

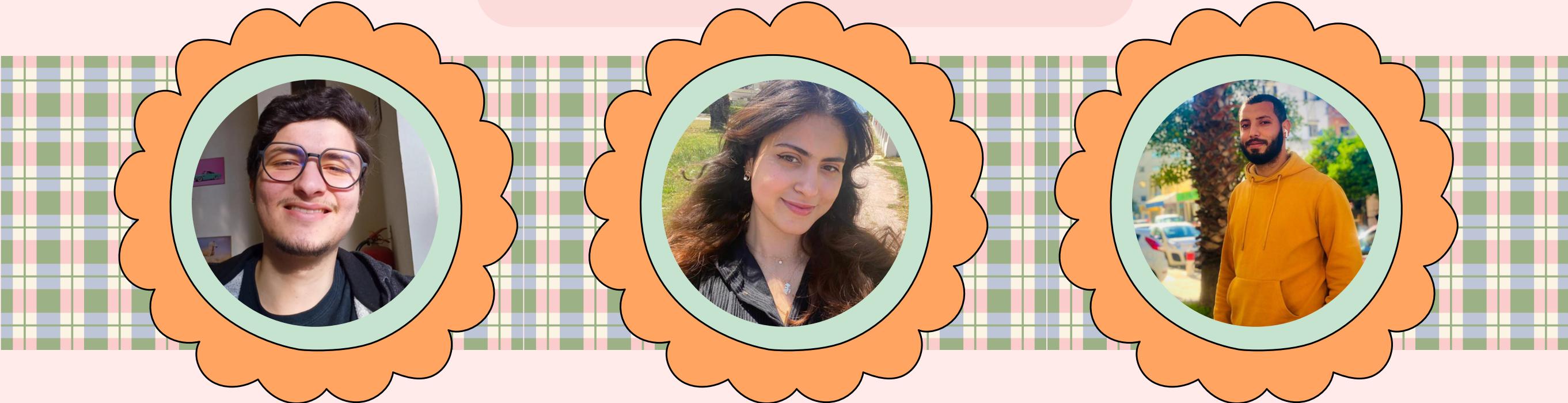
Application de fin de formation



Equipe “Bref”



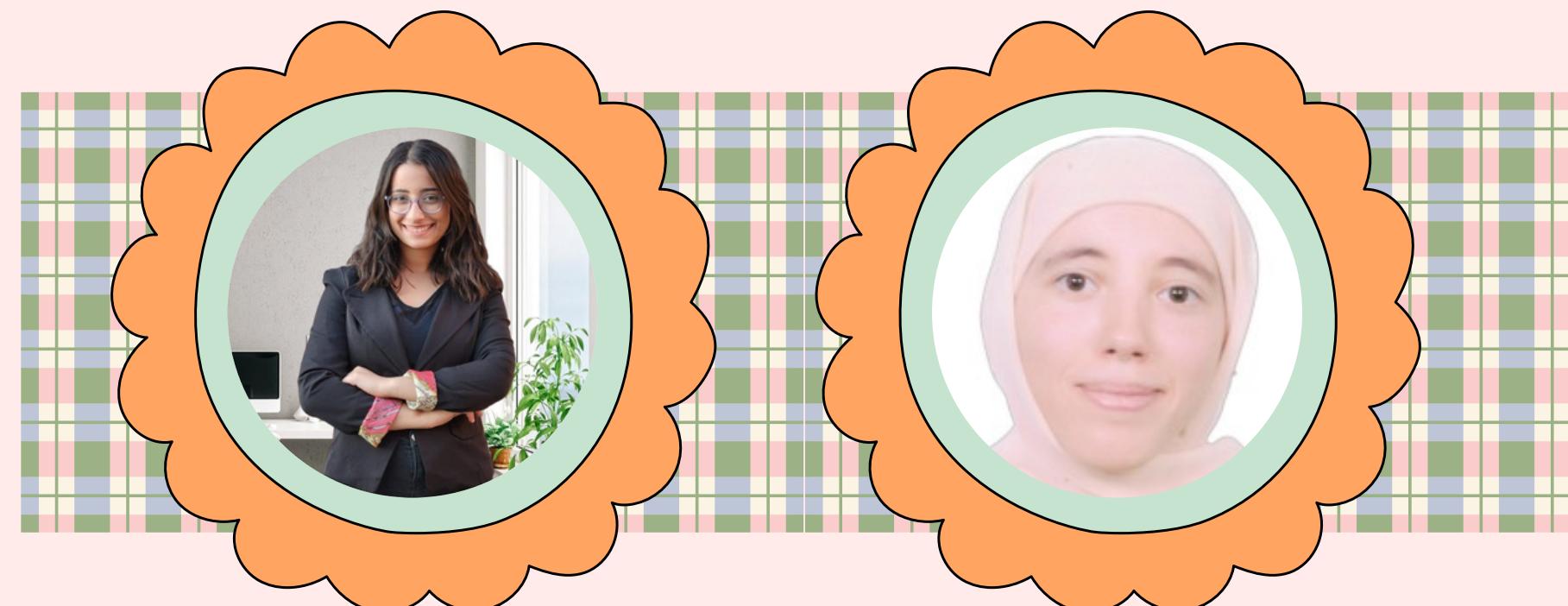
NOTRE EQUIPE



Yassin Ben Faiza

Maryem Koubaa

Med Chedi Arfaoui



Malek Zitouni

Hela Talbi

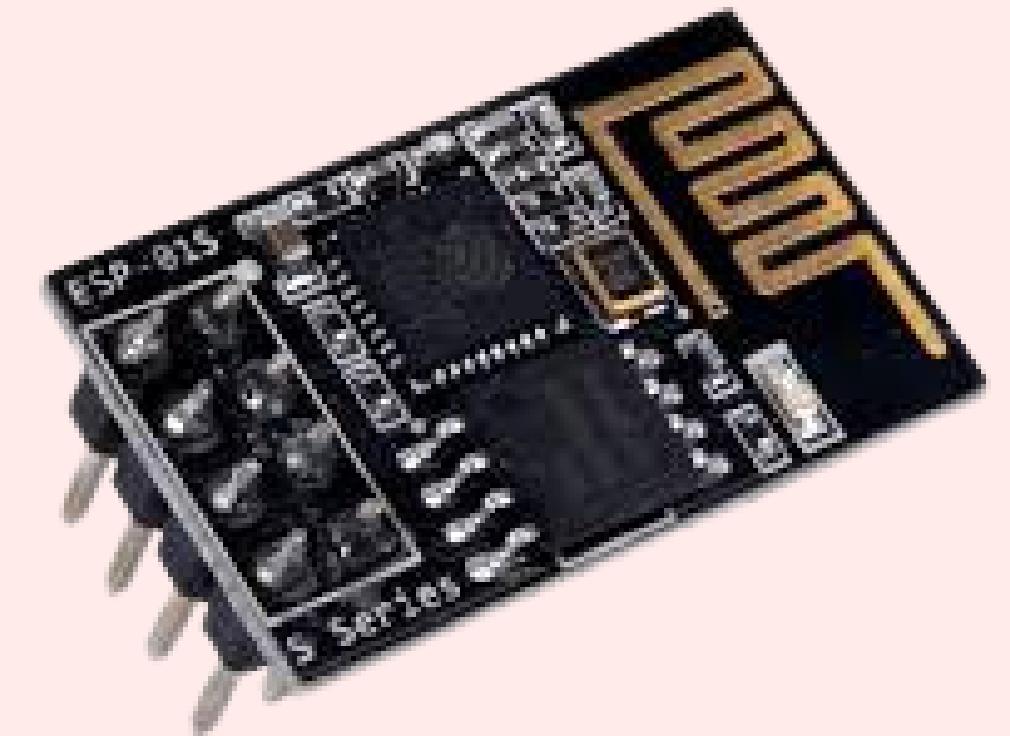
MATÉRIEL UTILISÉ :



STM32
F407G



POTENTIOMETRE



ESP 8266

PROCESSUS

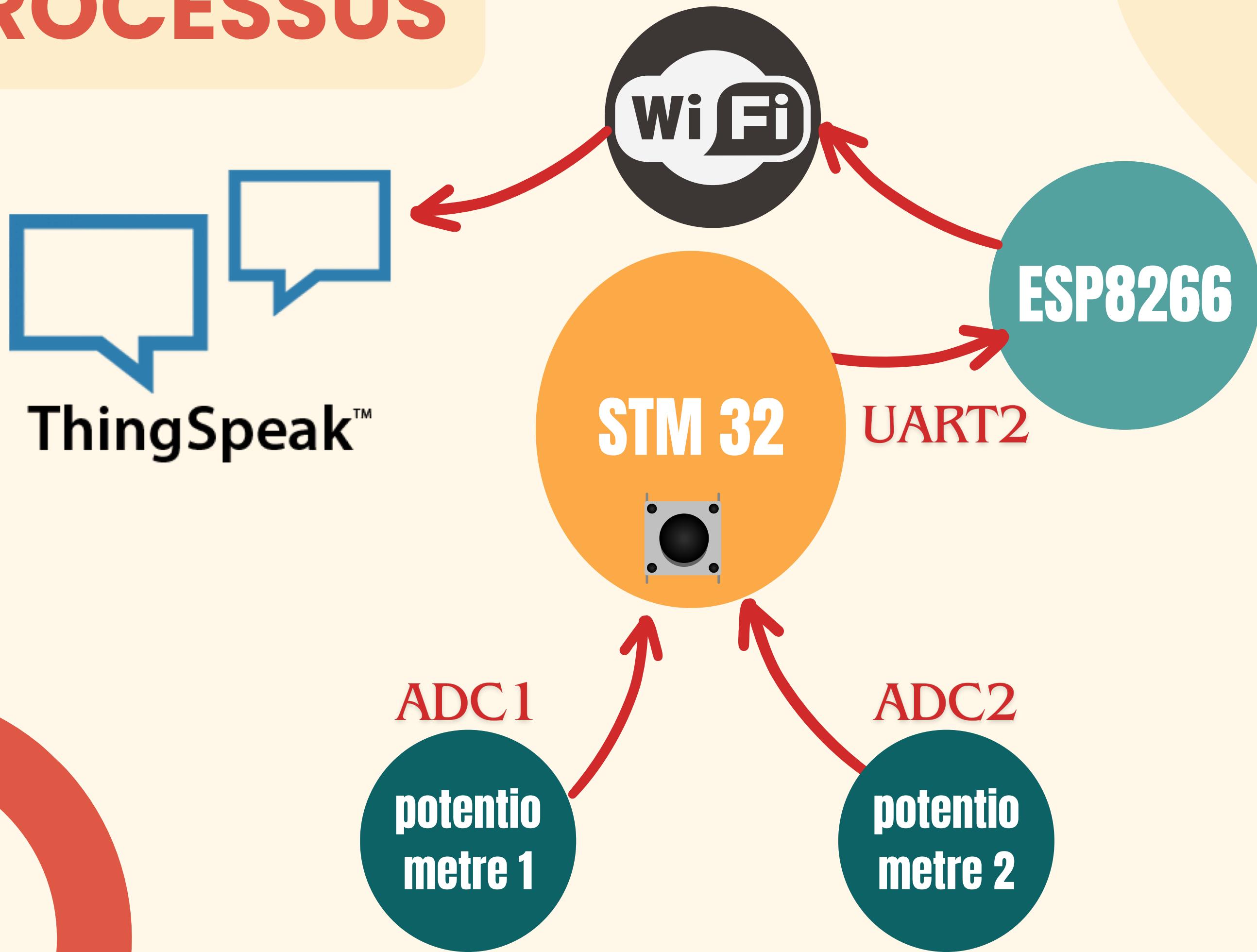
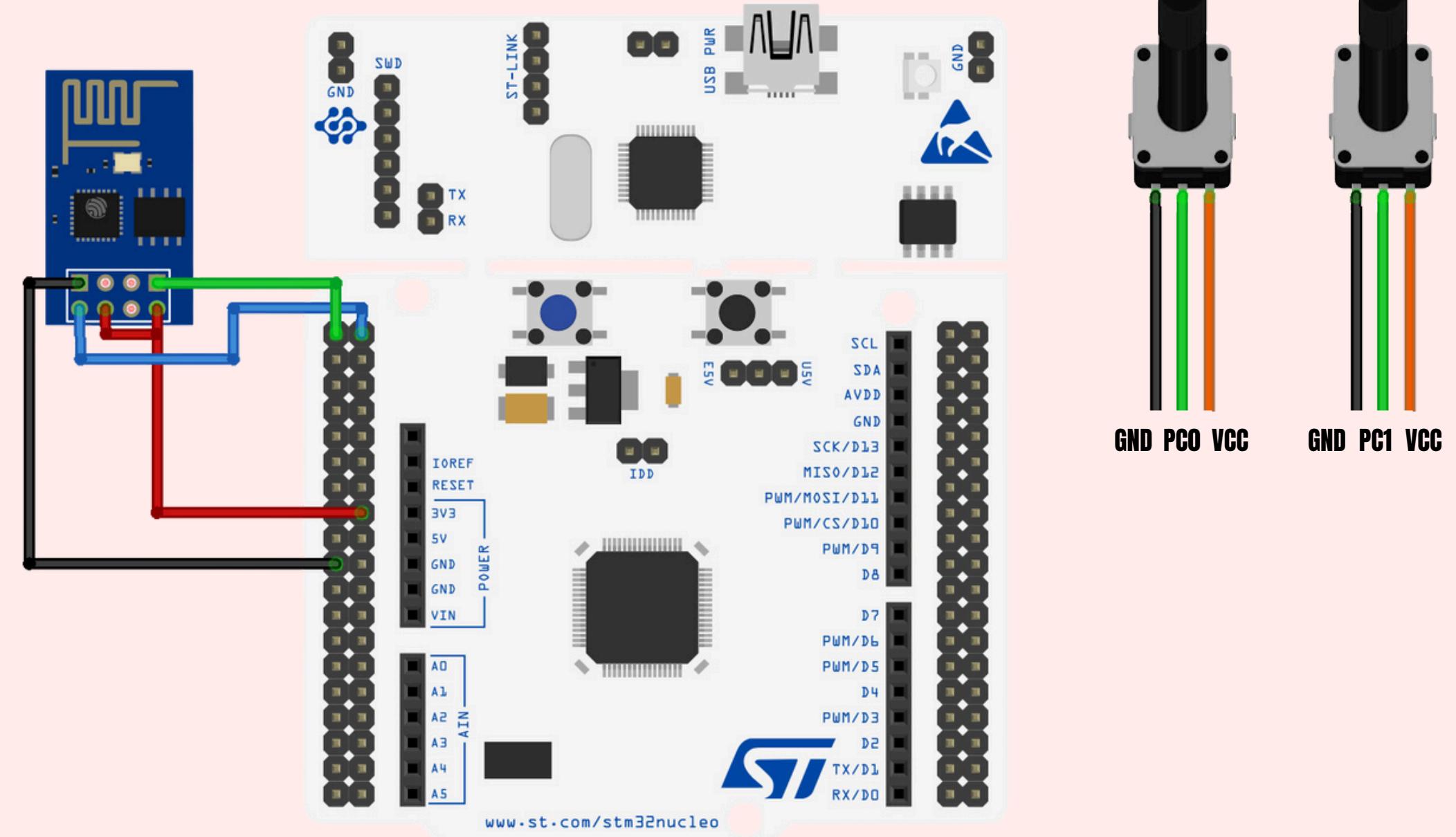
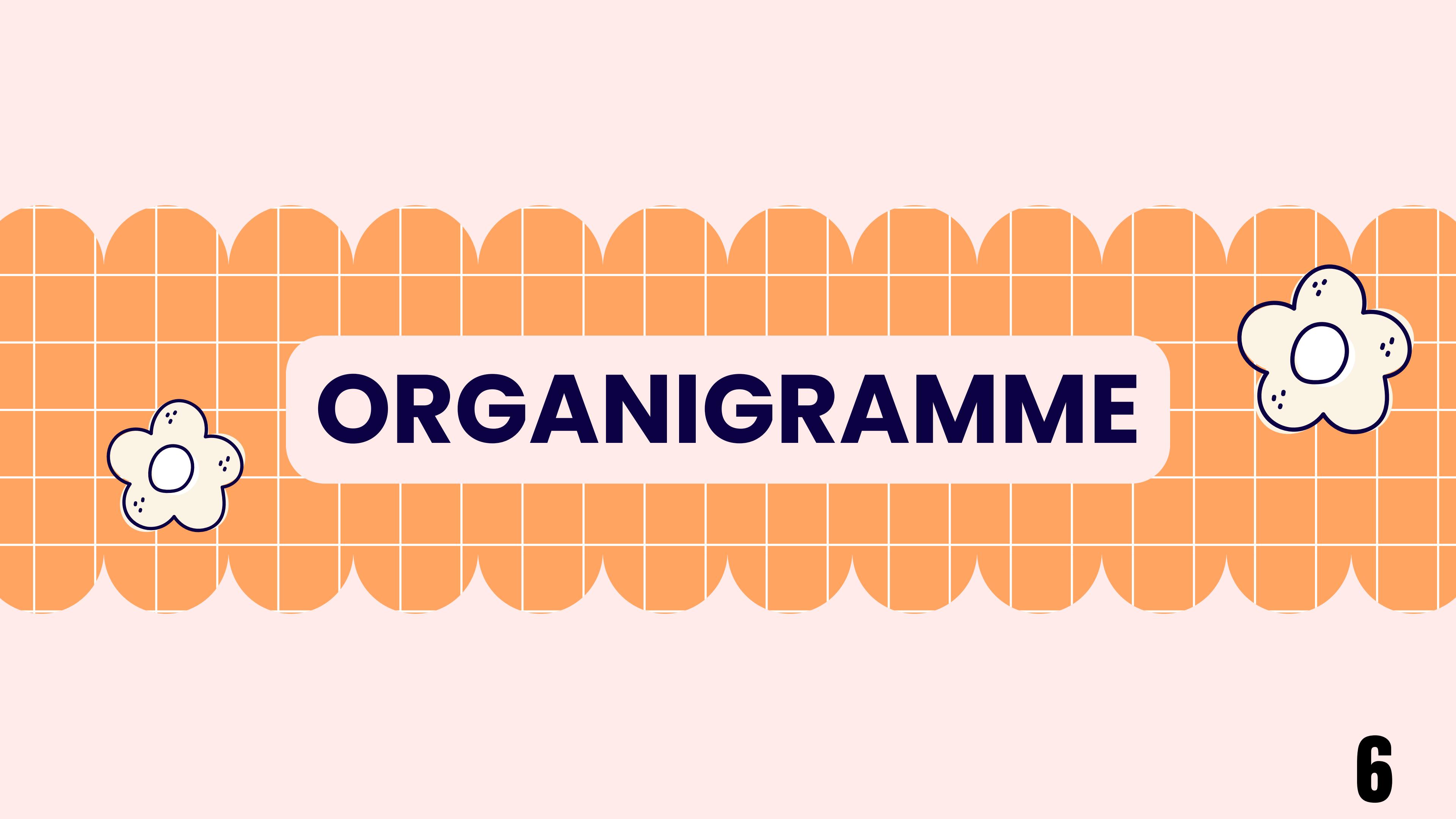
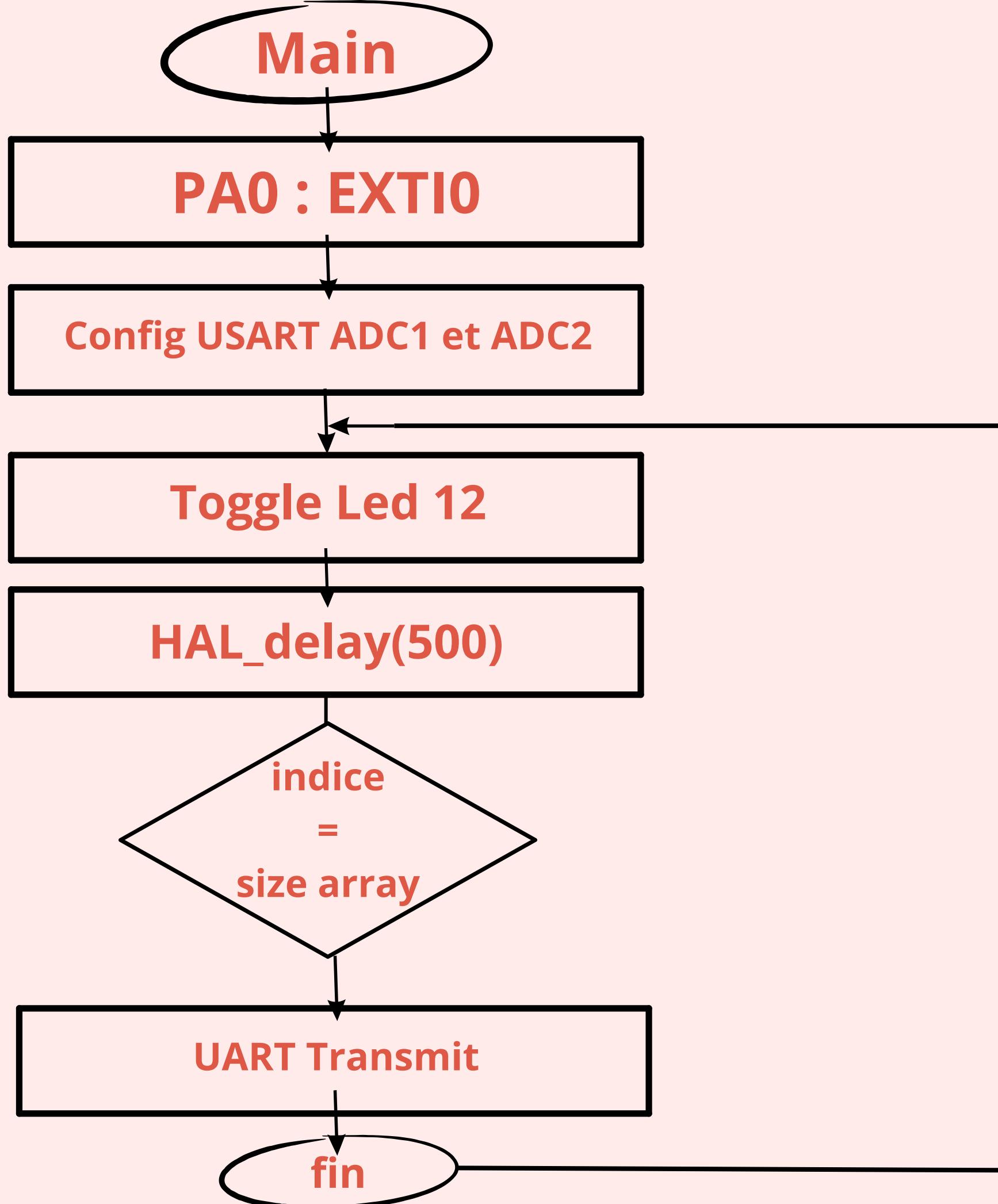


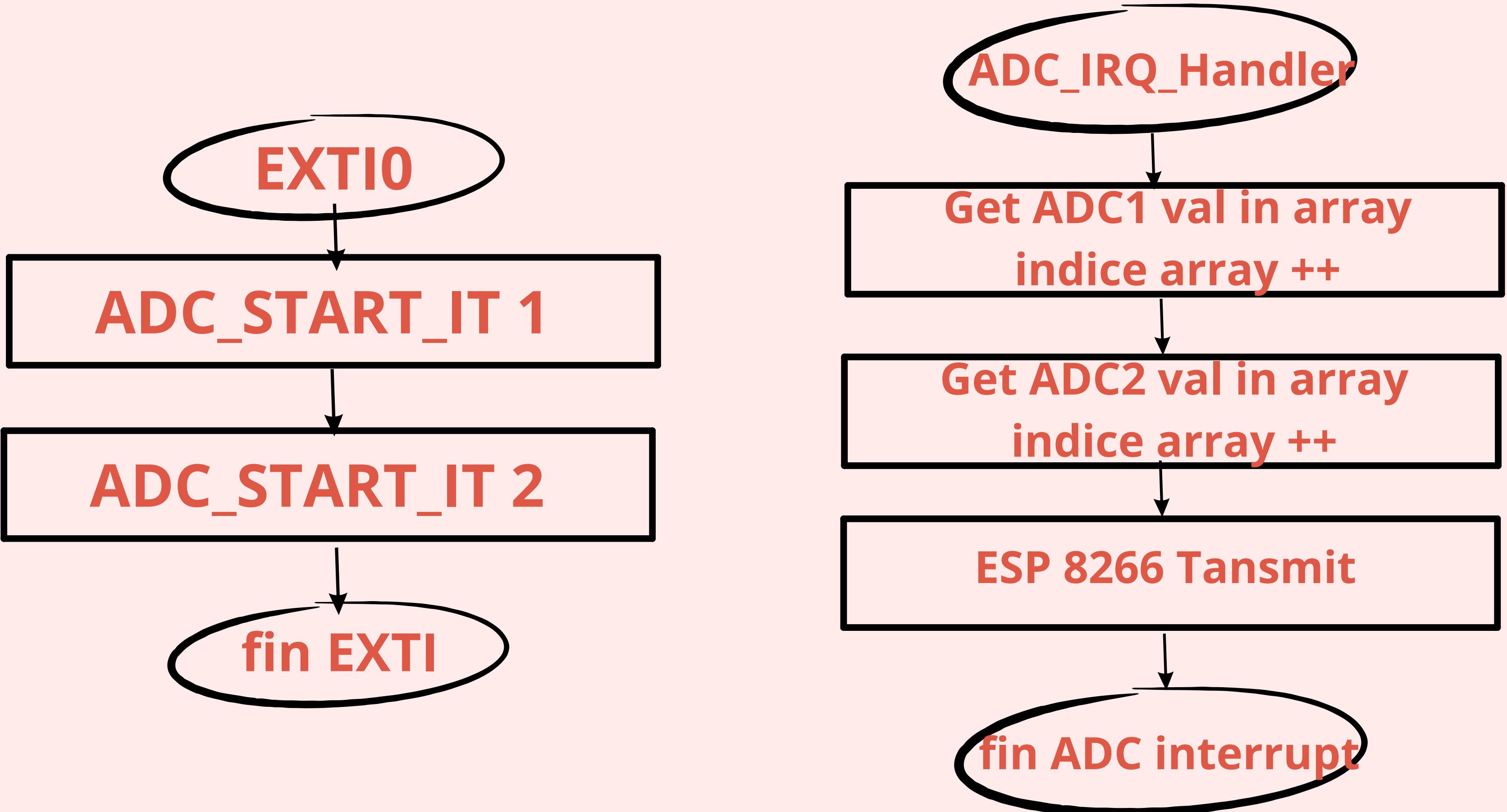
SCHÉMA ÉLECTRONIQUE





ORGANIGRAMME





COUVEUSE À ŒUFS



INTRODUCTION

- **SOLUTION INNOVANTE POUR LES ÉLEVEURS D'ANIMAUX.**



QUELS SONT LES PARAMÈTRES INDISPENSABLES POUR UNE BONNE INCUBATION?

Humidité

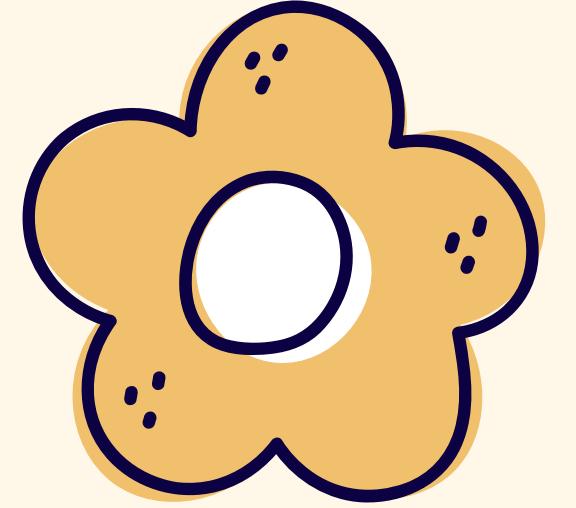
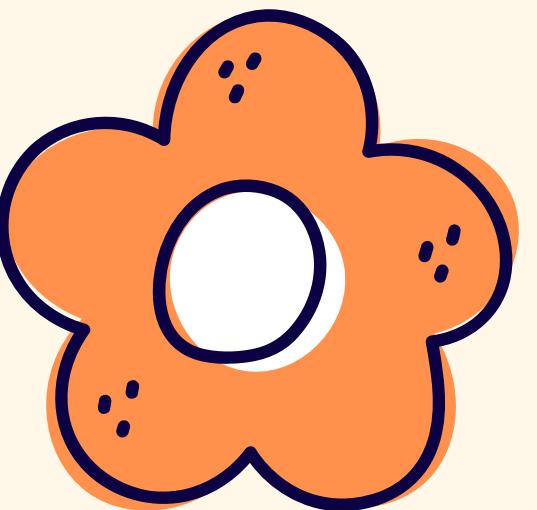
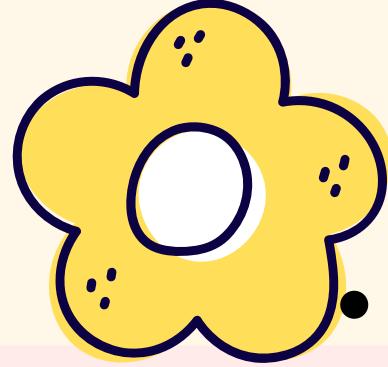
PROTEGER LES ŒUFS CONTRE
LE DESSÈCHEMENT ET
FACILITER LE PROCESSUS
D'ÉCLOSION.

Température

LE STIMULANT POUR LE
PROCESSUS DE PROLIFÉRATION
CELLULAIRE DANS L'EMBRYON ET
PAR CONSÉQUENT SA
CROISSANCE.



OBJECTIFS



SURVEILLER EN CONTINU LA TEMPÉRATURE ET L'HUMIDITÉ.

- **FOURNIR DES AVERTISSEMENTS**
- **ASSURER LE RETOURNEMENT AUTOMATIQUE DES ŒUFS**

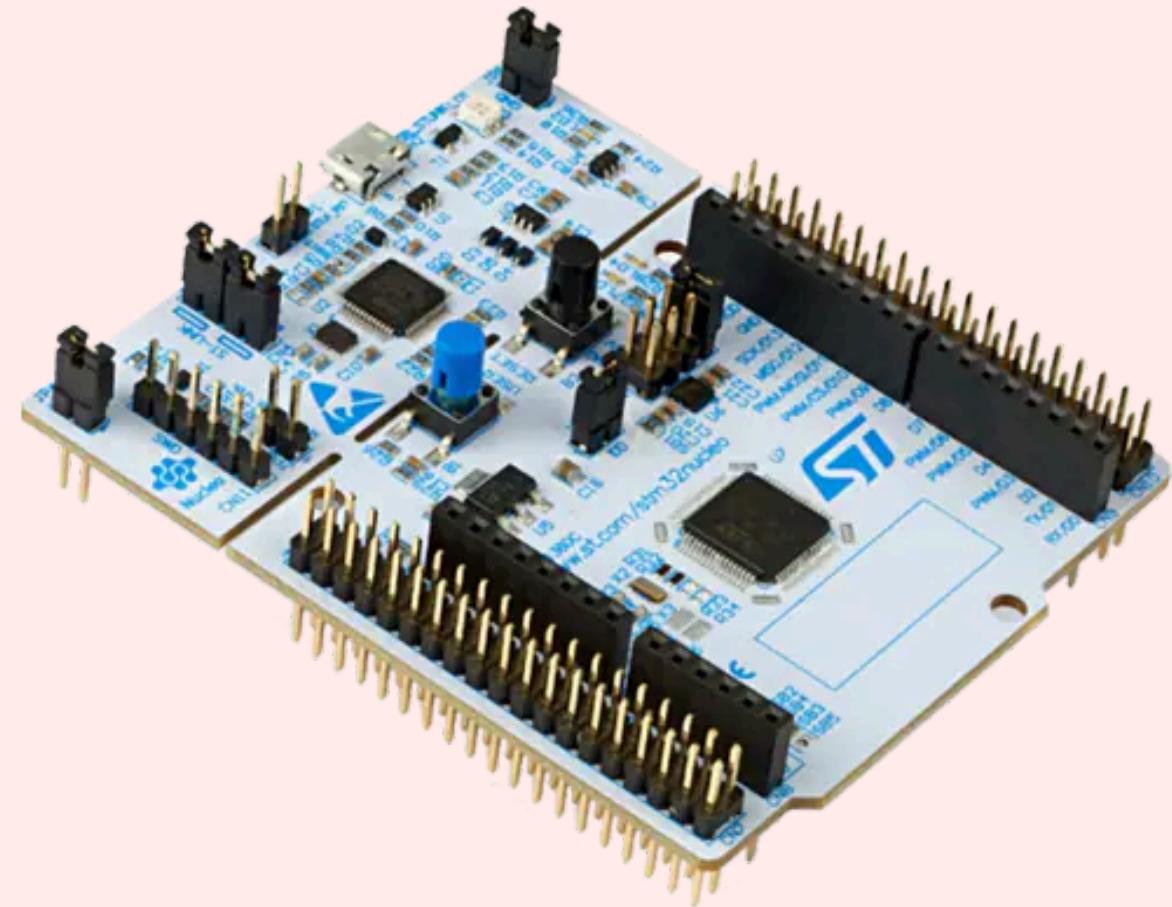
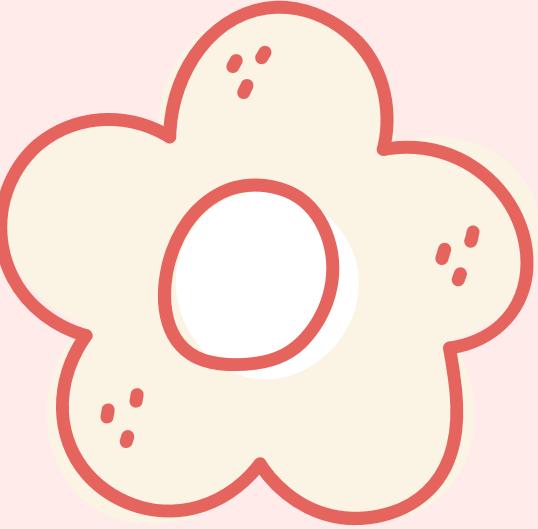


UN ENVIRONNEMENT EFFICACE POUR L'INCUBATION DES ŒUFS.

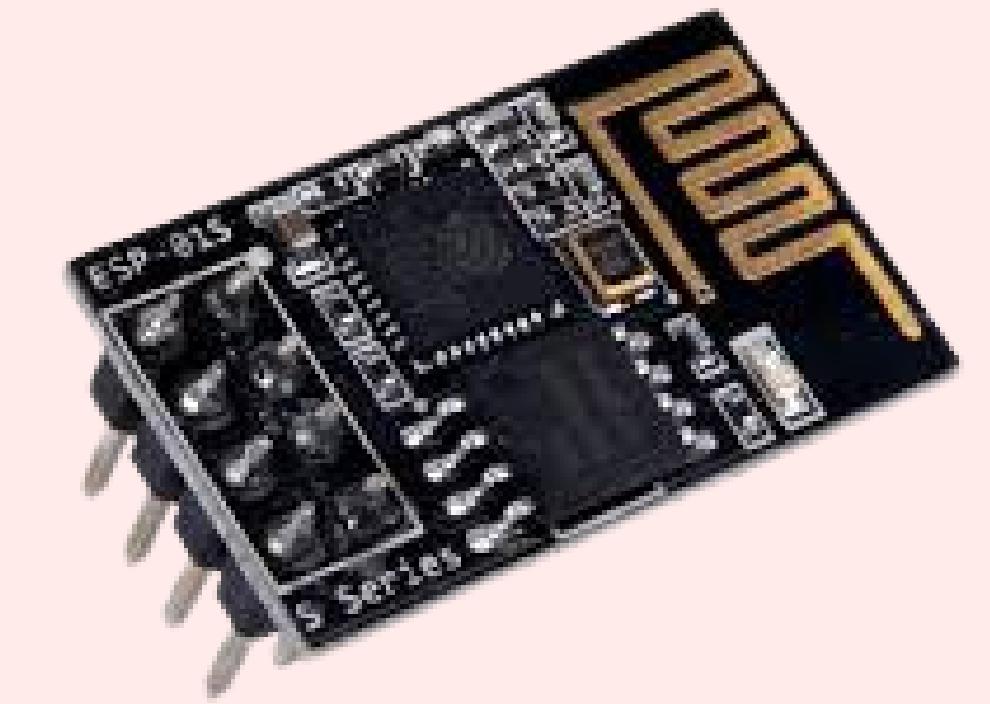
LES CHANCES DE SUCCÈS DANS LE PROCESSUS D'ÉCLOSION.



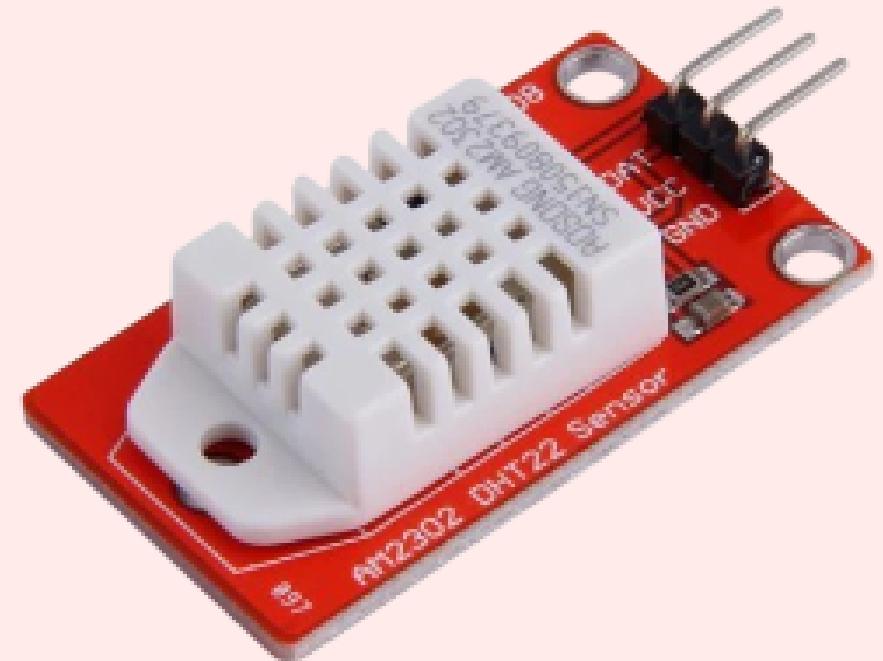
COMPOSANTS ELECTRONIQUES



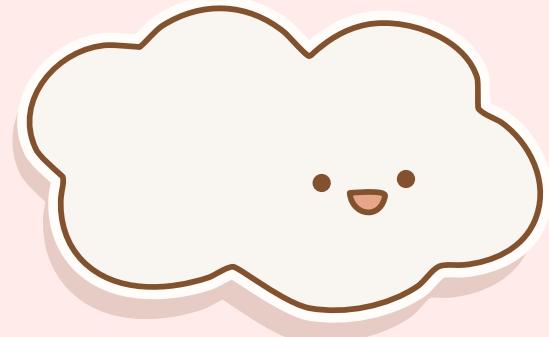
STM32
F446RE



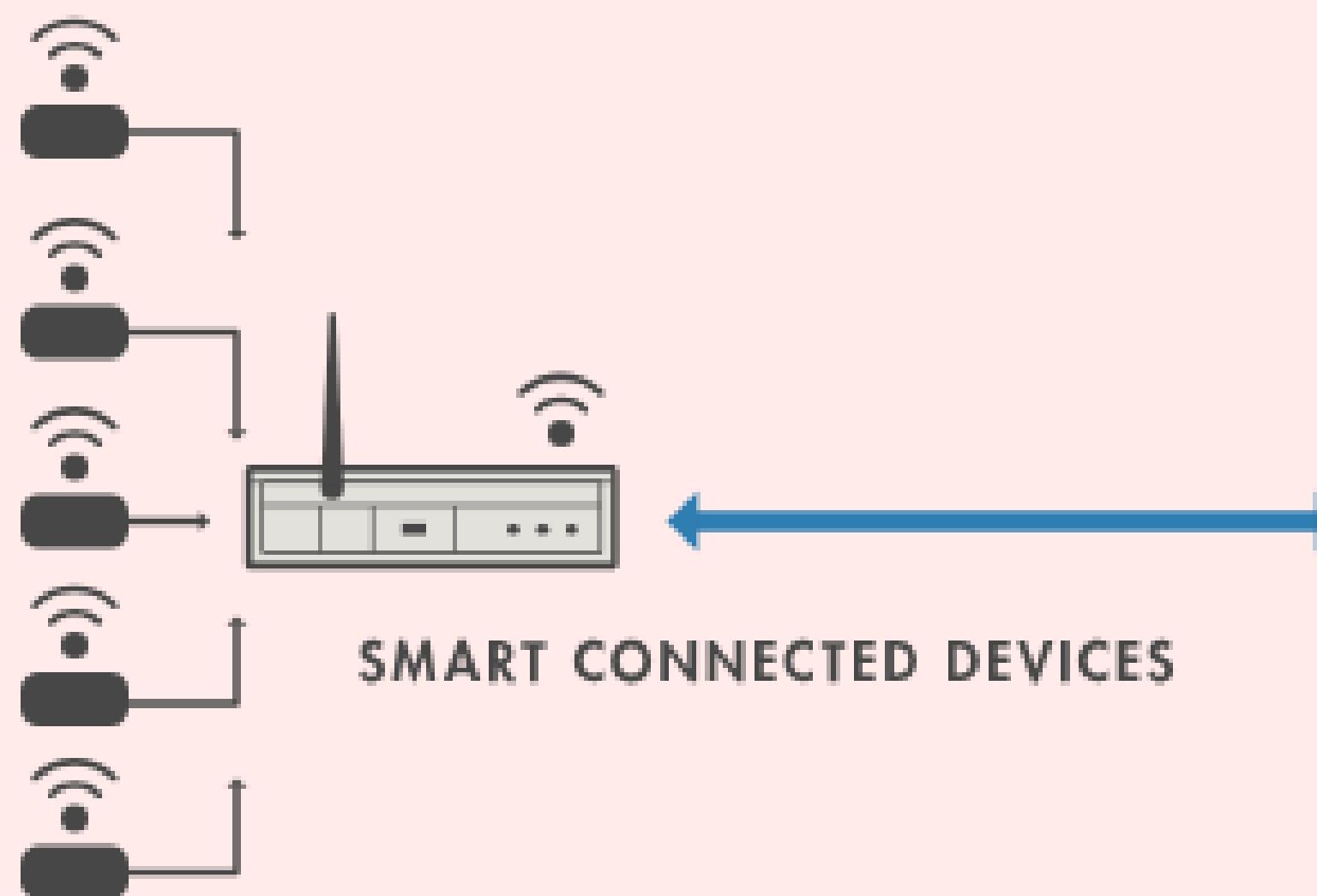
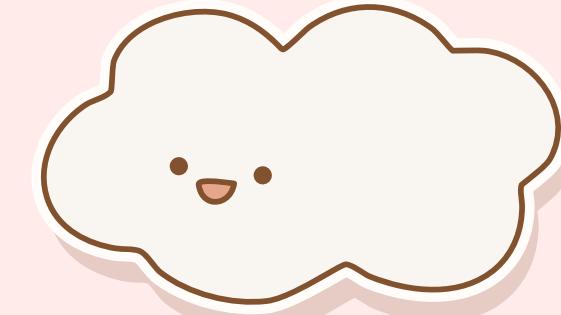
ESP 8266

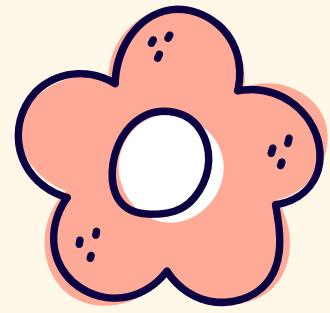


DHT22



THING&SPEAK





DIRECTIVES ET CONSEILS

Contrôle des conditions que la poule offre aux œufs dans l'incubateur naturel.

**PARTIE 1:
INCUBATION (18 JOURS)**



**PARTIE 2:
ÉCLOSION (3 JOURS)**



PROCESSUS

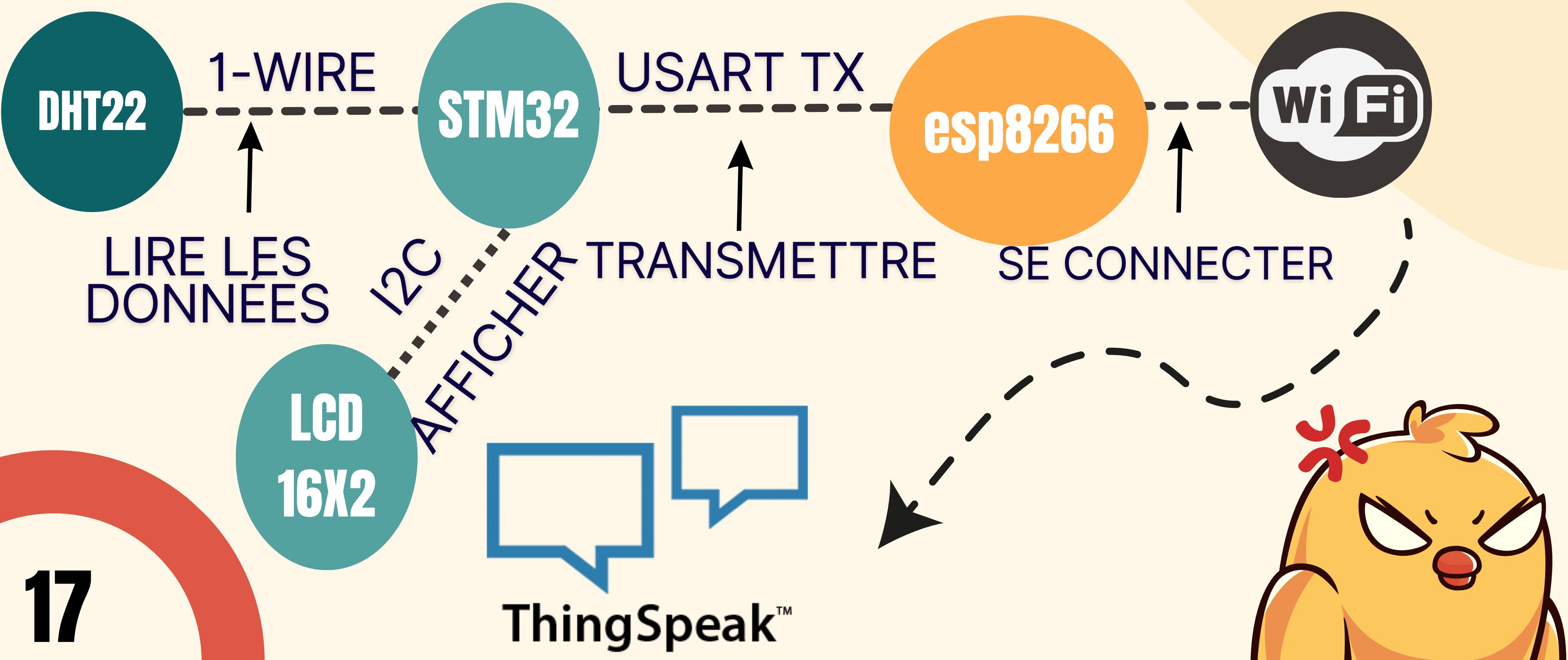
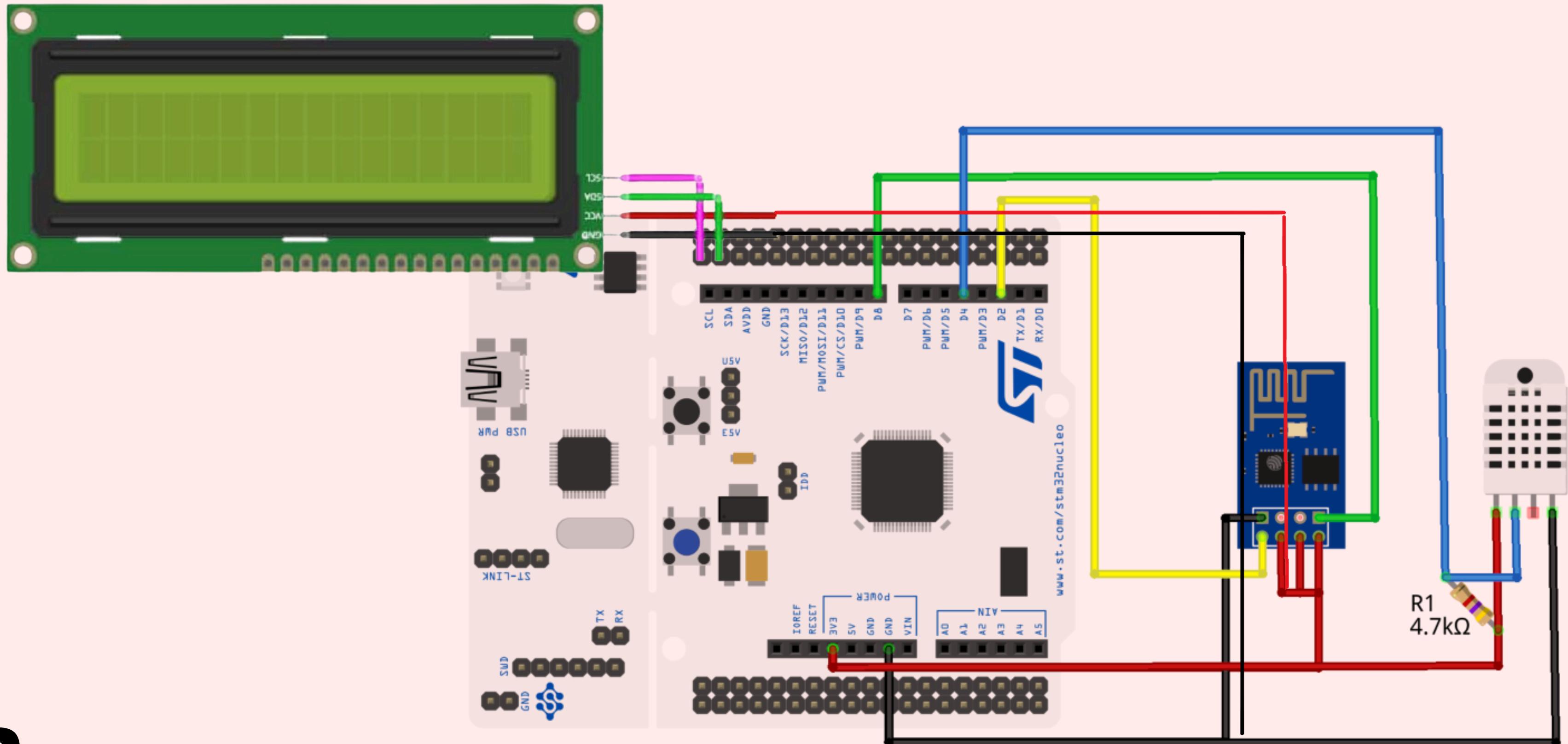
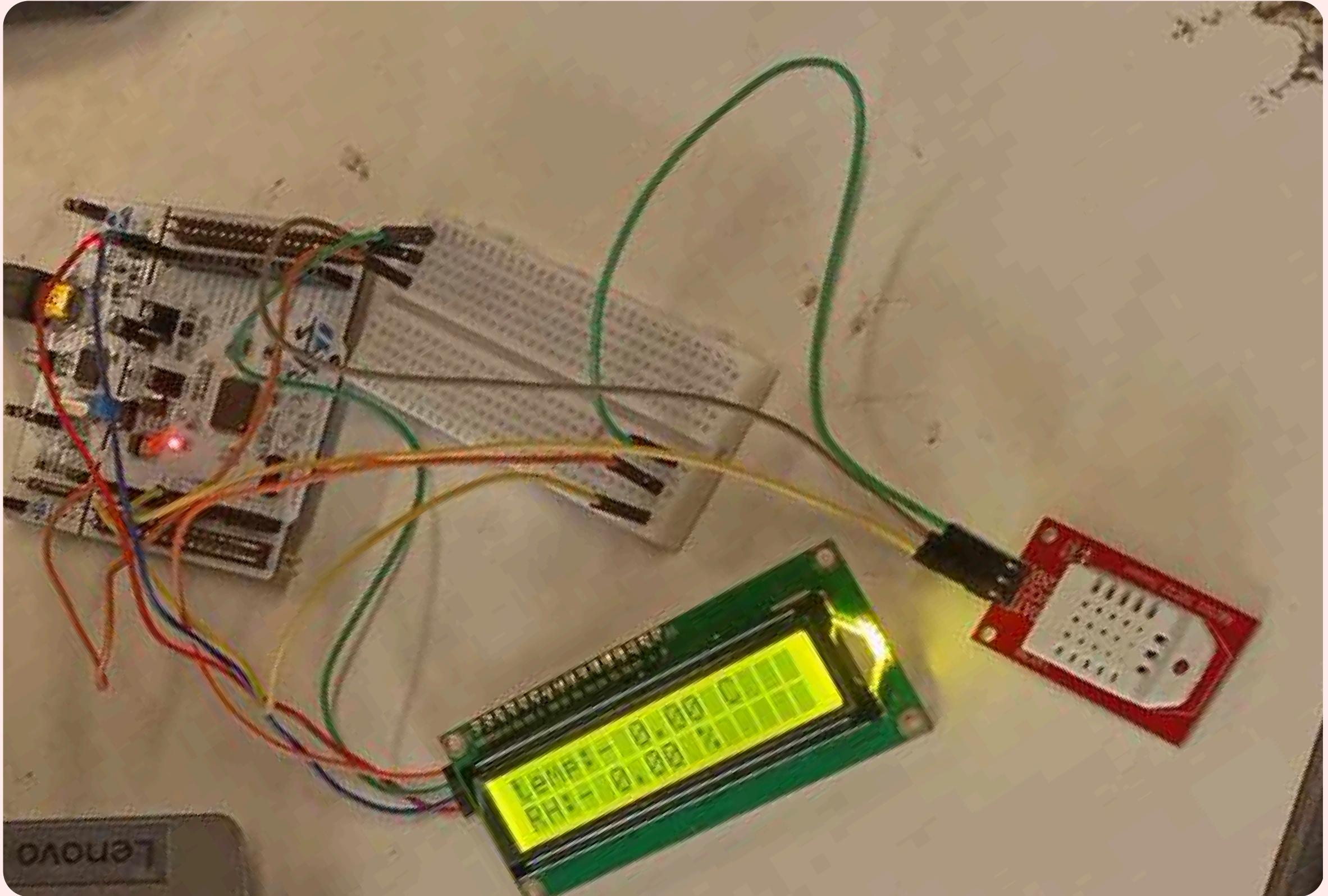


SCHÉMA ÉLECTRONIQUE



PROTOTYPE



| Expression | Type | Value | |
|----------------------------------|-------|------------|----|
| $\text{xx} = \text{Temperature}$ | float | 26.3999996 | 19 |
| $\text{xx} = \text{Humidity}$ | float | 24.2999992 | |

ACQUISITION DES DONNÉES DU CAPTEUR DHT22

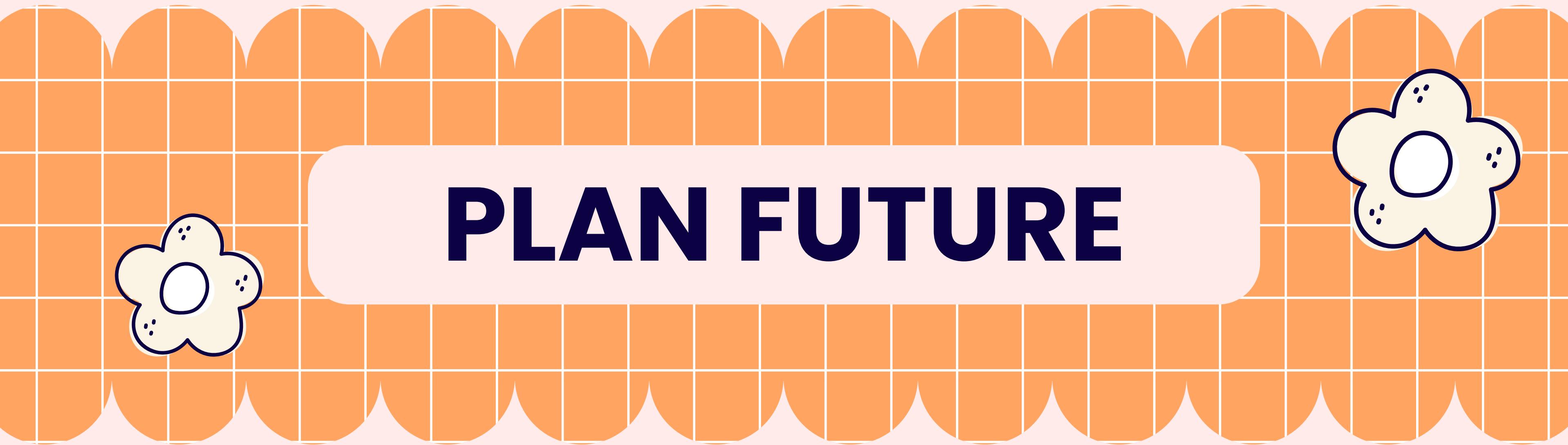
```
while (1)
{
    DHT_GetData(&DHT22_Data);
    Temperature = DHT22_Data.Temperature;
    Humidity = DHT22_Data.Humidity;
    Display_Temp(Temperature);
    Display_Rh(Humidity);
    HAL_Delay(3000);
    /* USER CODE END WHILE */

    /* USER CODE BEGIN 3 */
}
```

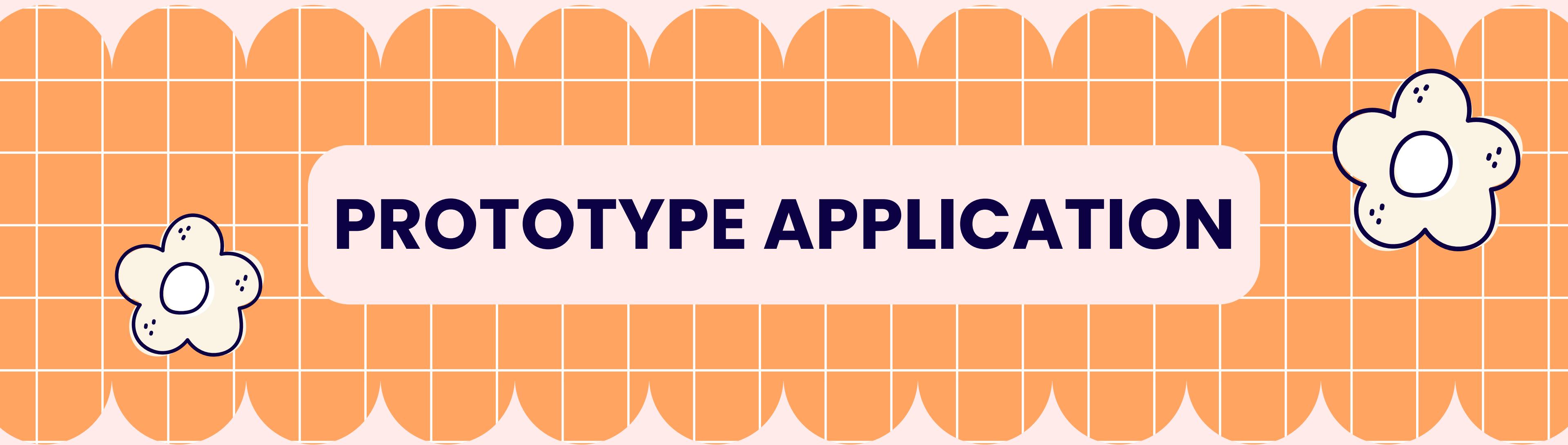


```
void DHT_GetData (DHT_Datatypes *DHT_Data)
{
    DHT_Start ();
    Presence = DHT_Check_Response ();
    Rh_byte1 = DHT_Read ();
    Rh_byte2 = DHT_Read ();
    Temp_byte1 = DHT_Read ();
    Temp_byte2 = DHT_Read ();
    SUM = DHT_Read();

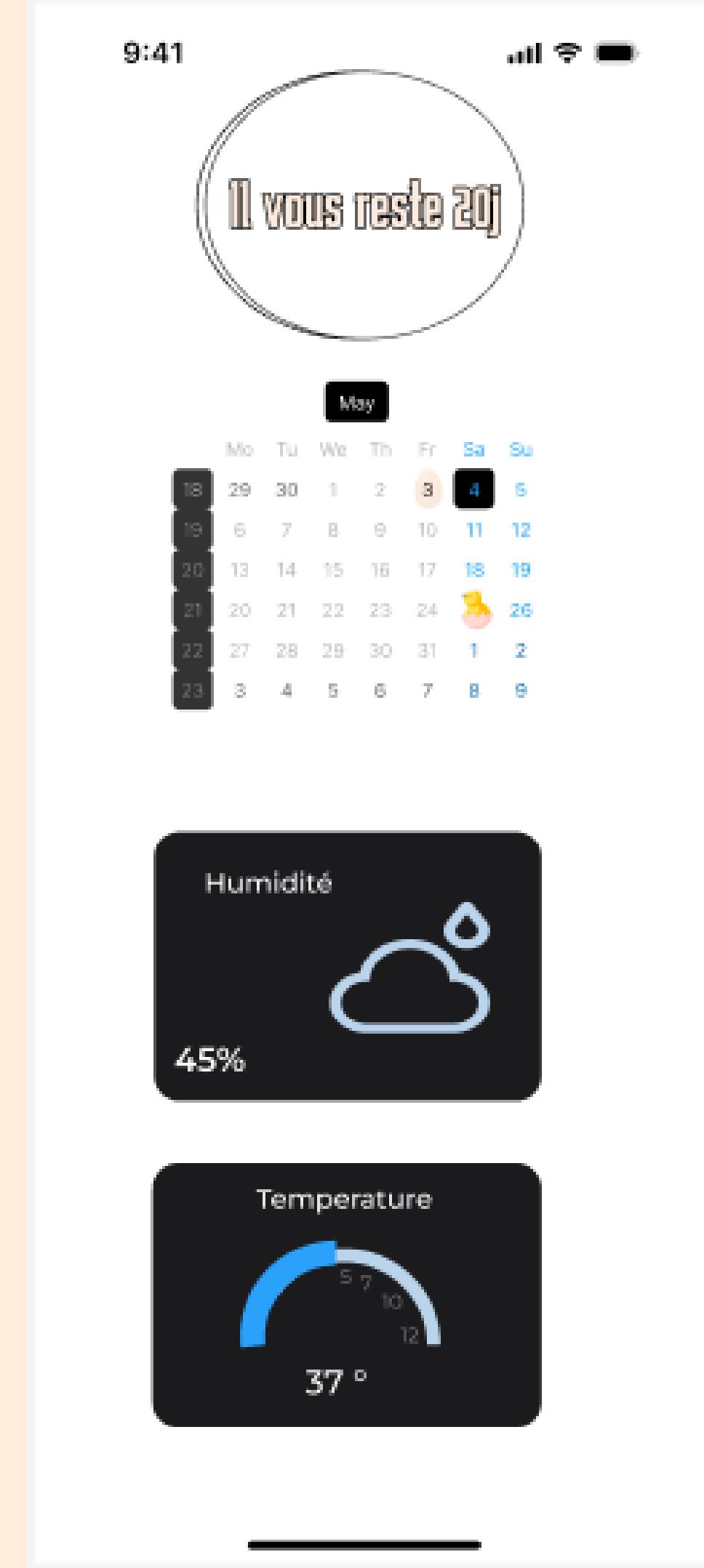
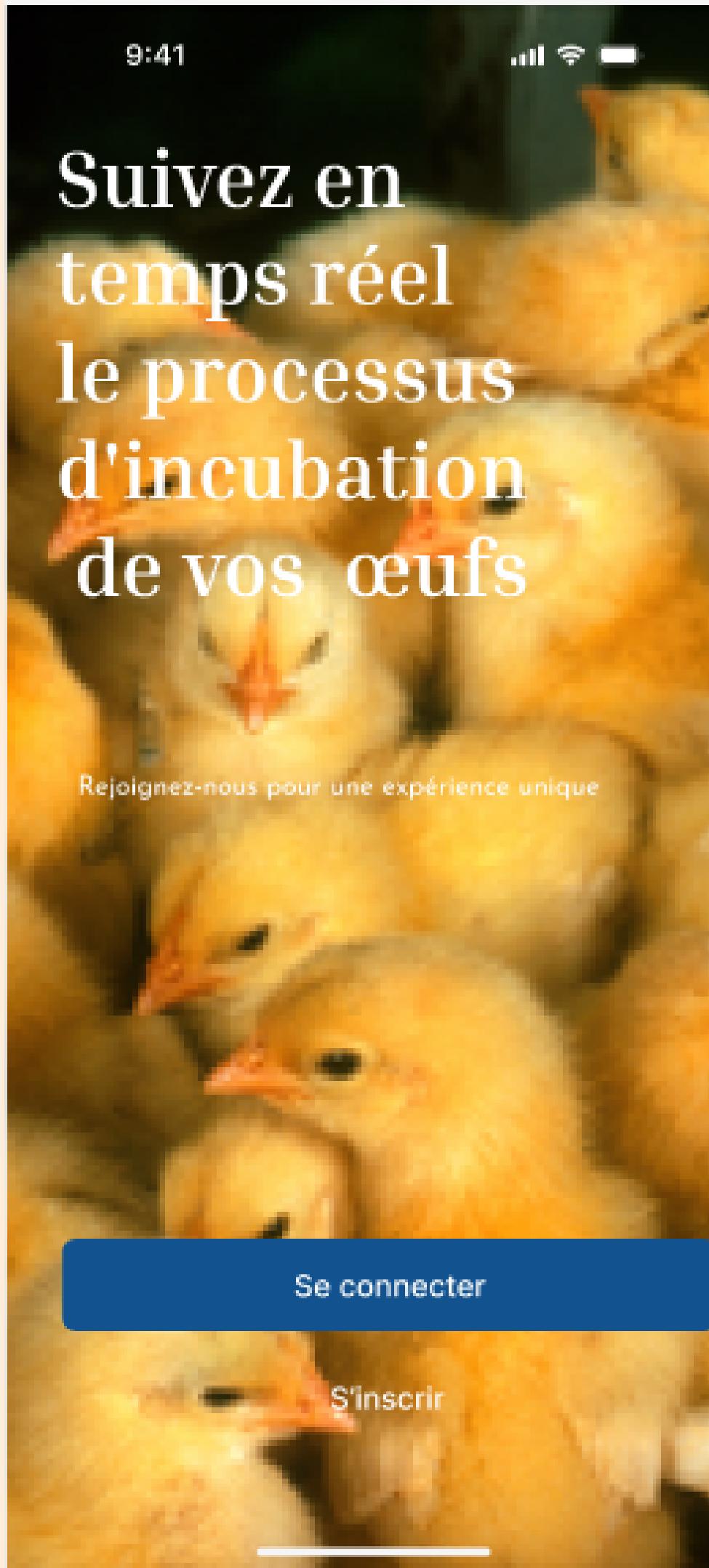
    if (SUM == (Rh_byte1+Rh_byte2+Temp_byte1+Temp_byte2))
    {
        DHT_Data->Temperature = (float)((Temp_byte1<<8)|Temp_byte2)/10.0;
        DHT_Data->Humidity = (float)((Rh_byte1<<8)|Rh_byte2)/10.0;
    }
}
```



PLAN FUTURE



PROTOTYPE APPLICATION



Email :

Objet : Urgent : Température élevée dans la
couveuse à œufs

Cher utilisateur,

La température de votre couveuse à œufs est trop
élevée. Agissez maintenant.



**MERCI
POUR VOTRE
ATTENTION**

