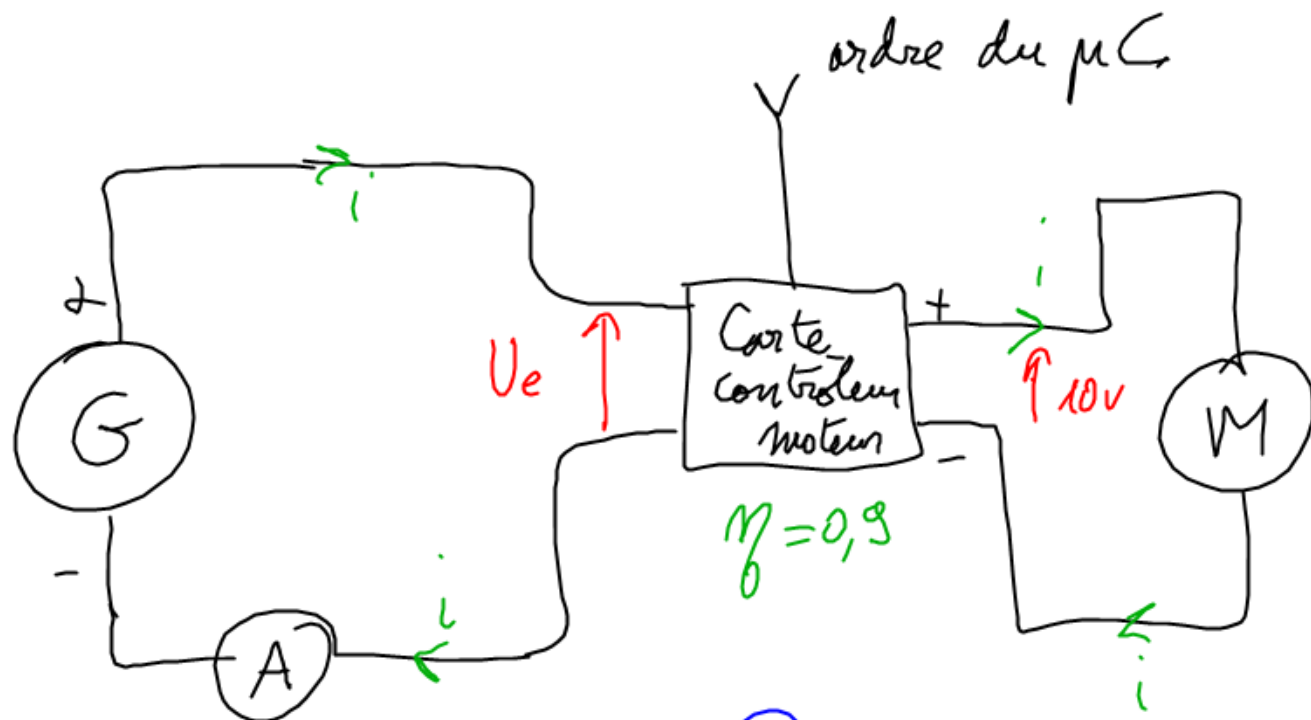




$$U_e = \frac{U_s}{\eta}$$

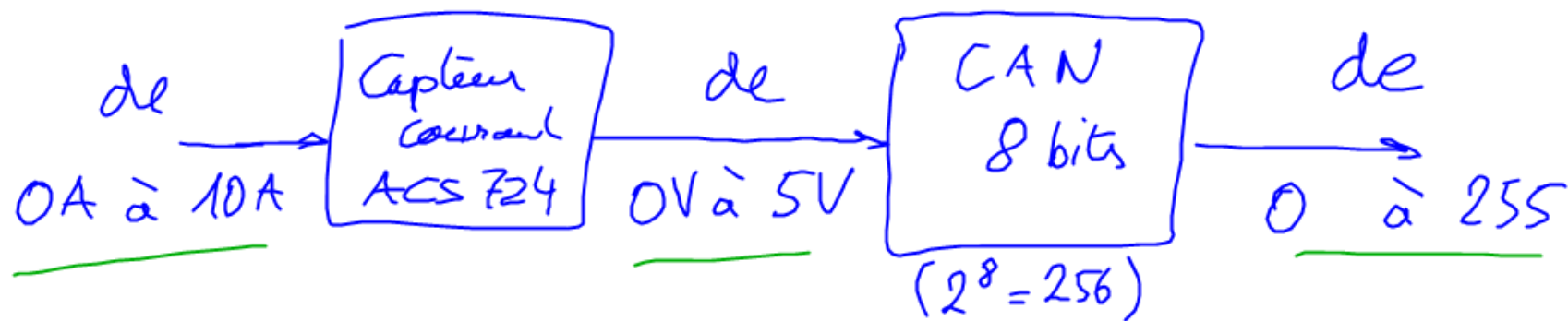
$$U_e = \frac{10}{0,9} \approx 11,1 \text{ V}$$

$$\eta = \frac{P_s}{P_e}$$

$$\eta = \frac{U_s \cdot i_s}{U_e \cdot i_e}$$

$$i_s = i_e$$

$$\eta = \frac{U_s}{U_e}$$



1) quantum de la chaîne complète en A/bit :

$$q = \frac{I_{\text{plaine etale}}}{2^n - 1}$$

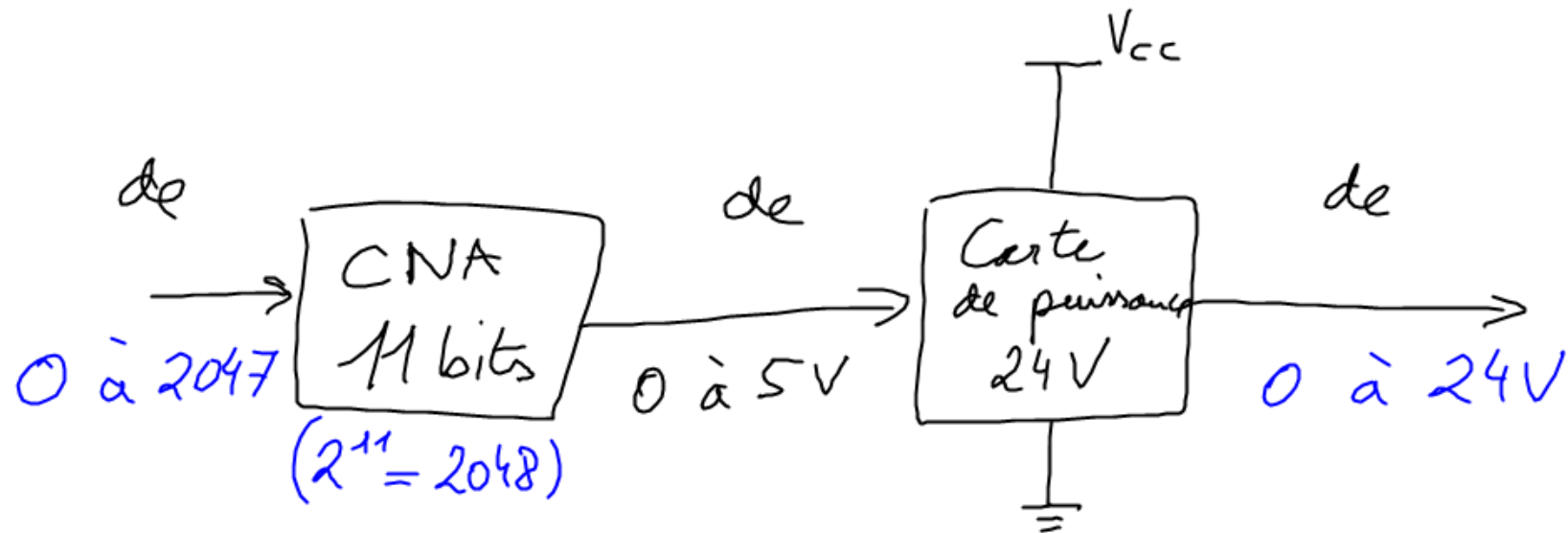
$$q = \frac{10}{255} \approx 0,0392 \text{ A/bit}$$

2) Calculer le nombre numérique pour:  $N_{(2A)} = \frac{2}{0,0392} \approx 51$

$$I_{\text{mes}} = q \cdot N$$

$$N = \frac{I_{\text{mes}}}{q}$$

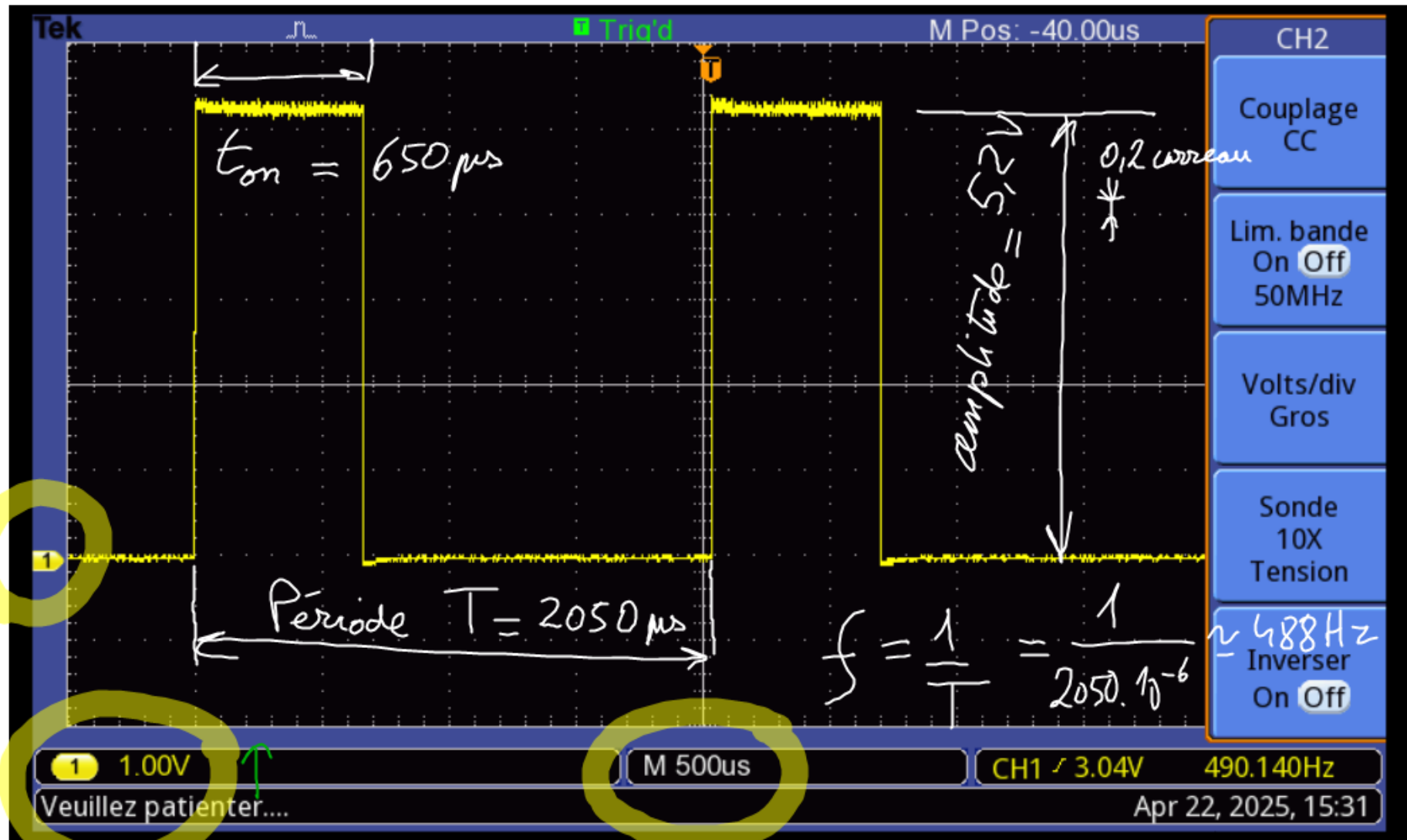
$$N_{(4A)} = \frac{4}{0,0392} \approx 102$$



3) Calculer quantification du CNA

$$q = \frac{U_{pleine\ éch}}{2^n - 1}$$

$$q = \frac{5}{2047} \approx 0,00244 \text{ V/bit}$$



Calculer  $\alpha = \frac{t_{on}}{T}$  puis  $U_{moy}$  :

$\alpha = \frac{650}{2050} \approx 31,7\%$

$U_{moy} = \alpha \cdot U_{pleinech} = 0,317 \cdot 5,2 \approx 1,65\text{V}$

Calculer  $N(U_{moy}) = \frac{165}{0,00244}$

$N \approx 676$

$$V_{avg} = 1,65 \text{ V}$$

$$q = \frac{5,2}{2^{10} - 1} \approx 0,00254 \text{ V/bit}$$

$$N_{(1,65 \text{ V})} = \frac{1,65}{0,00254} \approx 650$$



sketch\_apr22a \$

```
void setup() {
  pinMode(3, OUTPUT);
  Serial.begin(9600);
}

void loop() {
  int val = map(analogRead(A0), 0, 1023, 0, 255);
  analogWrite(3, val);
  double val2 = val * 2048 / 256;
  Serial.println(val2);
}
```

Le croquis utilise 3590 octets (11%) de l'espace disponible.  
Les variables globales utilisent 200 octets de mémoire.

COM3

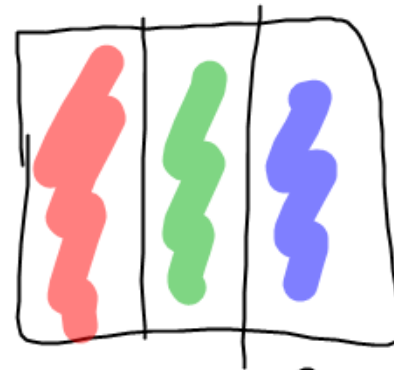
6/7

```
664.00
664.00
664.00
664.00
664.00
664.00
664.00
664.00
664.00
664.00
664.00
664.00
664.00
664.00
664.00
```

☒ Défilement automatique ☐ Afficher l'horodatage

Pas de fin de ligne





R G B  
↑ ↑ ↑

CNA 8bits



N de 0 à 255

$$255^3 + 1 \\ \approx 16,6 \cdot 10^6 \text{ couleurs}$$