



# Basteltruppe

7

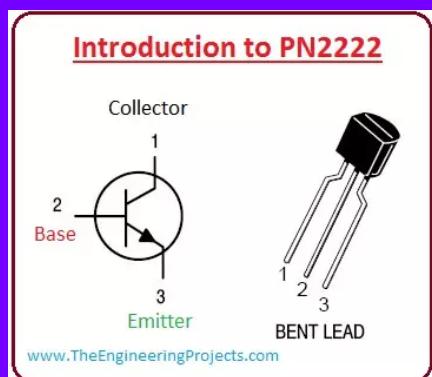
# The Small Electric Engine that could



**Problem 1: It  
is either  
connected to  
power, or not**

**Problem 2: It  
needs more  
juice than an  
LED**

# Transistor



**When 2 is HIGH, 3 can flow to 1**

**Moores Law**

**"roughly every two years, the number of transistors on microchips will double"**

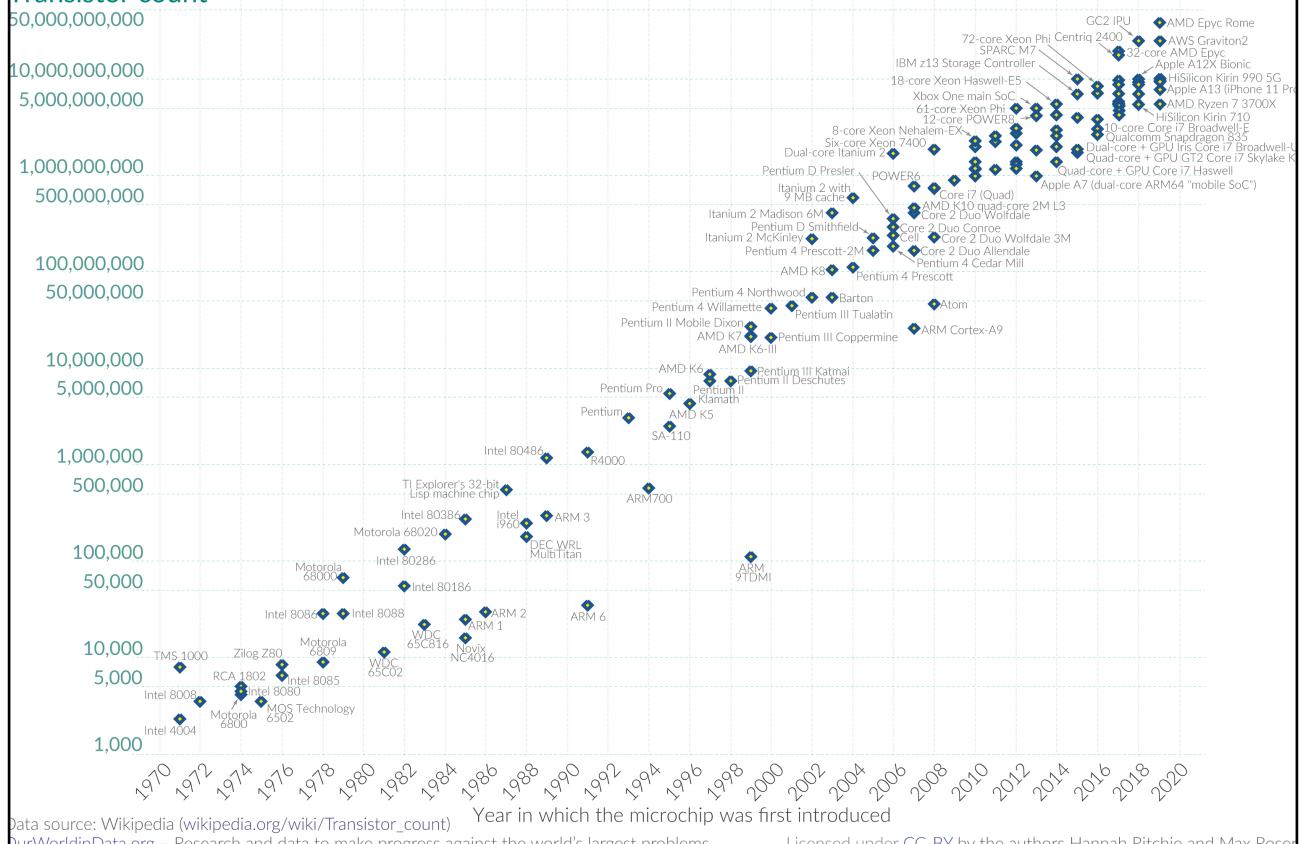
# Moore's Law: The number of transistors on microchips doubles every two years

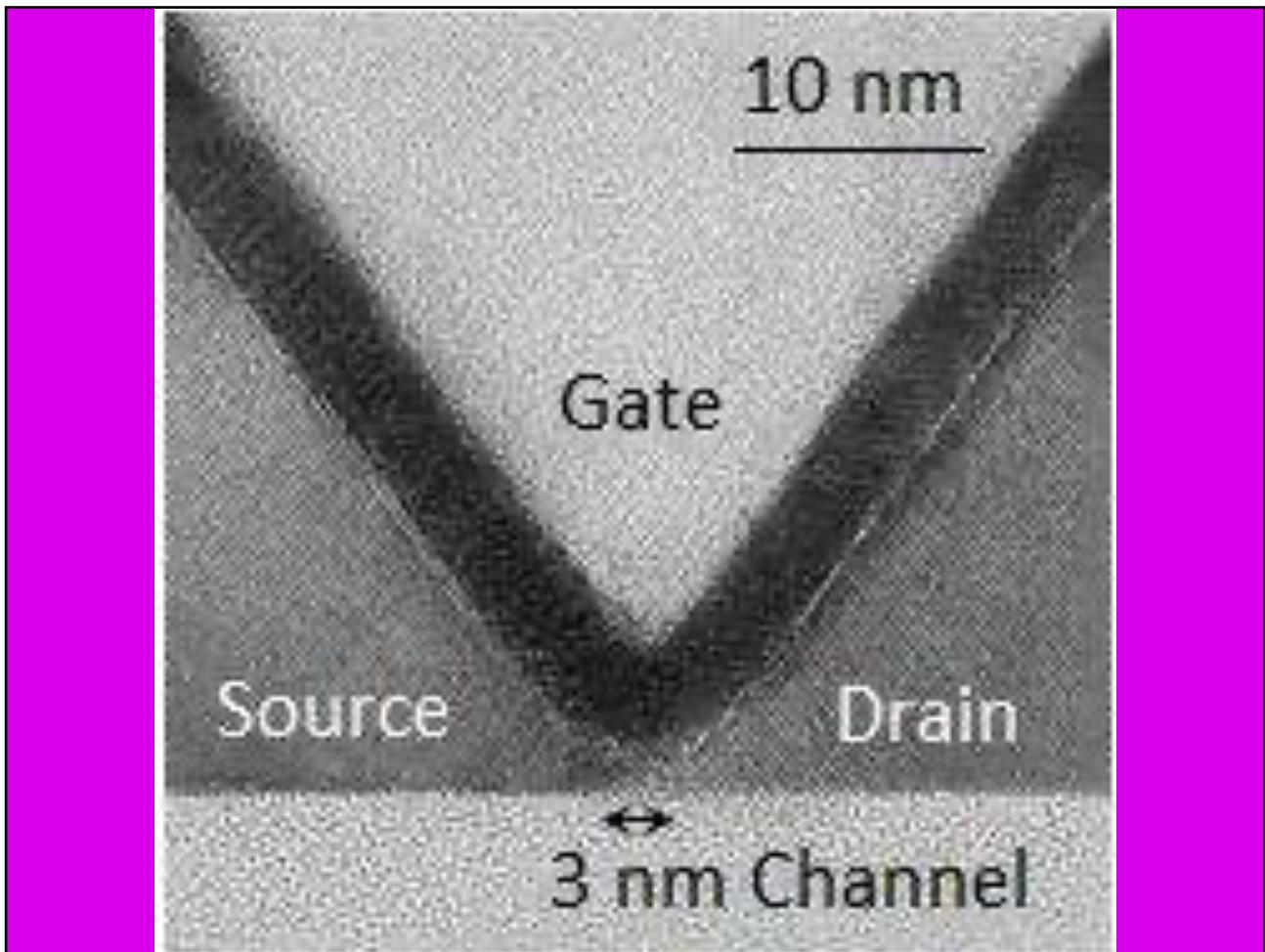
Our World  
in Data

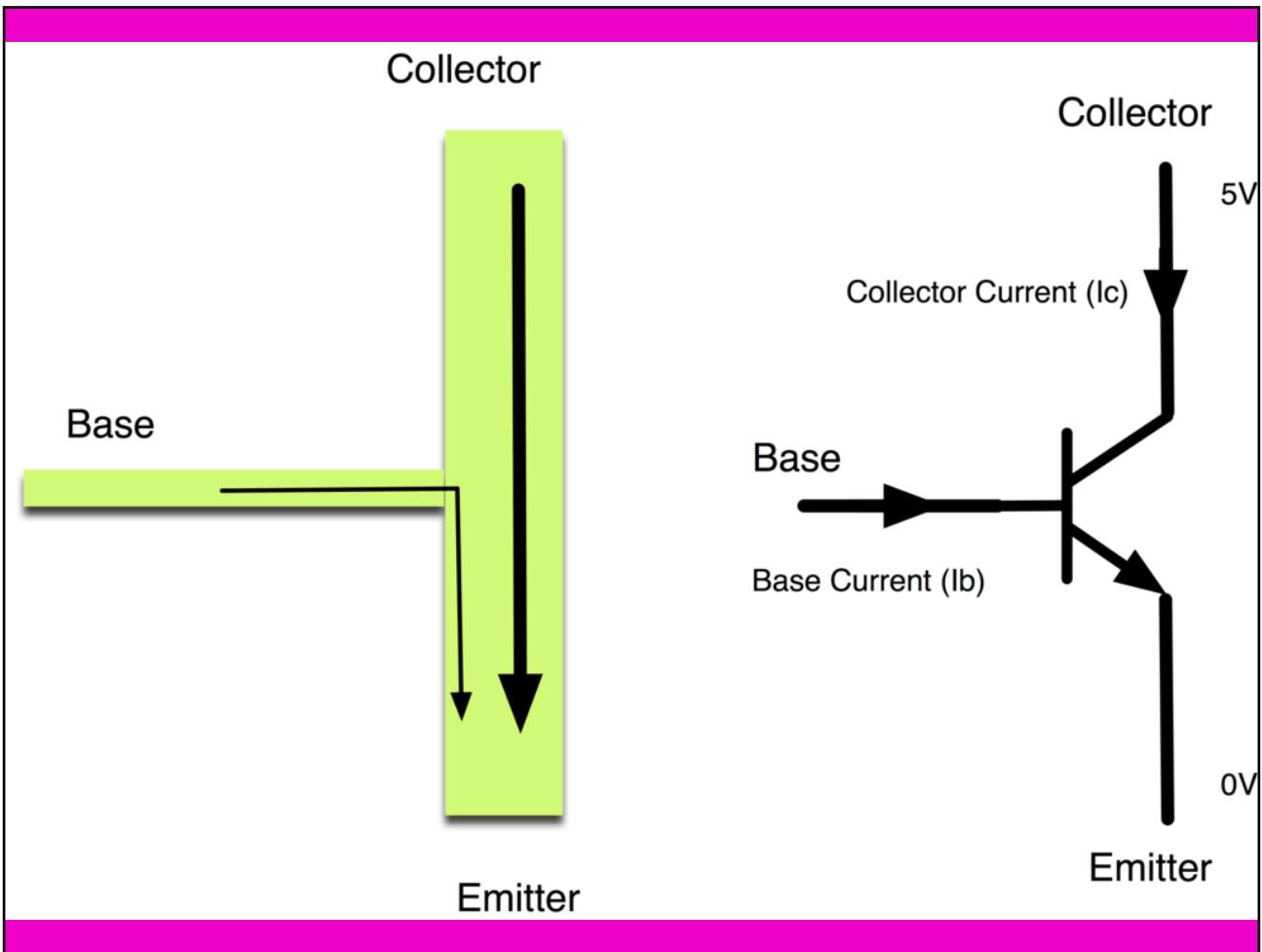
Moore's law describes the empirical regularity that the number of transistors on integrated circuits doubles approximately every two years.

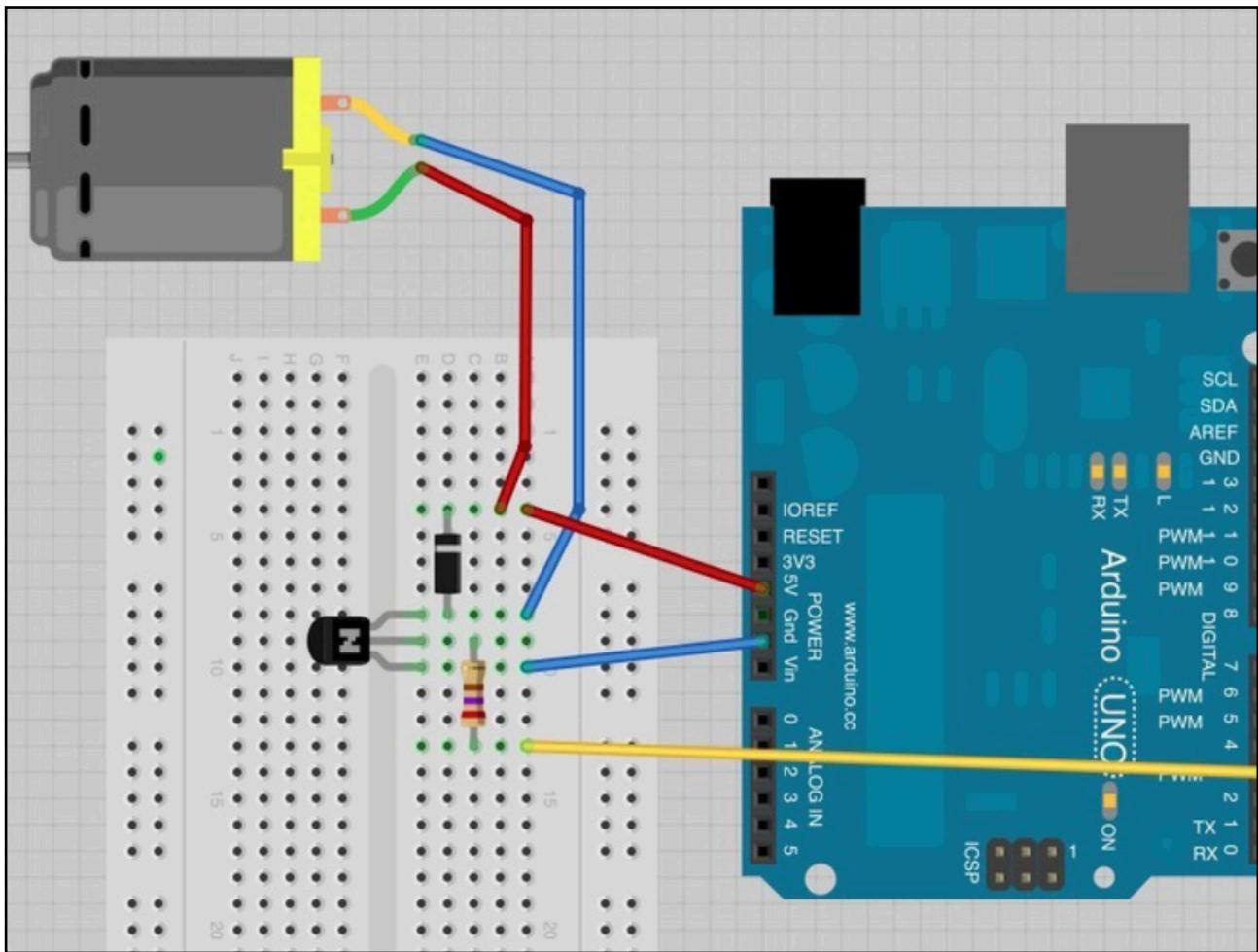
This advancement is important for other aspects of technological progress in computing – such as processing speed or the price of computers.

## Transistor count





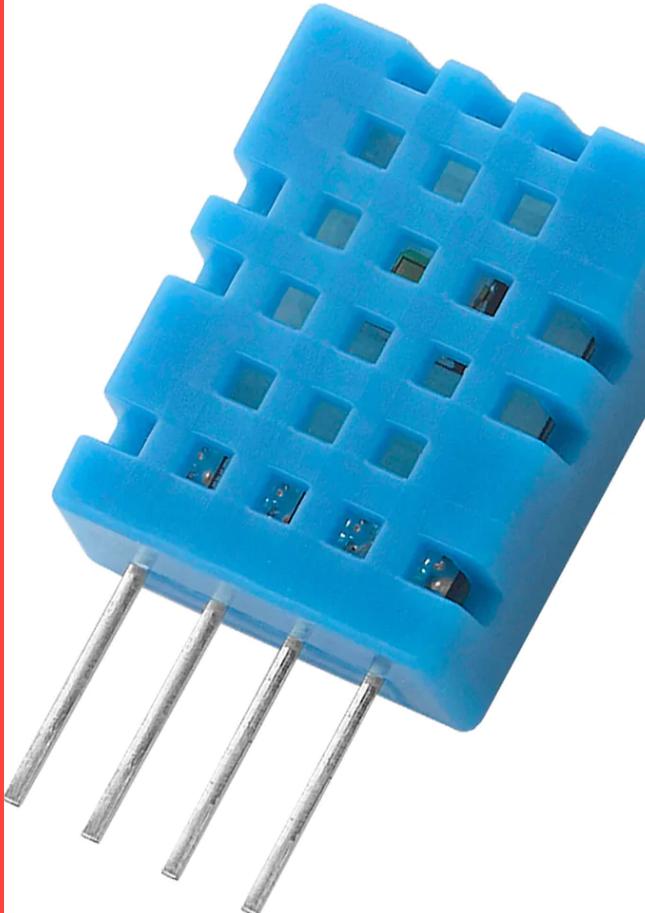


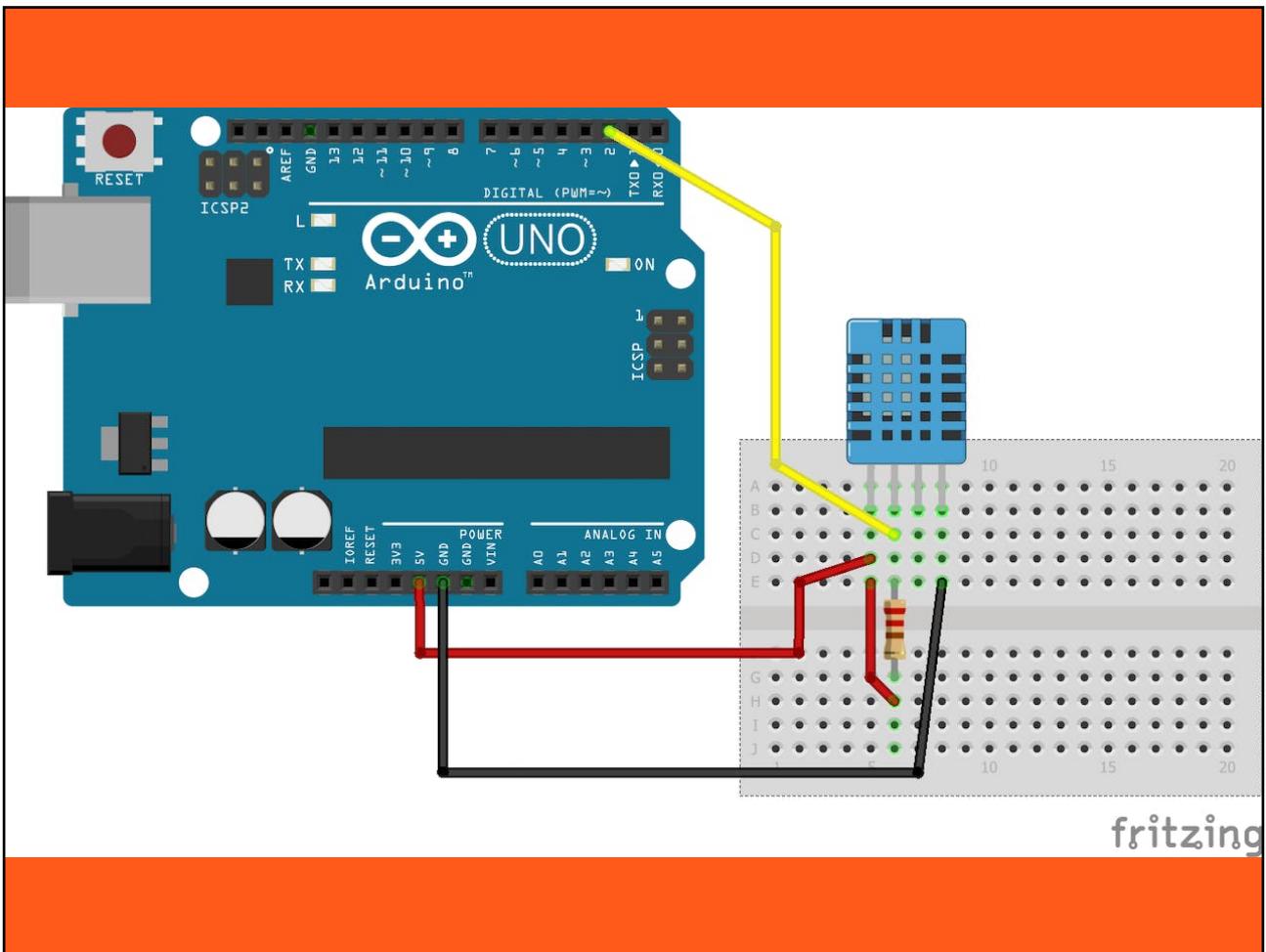


**1K Ohm resistor  
before 2  
Diode from Motor(-)  
to Motor(+)  
digitalWrite(pin,  
speed);**

# Weatherstation

- DHT 11
- Very cheap
- Not really precise





```
#include "DHT.h"
DHT dht(2, DHT11);
void setup() {
    dht.begin();
}
void loop() {
    float h = dht.readHumidity();
    float t =
dht.readTemperature();
}
```

# Exercise

- Let the motor spin
- Read the temperature and humidity
- Spin the motor when it is warm, don't spin when it gets cold
- Let the motor spin at the temperature sensor