on the light
delay (15000); //wait 15 seconds
digitalWrite(bulb, LOW); //turn off the light
}
```

SOFTWARE 2

AUSSAGE

```
/*
HC-SR04 Ping distance sensor]
VCC to arduino 5v GND to arduino GND
Echo to Arduino pin 13
Trig to Arduino pin 12
Ausgang pin 11
*/
```

```
const int trigPin=12;
const int echoPin=13;
const int nebel=11;
```

```
int timer1=0;
int timer2=0;
int timer3=0;
```

```
int gemessen=0;
```

```
long duration, distance = 0;
```

```
unsigned long previousMillis = 0;
unsigned long currentMillis = millis();
```

SOFTWARE 2

SETUP

```
void setup() {  
  
Serial.begin (115200);  
PreviousMillis=0;  
  
pinMode(trigPin, OUTPUT);  
pinMode(echoPin, INPUT);  
pinMode(nebel, OUTPUT);  
  
}  

```

SOFTWARE 2

LOOP

```
void loop() {  
  
if((millis()-timer1)>100){  
    digitalWrite(trigPin, LOW);  
if((millis()-timer2)<10){  
    digitalWrite(trigPin, HIGH);  
}  
  
Else{  
gemessen=0;  
    digitalWrite(trigPin, LOW);  
}  
  
if((millis()-timer2)>=10 && (gemessen!=1)){  
gemessen = 1;  
timer2=millis();  
duration = pulseIn(echoPin, HIGH);  
distance = (duration/2)*0.03432;  
}  
else{  
    timer1 = millis();  
}
```

```
if ((distance!=0) && (distance < 52)){  
    Serial.println("Sensor ausgelöst.");  
if((millis()-timer3)<3000){  
    digitalWrite(nebel,HIGH);  
}  
else{  
    timer3=millis();  
    digitalWrite(nebel,LOW);  
}  
}  
else{  
    Serial.print("Sensor nicht ausgelöst. Distanz  
betraegt ");  
    Serial.println(distance);  
}}
```

PROBLEM

Anmerkung:

Es besteht innerhalb der Nebenmaschine eine Sicherung, die immer bis jetzt bei Anschalten reagiert hat und den Stromkreis unterbrochen hat.

Es wurde leider bis jetzt noch nicht gelöst.

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Lennard Joensson

Tom

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