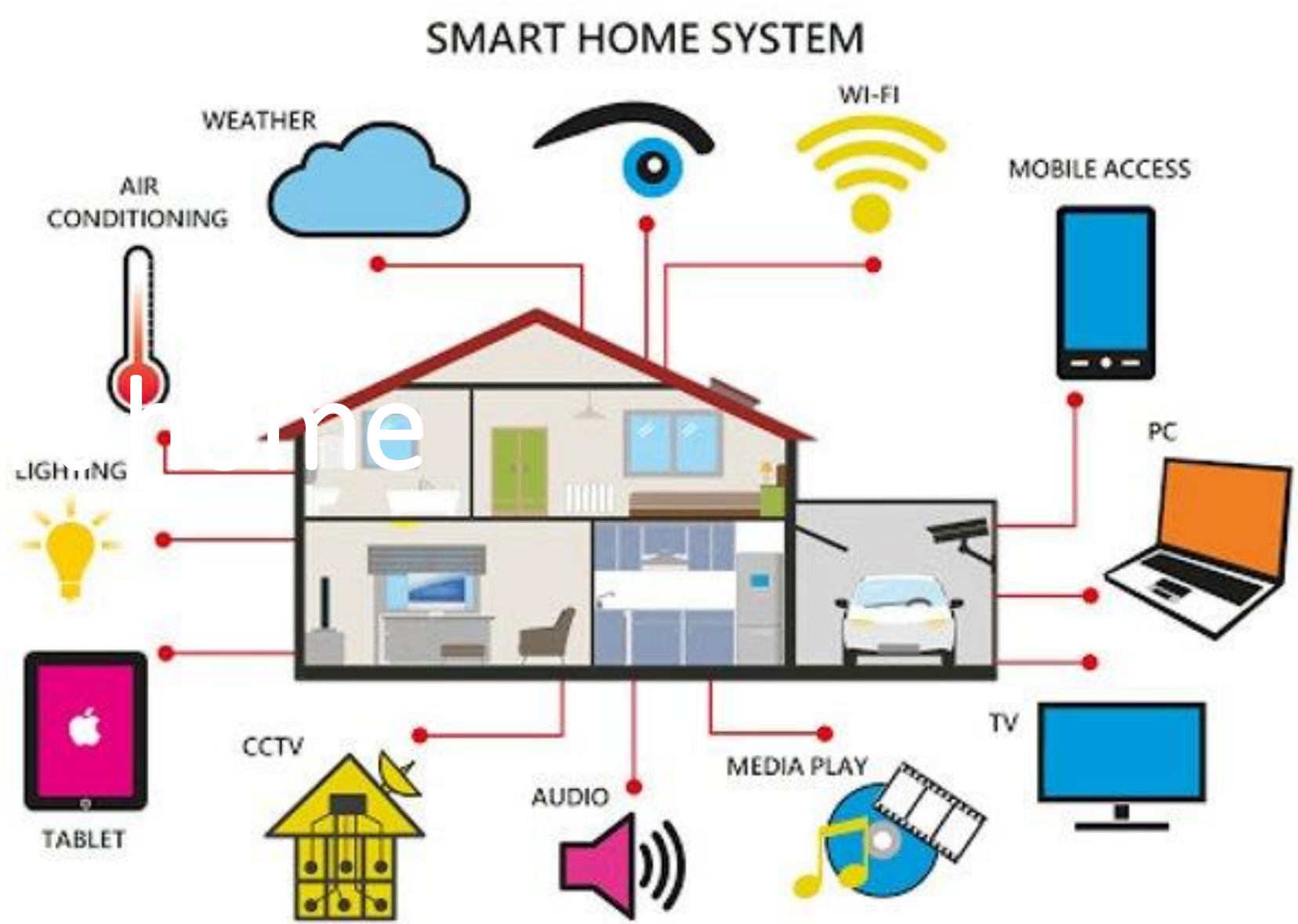
# Internetul Lucrurilor

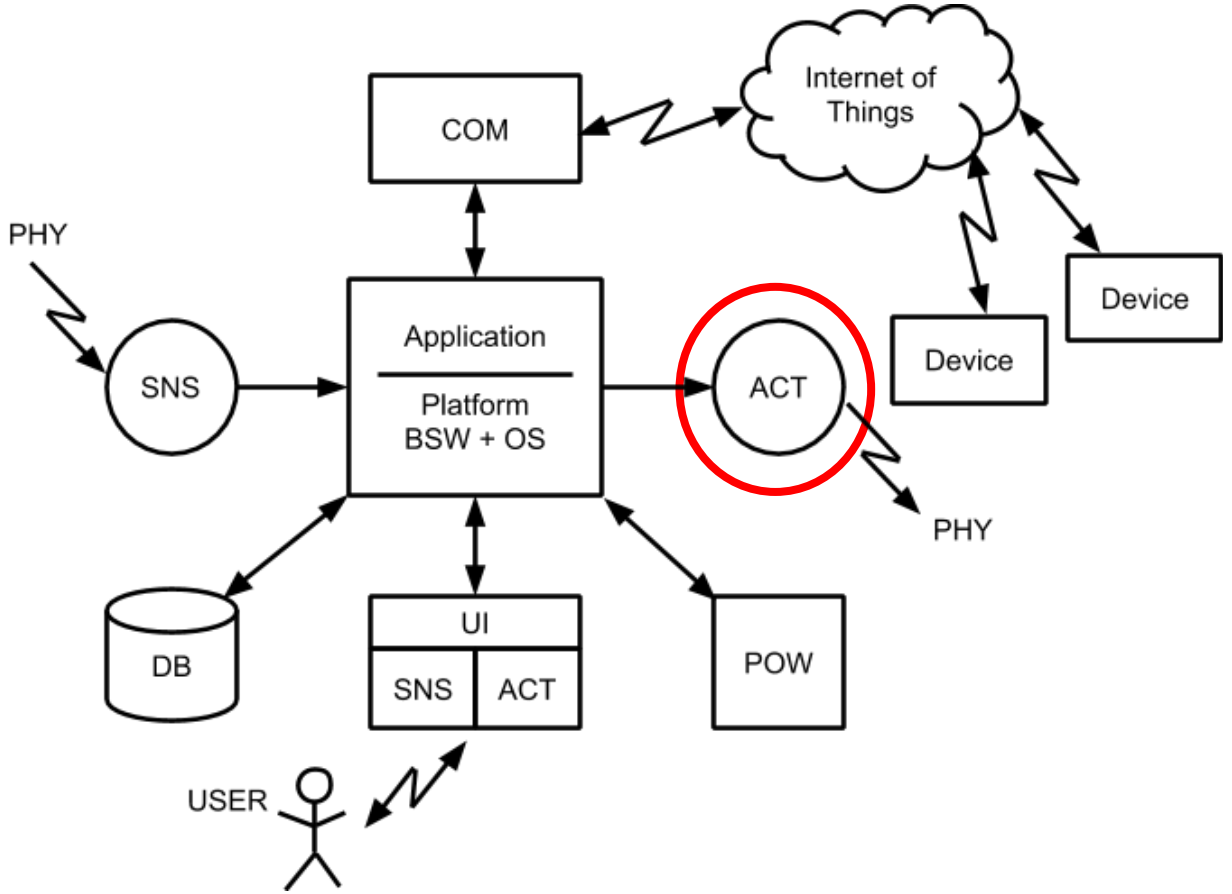
Actuatori

Convertor putere


SMART HOME SYSTEM
WEATHER
WI-FI
AIR CONDITIONING
MOBILE ACCESS
PC
TABLET
CCTV
AUDIO
MEDIA PLAY
TV

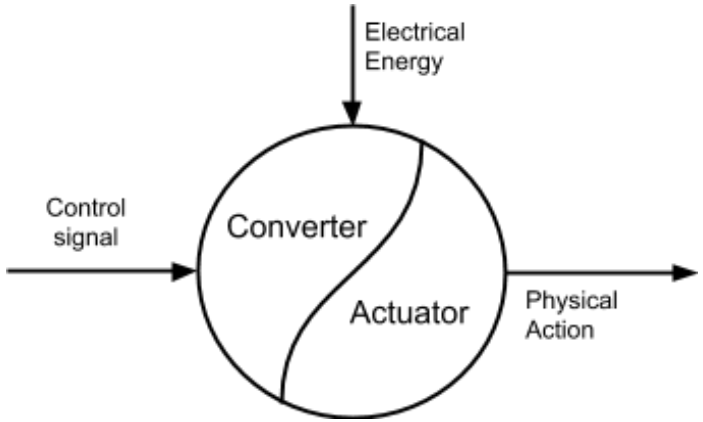
# Tipuri de interacțiuni

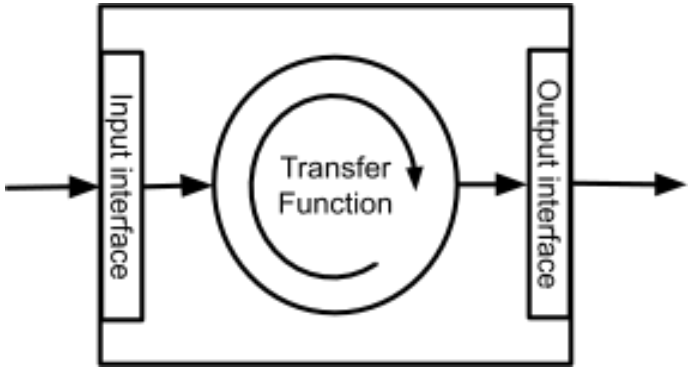
- Interacțiuni cu Utilizatorul
- **Interacțiuni cu Mediul**
- Interacțiuni cu Dispozitive (IoT)



# Actuator

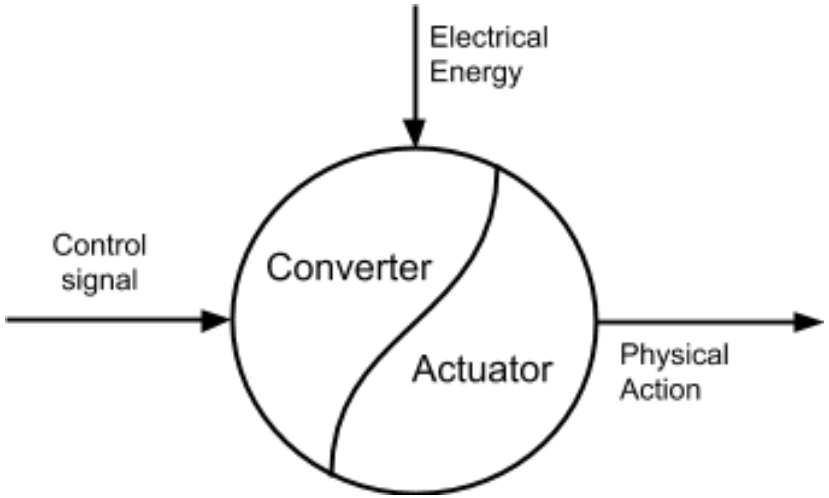
Transformă semnal intern al sistemului într-o acțiune asupra mediului fizic

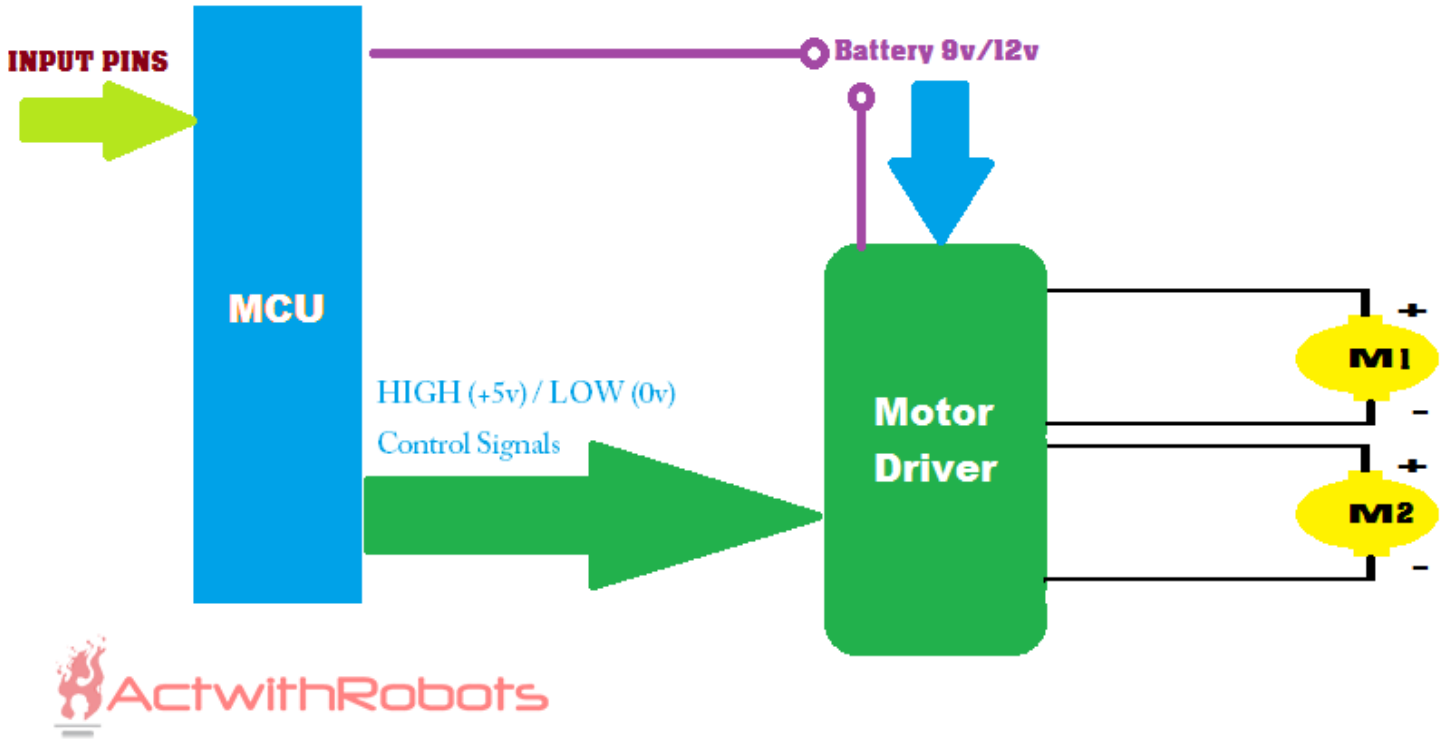


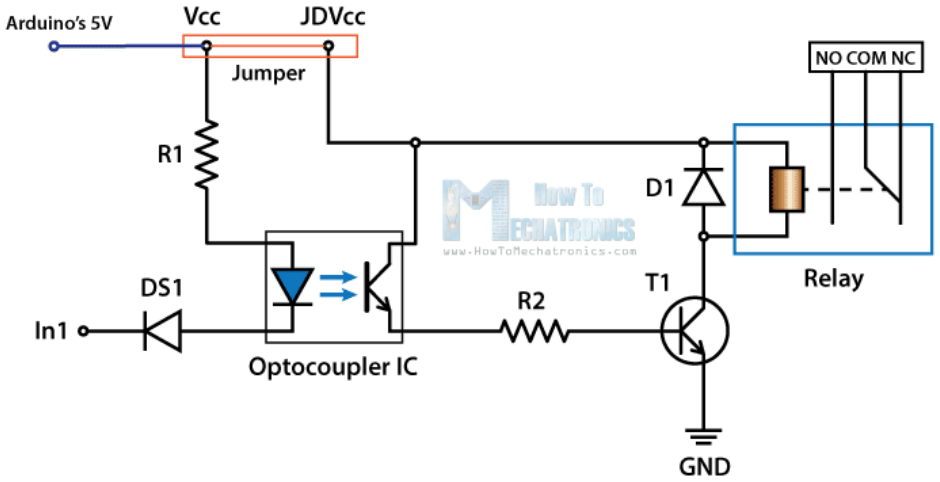

- Convertor – semnal electric de control in energie electrica aplicată actuatorului
- Actuator – energie electrica într-o acțiune

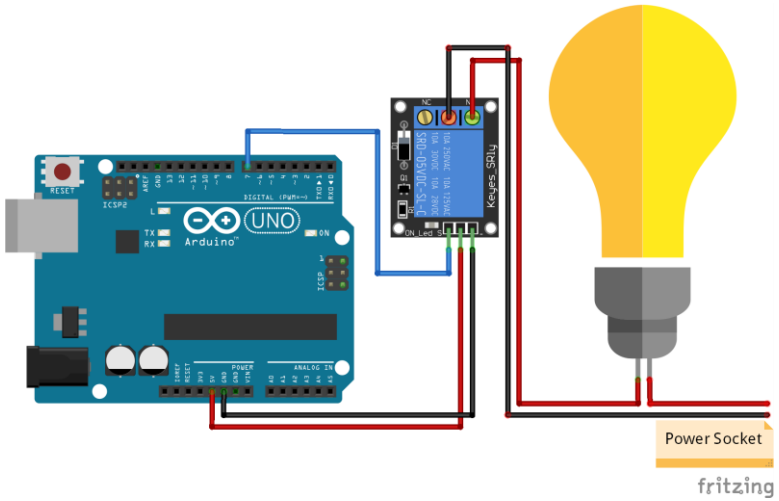
# Converoare de putere

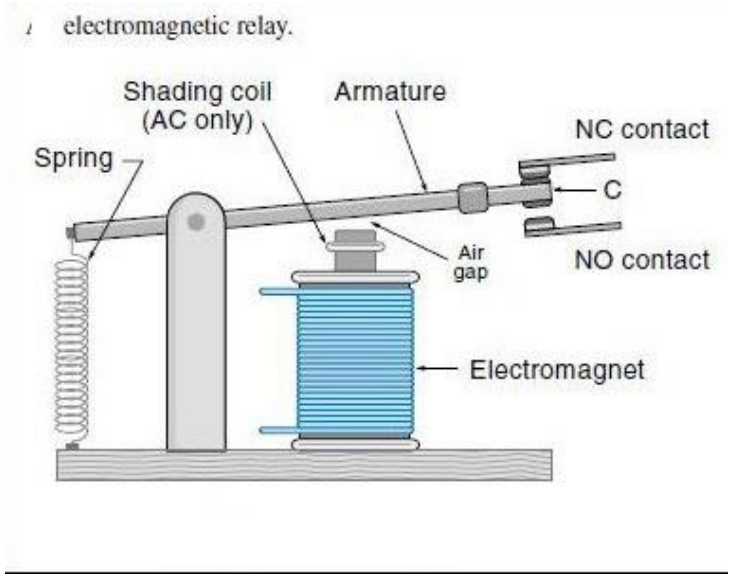


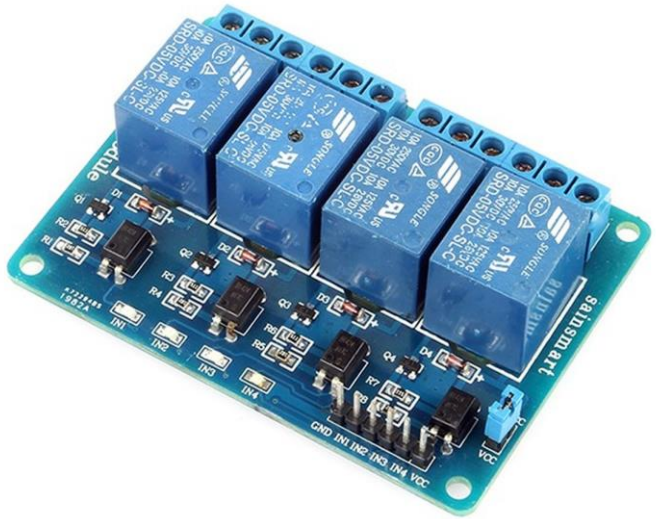



# Convertor de putere - Releu

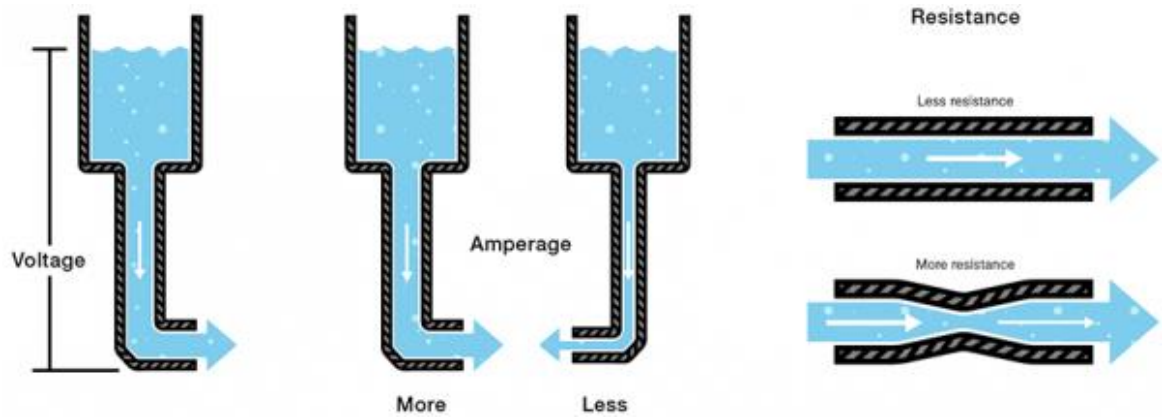


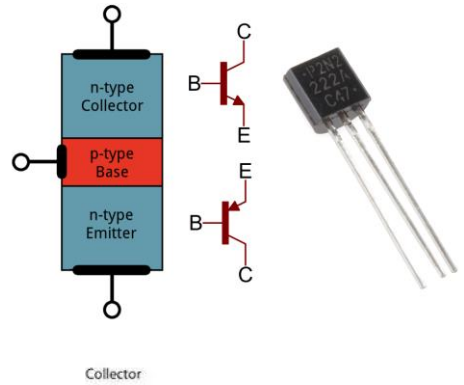



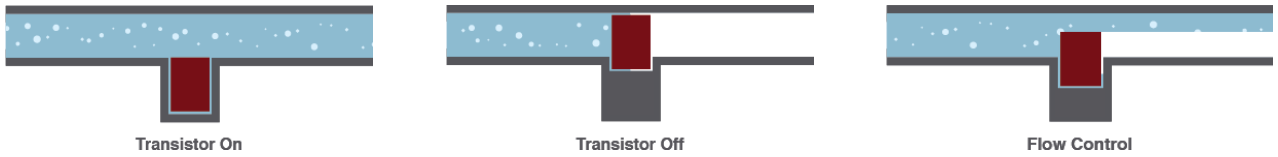



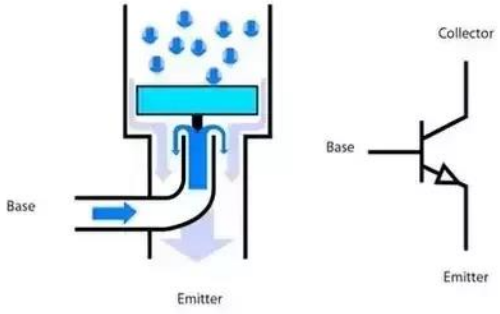



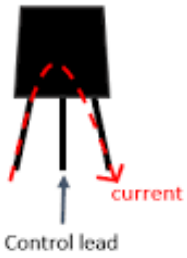
# Tranzistor - Analogii

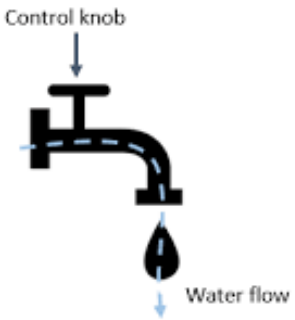


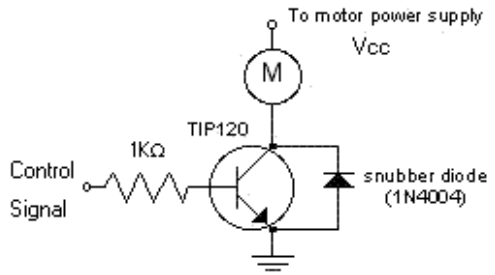



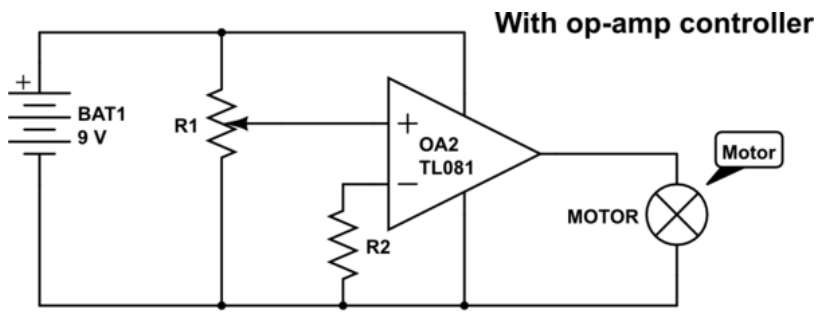



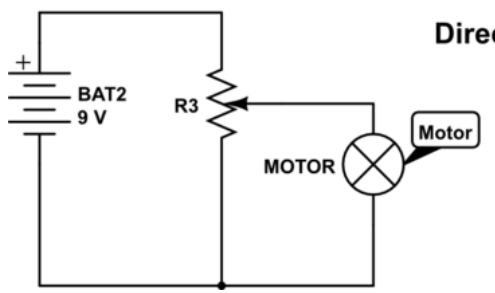



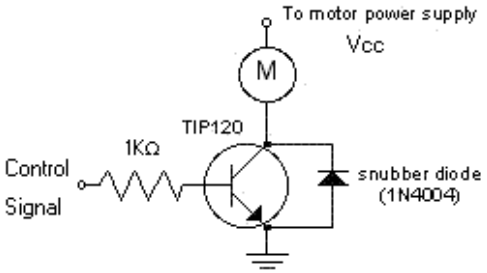



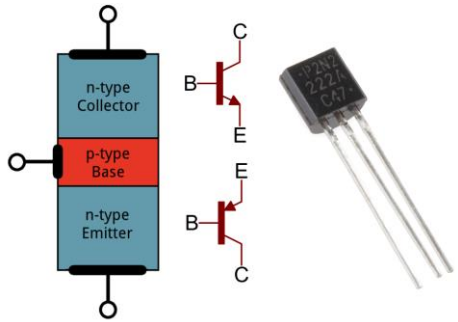



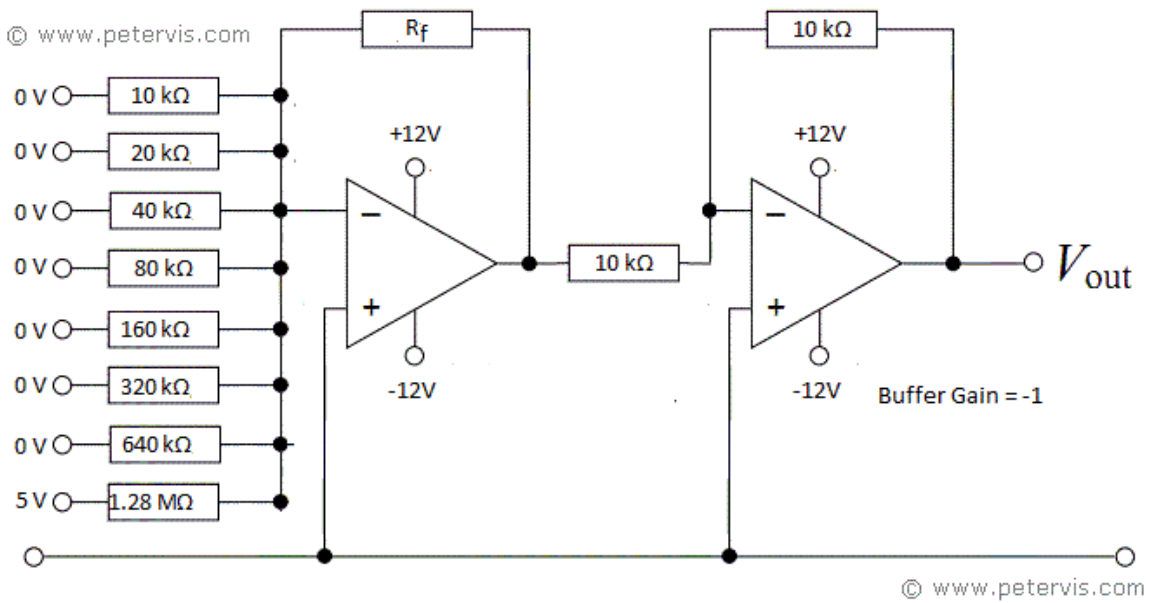
# Convertor putere - control analogic



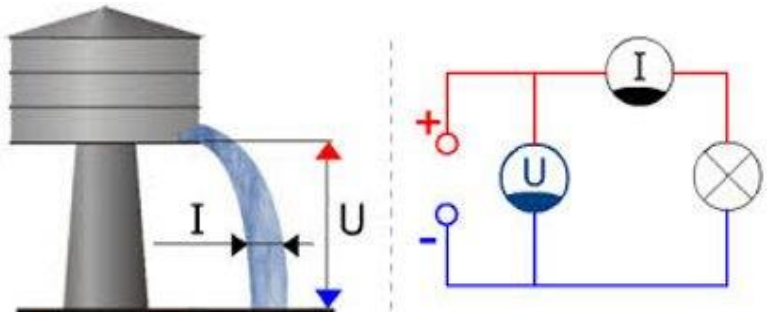



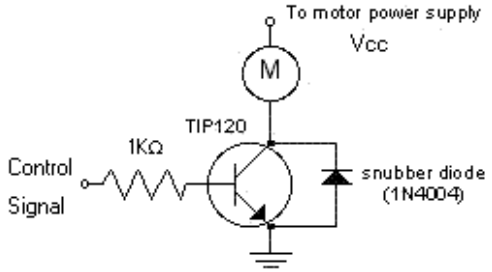



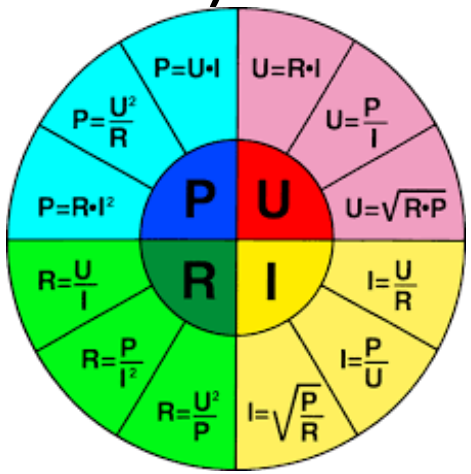
# Tranzistor – putere de disipare (căldura)

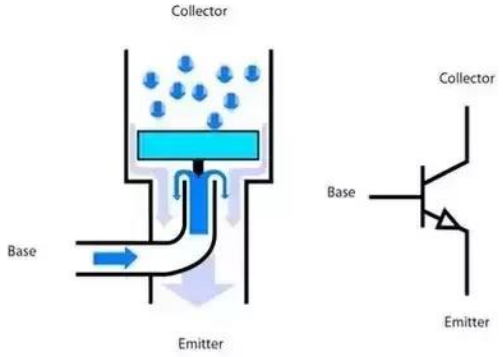






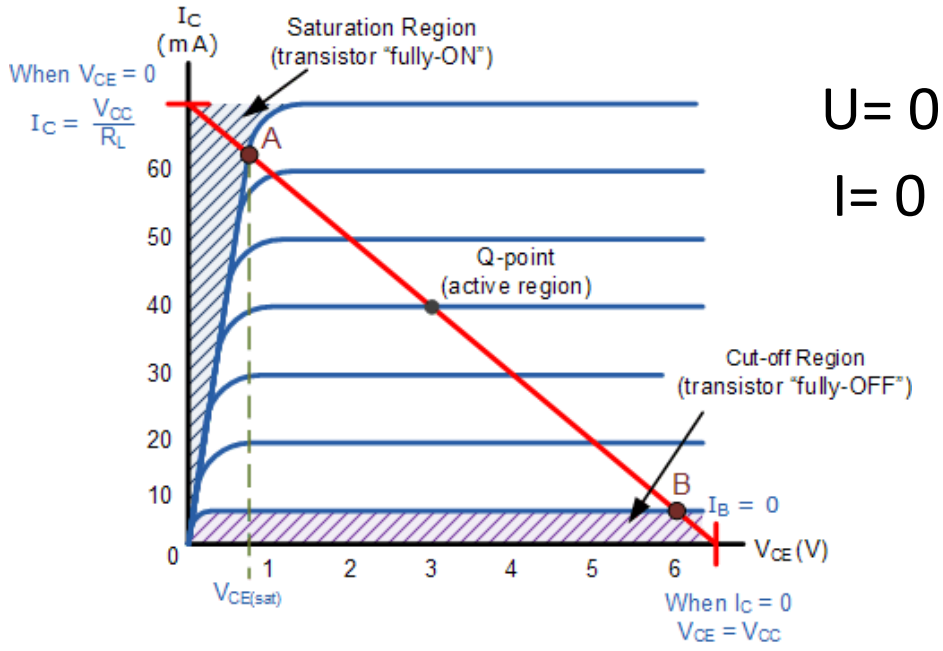


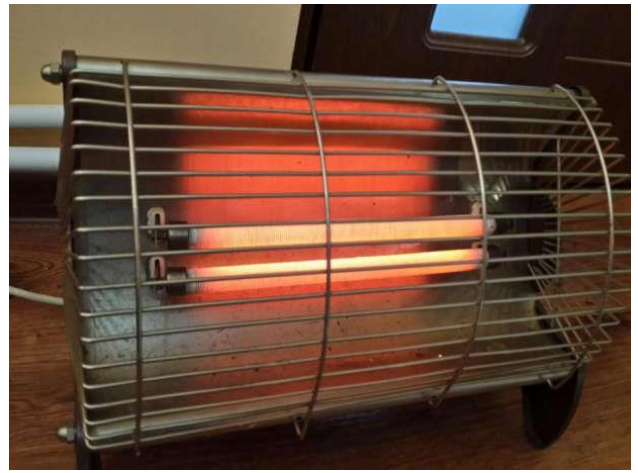







U= 0 -> P=0

I= 0 -> P=0

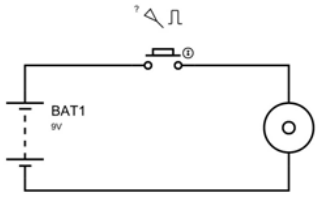


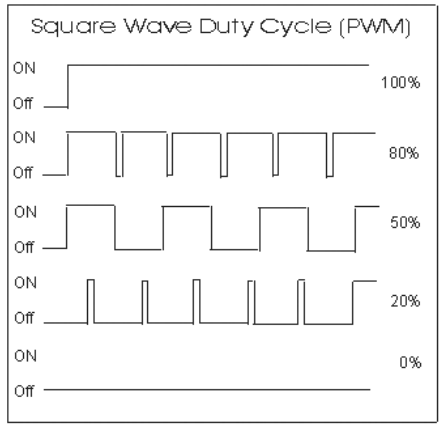
https://www.pitt.edu/~qiw4/Academic/ME2082/Transistor%20Basics.pdf

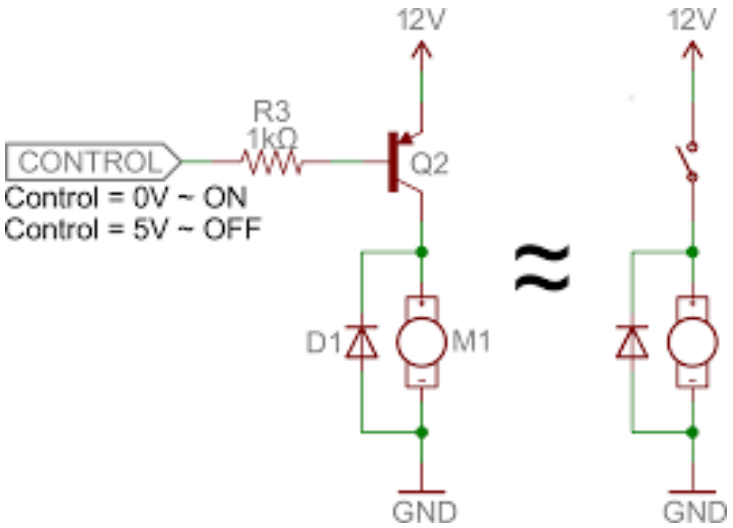
# Convertor putere – in comutatie

U= 0 -> P=0

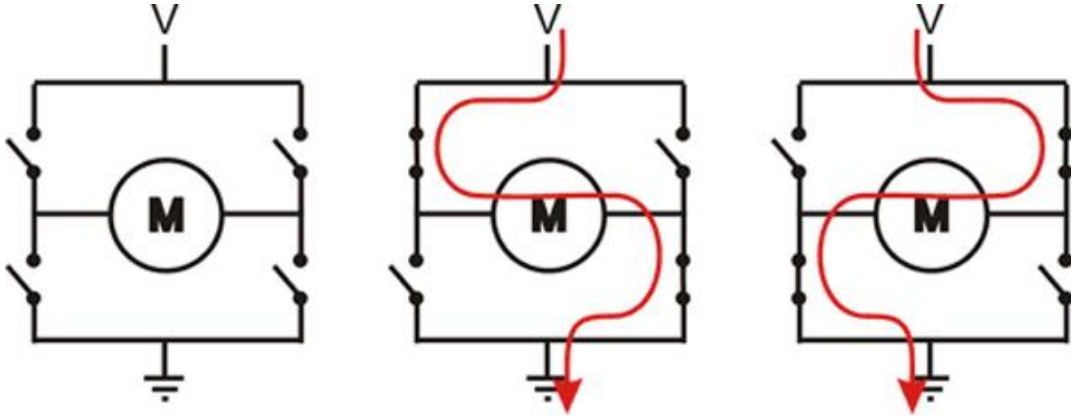
I = 0 -> P=0

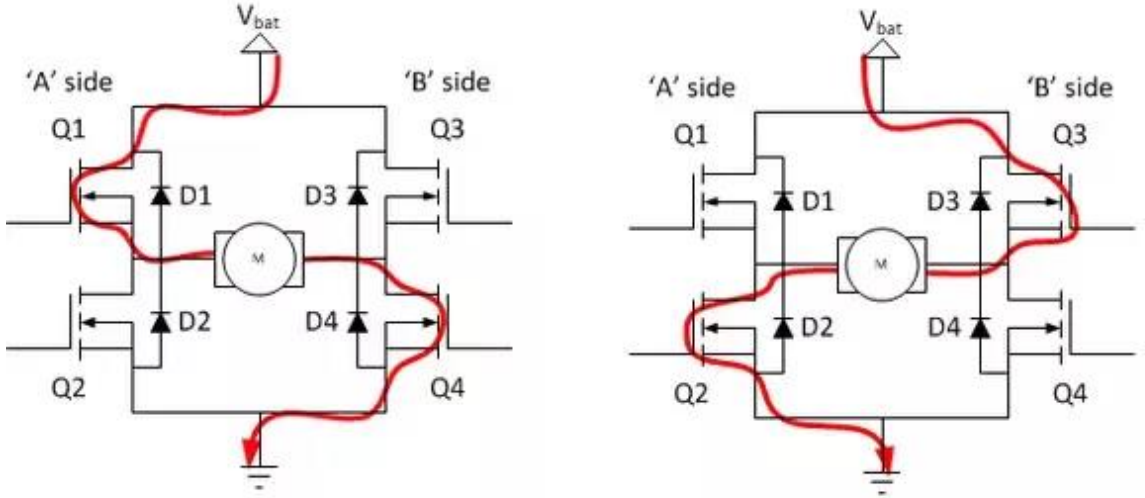


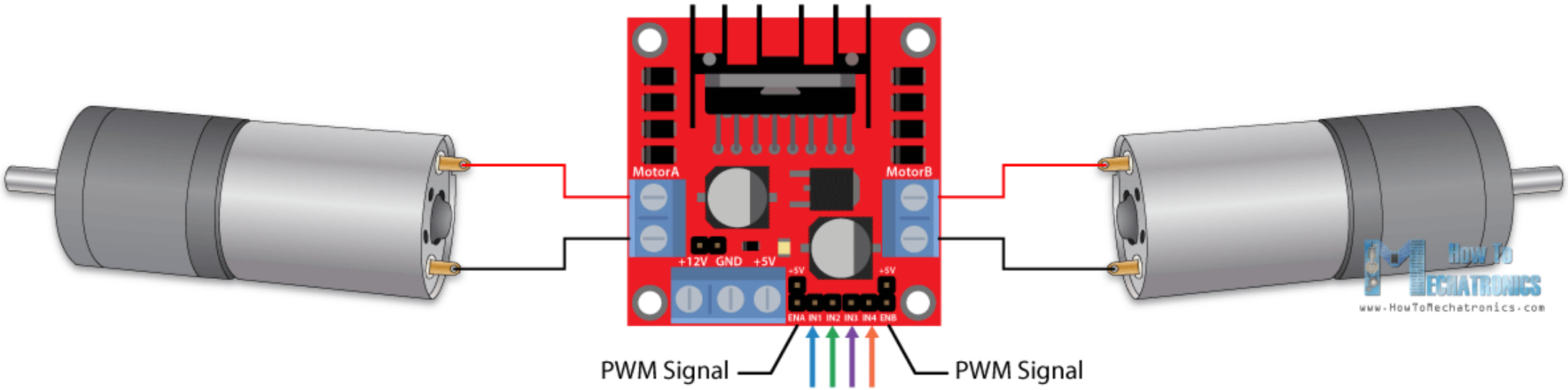



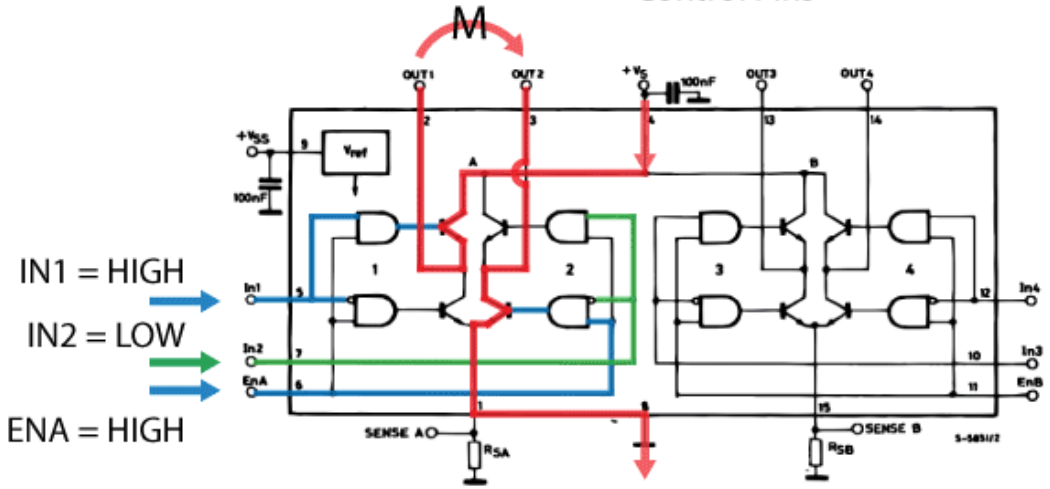
# Convertor putere - Puntea H



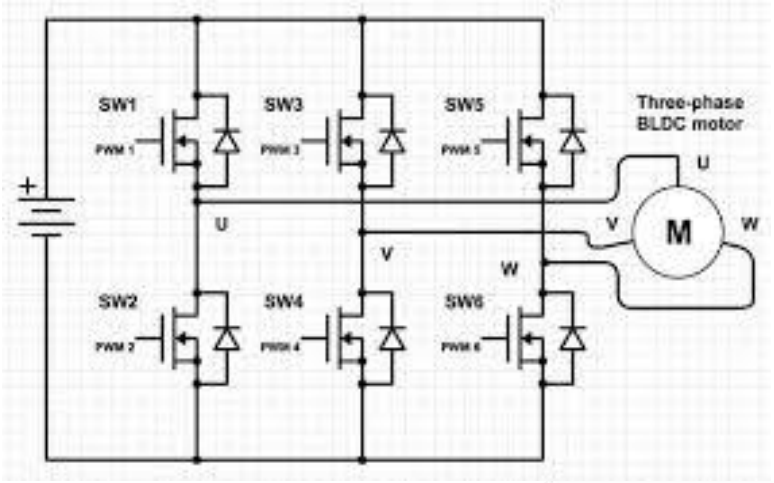



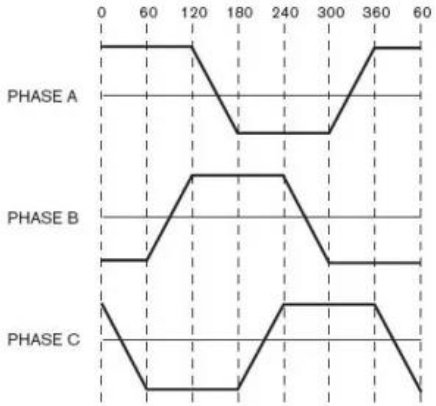
# Convertor putere - Puntea H

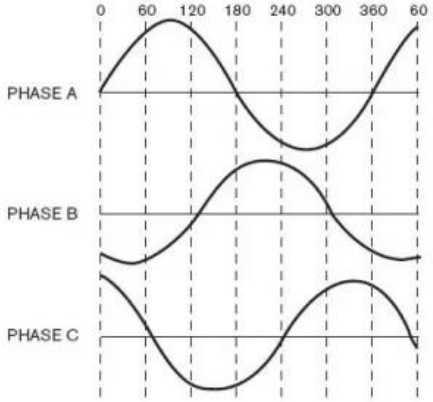


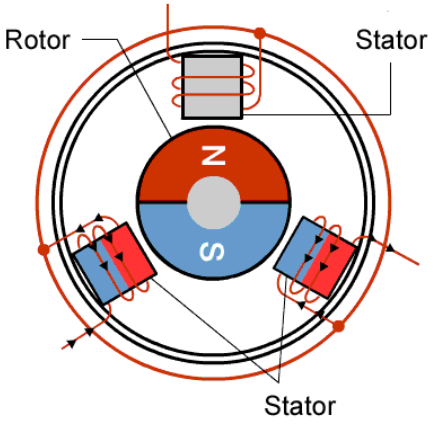



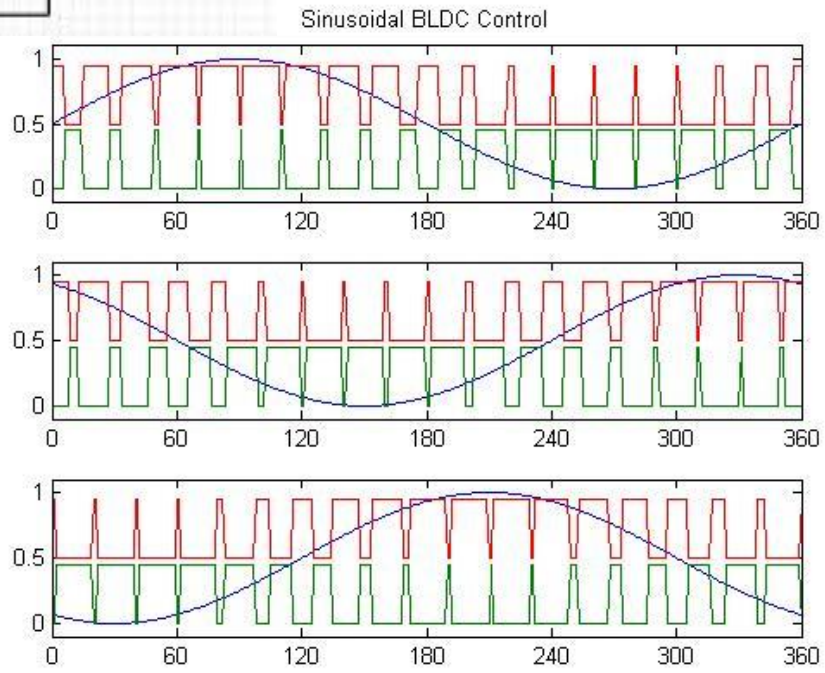
# Convertor putere - Puntea H  BLDC

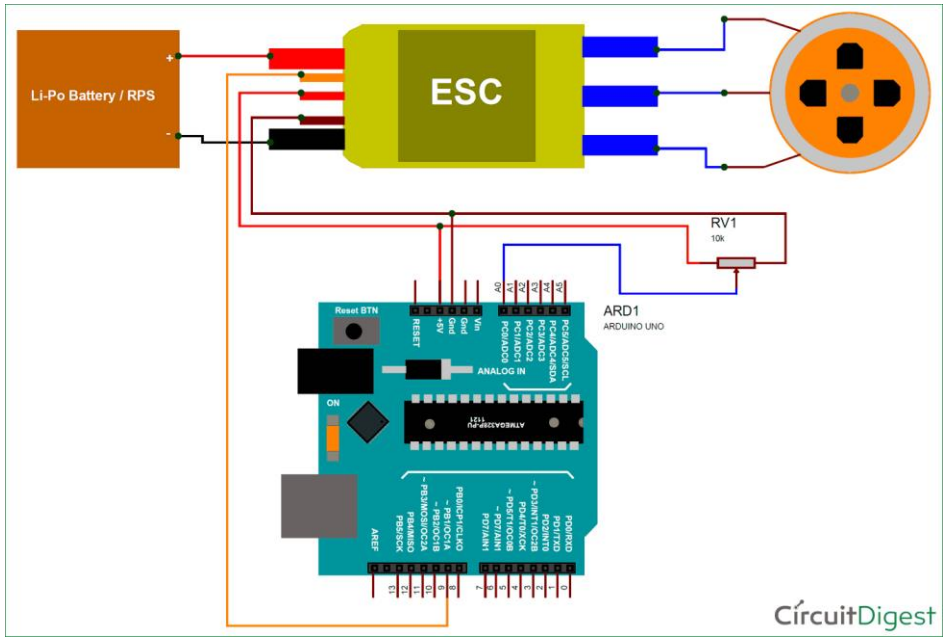


# Convertor putere - Puntea H  Stepper

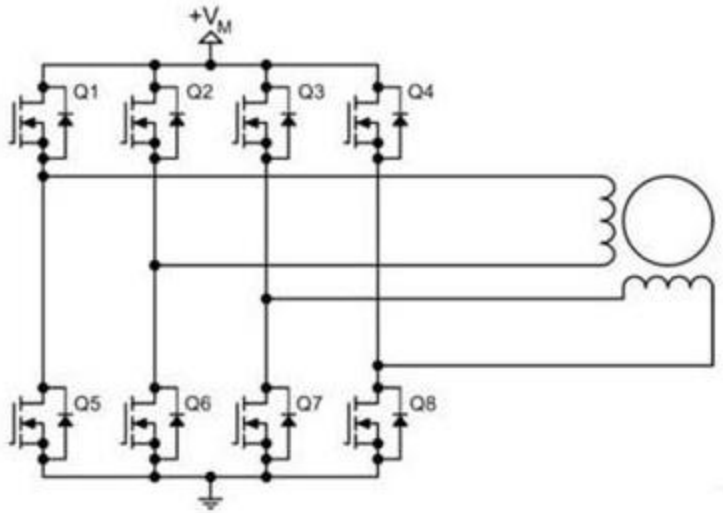
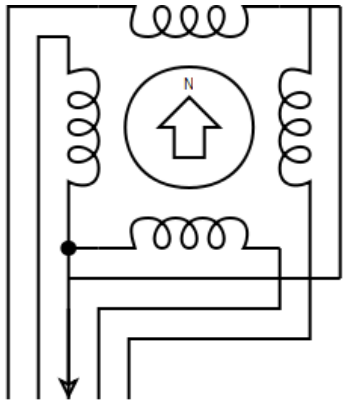
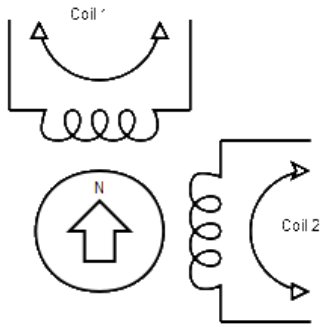


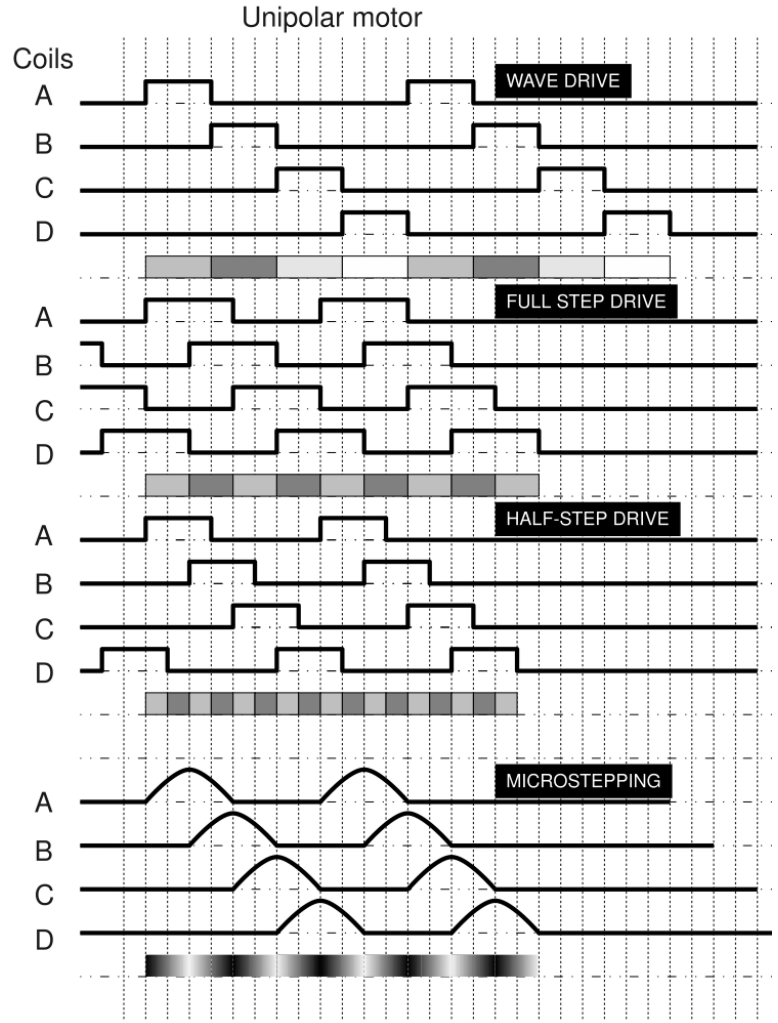

**Figure 2**

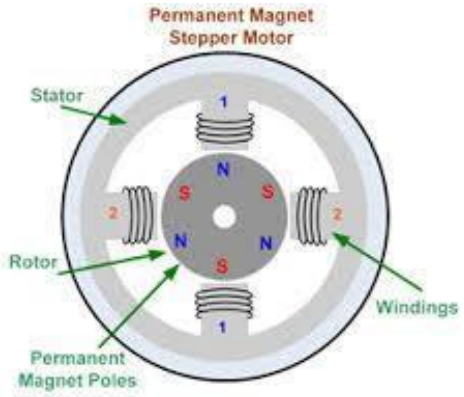


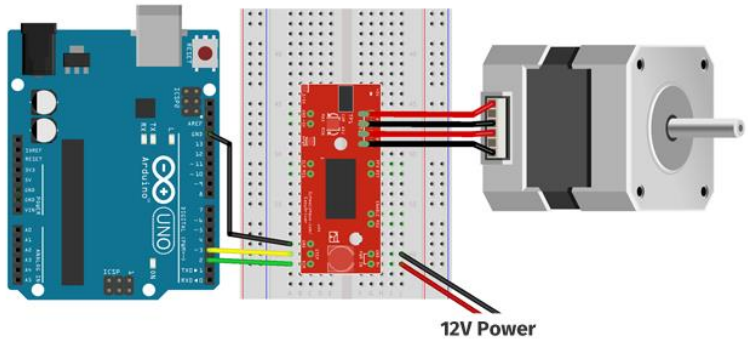

Unipolar Design
(Common connection -
current always one way)



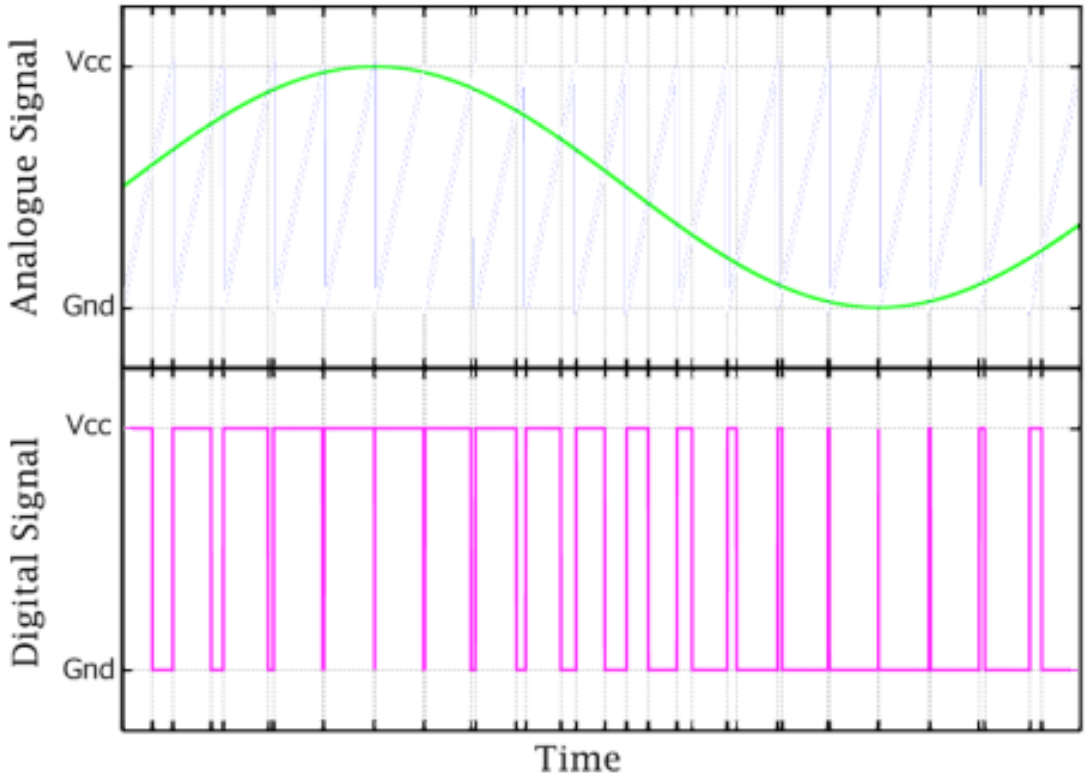

Bipolar Design
(Distinct coils -
current goes either way)



# Generare semnal PWM




AnalogInOutSerial | Arduino 1.8.12 (Windows Store 1.8.33.0)

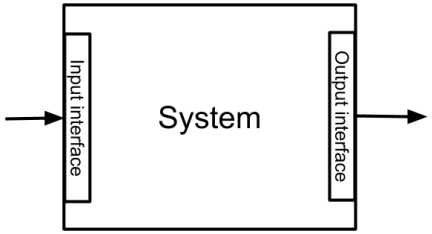
File Edit Sketch Tools Help

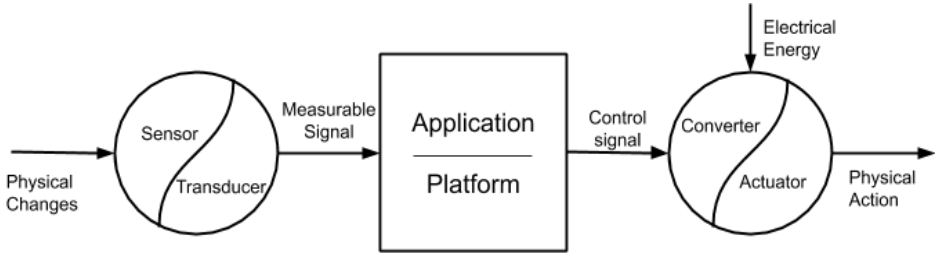
AnalogInOutSerial

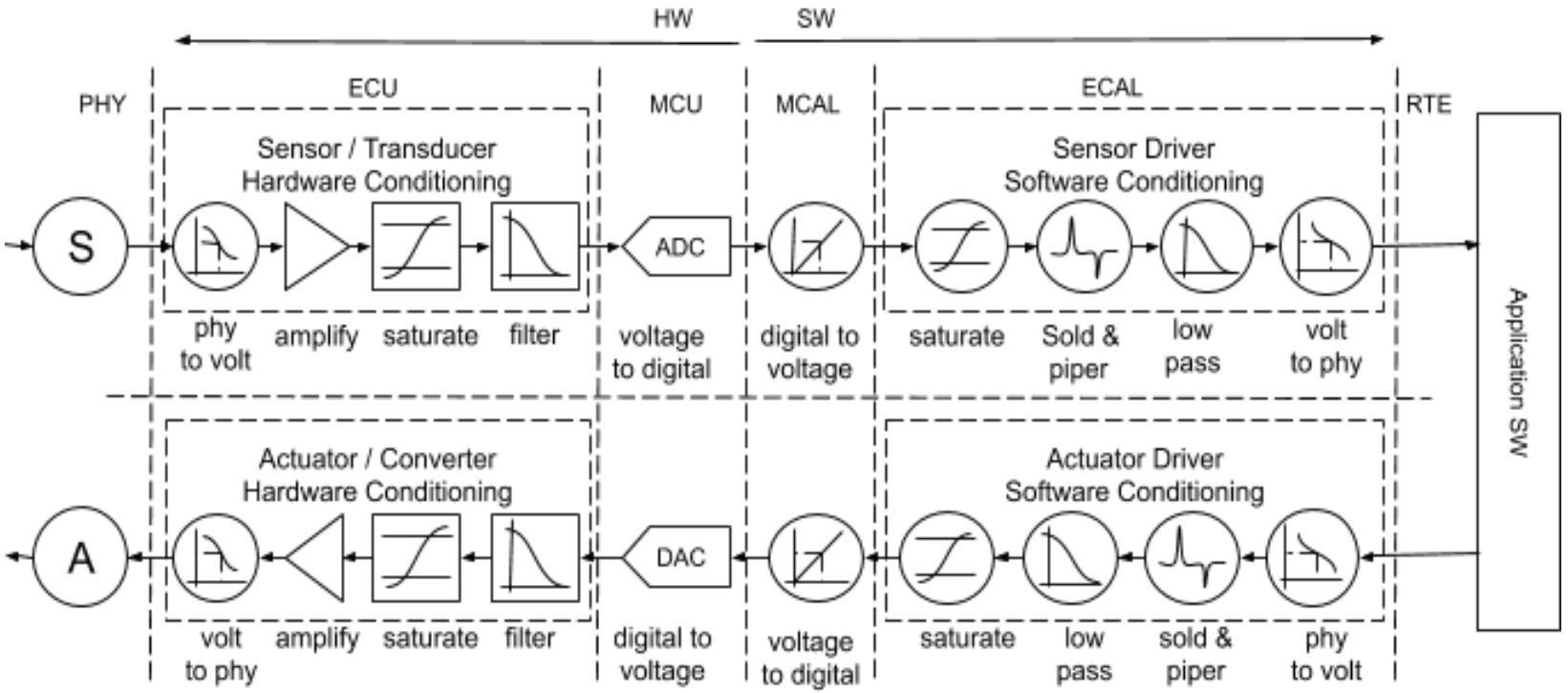
```
void setup() {
  // initialize serial communications at 9600 bps:
  Serial.begin(9600);
}

void loop() {
  // read the analog in value:
  sensorValue = analogRead(analogInPin);
  // map it to the range of the analog out:
  outputValue = map(sensorValue, 0, 1023, 0, 255);
  // change the analog out value:
  analogWrite(analogOutPin, outputValue);

  // print the results to the Serial Monitor:
  Serial.print("sensor = ");
  Serial.print(sensorValue);
  Serial.print("\t output = ");
  Serial.println(outputValue);

  // wait 2 milliseconds before the next loop for the anal
  // converter to settle after the last reading:
  delay(2);
}
```

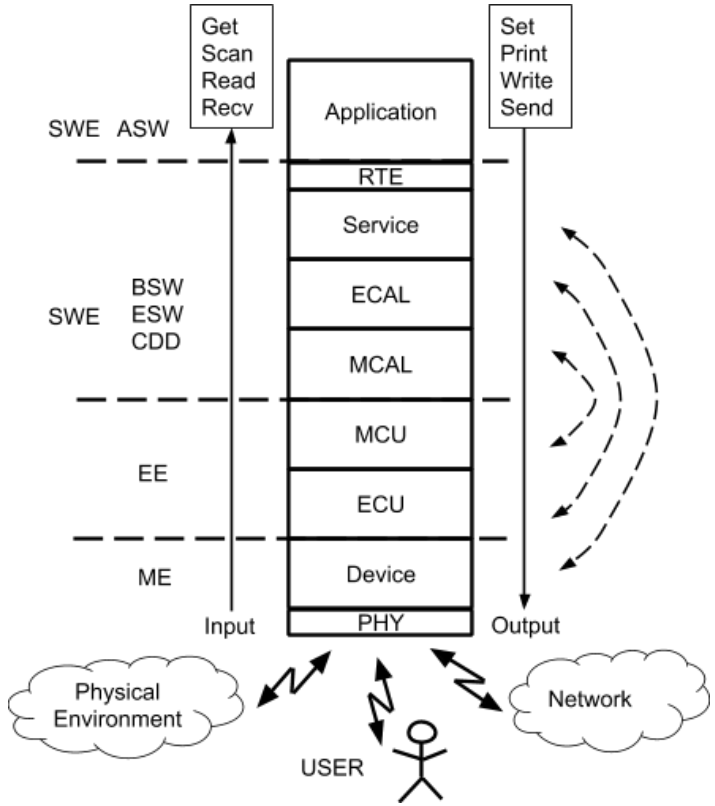
1 Arduino Uno on COM5

# Sensor-Actuator Signal Conditioning flow

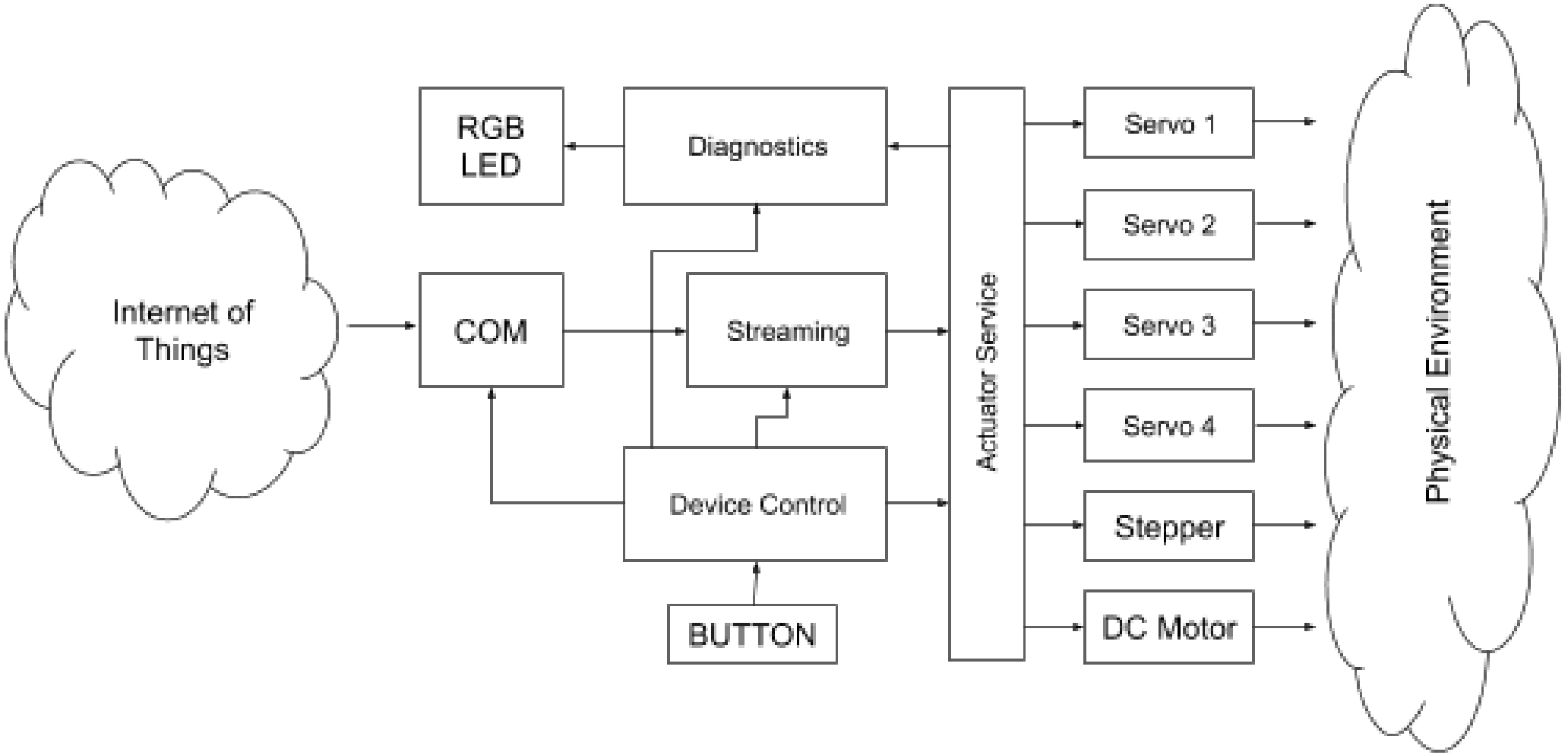


# Generare Semnal



# Arhitectura pe nivele