



Pet Feeder

Take care of your bestie when you are out

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01



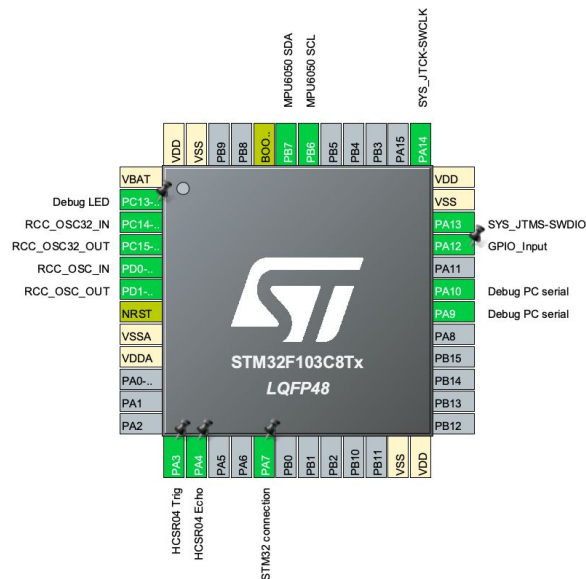
Introduction

What is included in our auto pet feeder?

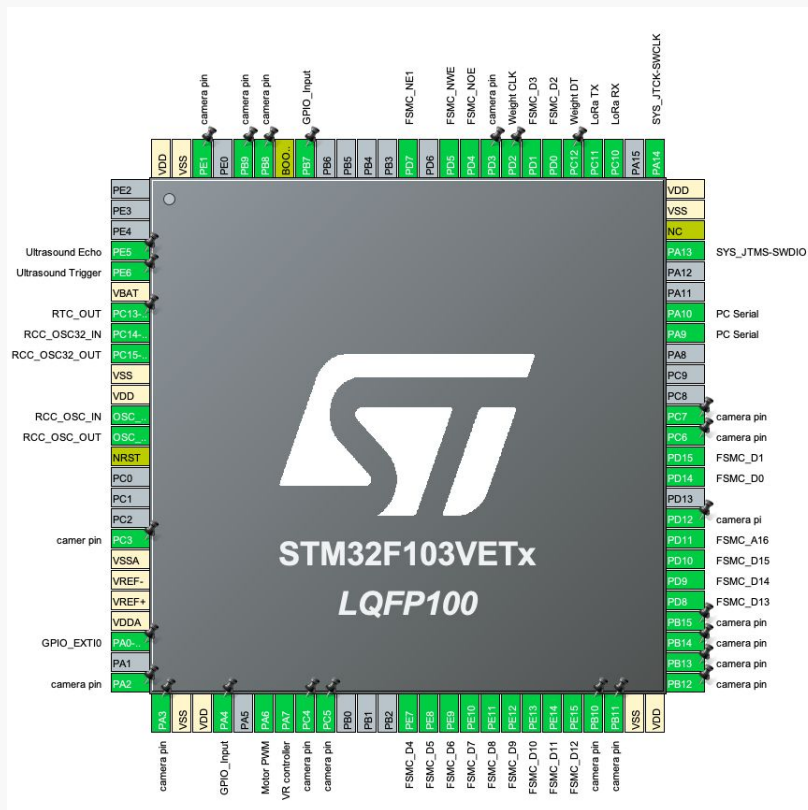


Pin Assignment

Main Machine

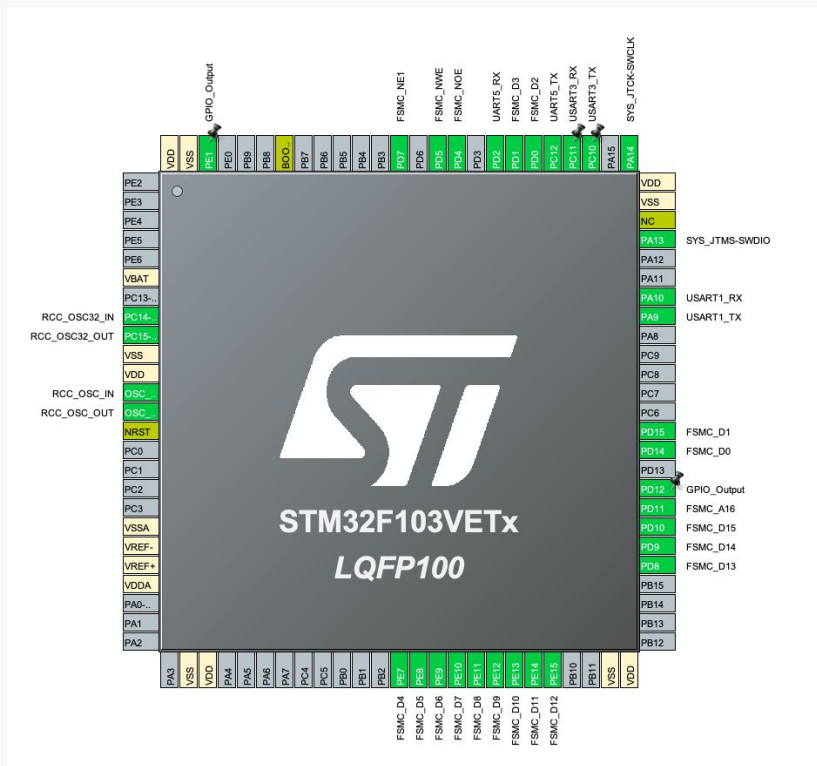


STM32F103C8T6



STM32F103VET6

STMF103VET6



List of Sensors

Main STM32VET103V6:

LoRa, ADC Controller, HX711, HC-SR04, OV7725

Slave STM32F103C8T6:

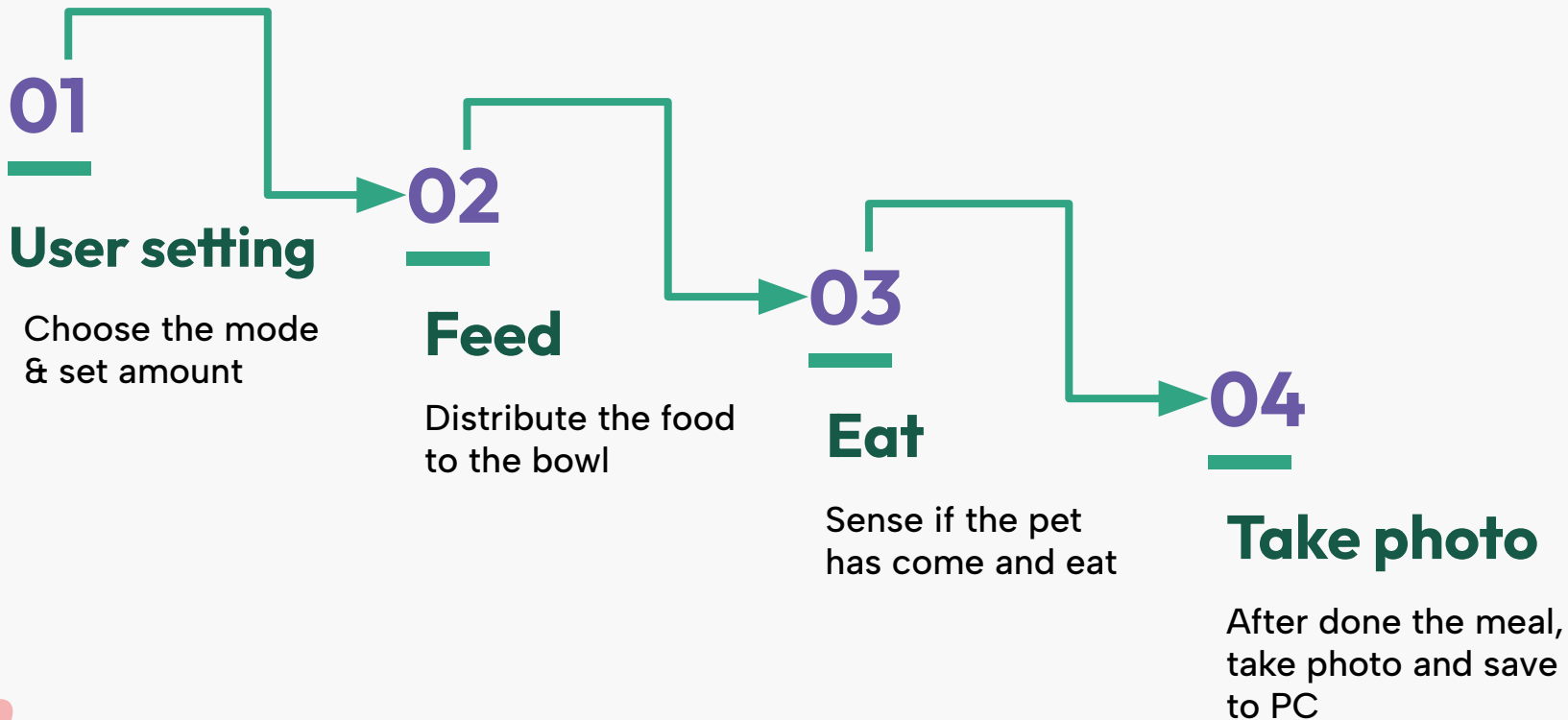
MPU6050, LED

Additional STM32VET103V6:

NEO-6M, LoRa



Operation flow



Function Mapping

**ADC
control**

Select

Using VR and ADC to
achieved smooth
select function

**Motor &
Weight sensor**

Feed

Control the amount
of distribution

**Gyro &
Ultrasound**

Eat

Sense if the bowl
is shaking and pet
is nearby

**Camera &
USB**

Capture

Take a photo and
upload to PC

02



Function

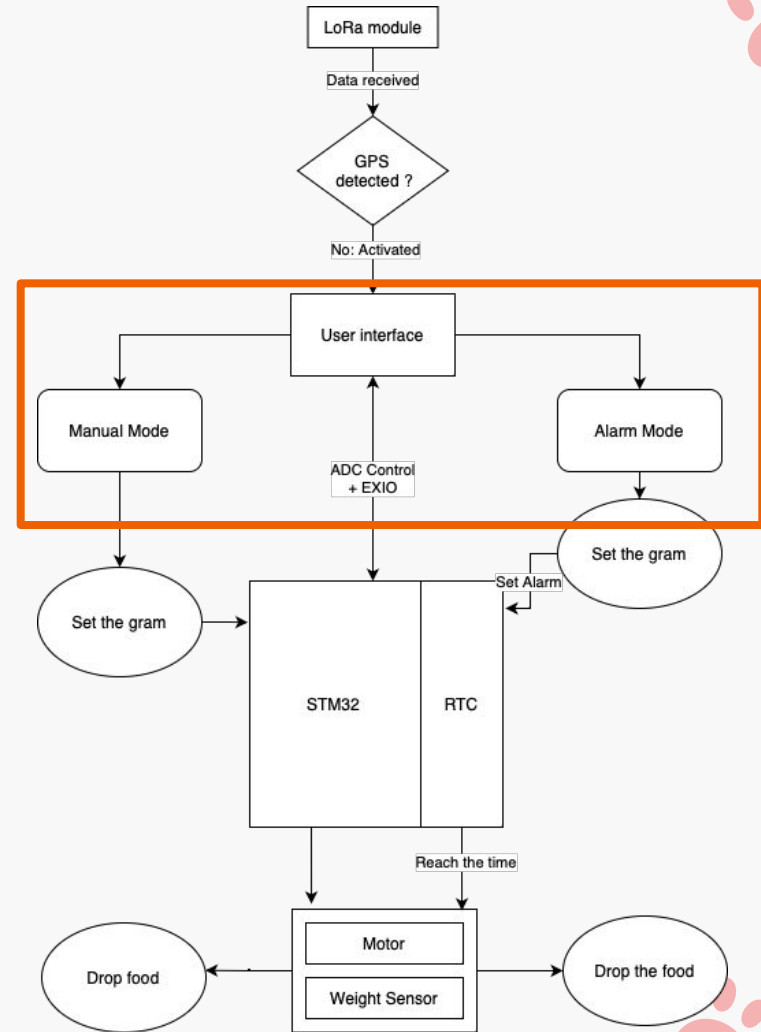
Explain how each state works & the mechanism



State 1: User Setting

ADC controller with VR

1. The user will adjust the VR and the Menu will update with the user's operation
2. **External interrupt(K1)**: For selecting the option.
3. Connect to **5V** to increase the range to reduce selection error



State 1: User Setting

RTC alarm interrupt

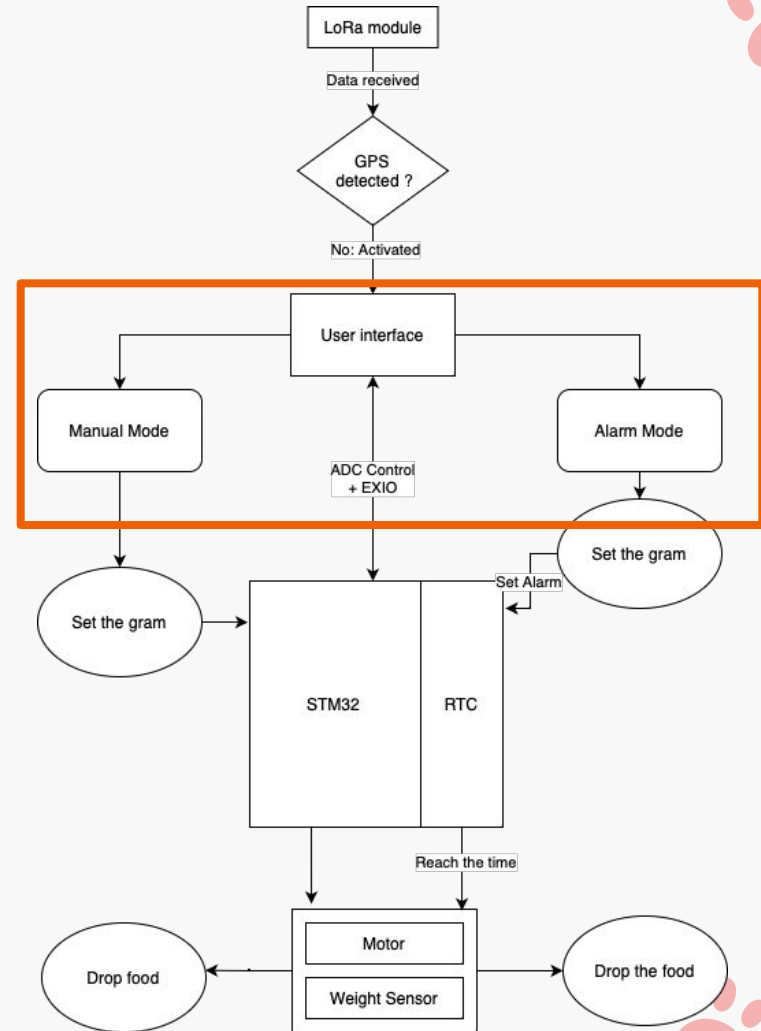
There are 2 modes:

Manual mode

- User set up their desired weighted to distribute
- Move on to state 3

Timer mode

- User set up the **alarm time** and desired weighted to distribute
- When the time hit, move on to state 3



State 2: Feed

SG90 + HX711 Weight sensor

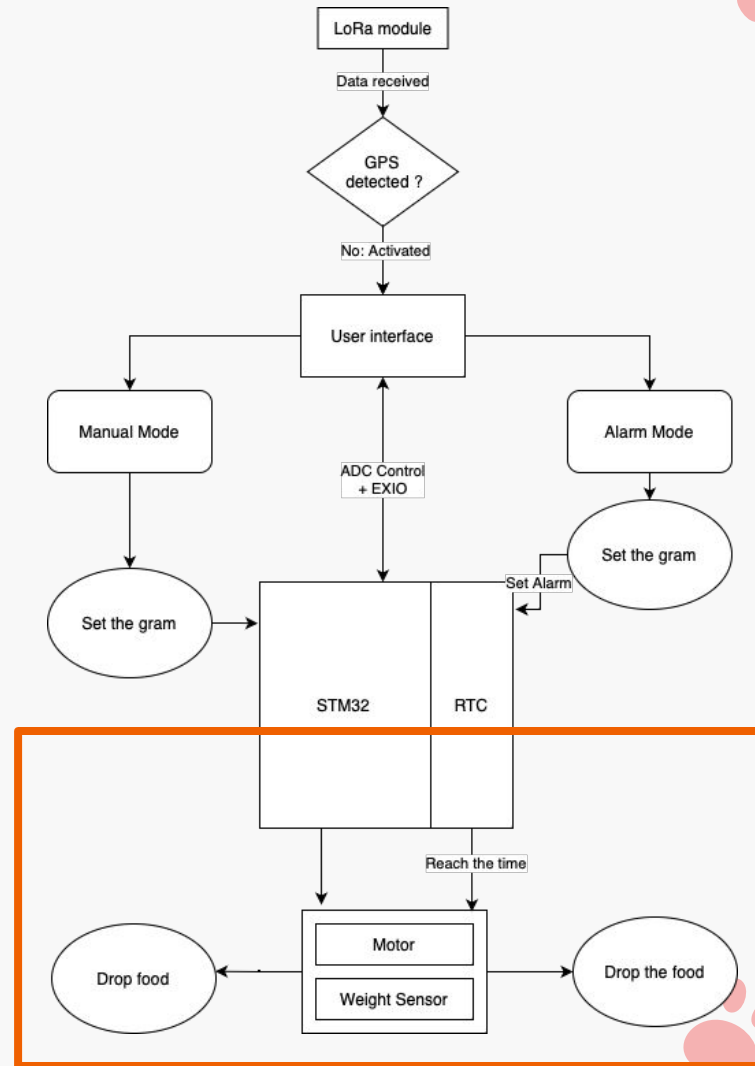
Servo motor

Control the output port

HX711 (Weight Sensor)

Control the amount of the food

When the HX711 sense that weight has almost reach the desired weight, the motor will spin back to the original place.



State 3: Pet Eat

MPU6050 + Ultrasound sensor

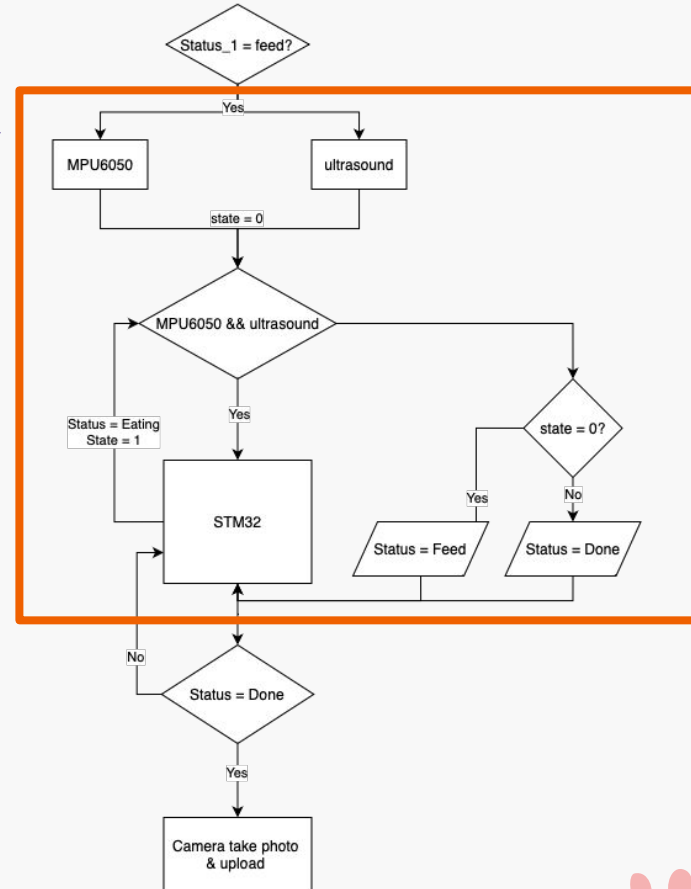
MPU6050

Control the output port

HC-SR04 (Ultrasound)

Control the amount of the food

When the HX711 sense that weight has almost reach the desired weight, the motor will spin back to the original place.



State 4: Pet Eat

OV7725 camera + USB serial

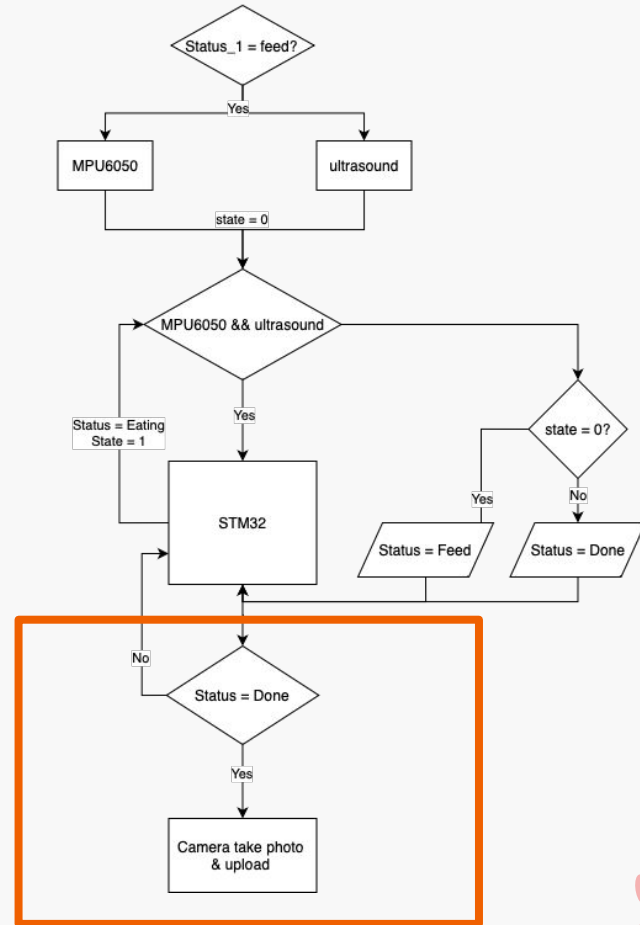
After the pet done eating...

OV7725

Take a photo to check

USB Serial

Transmit the BW image to computer
and do image processing





What if my pet is not at home?

GPS tracking !

NEO-6M GPS module + LoRa Wireless Communication

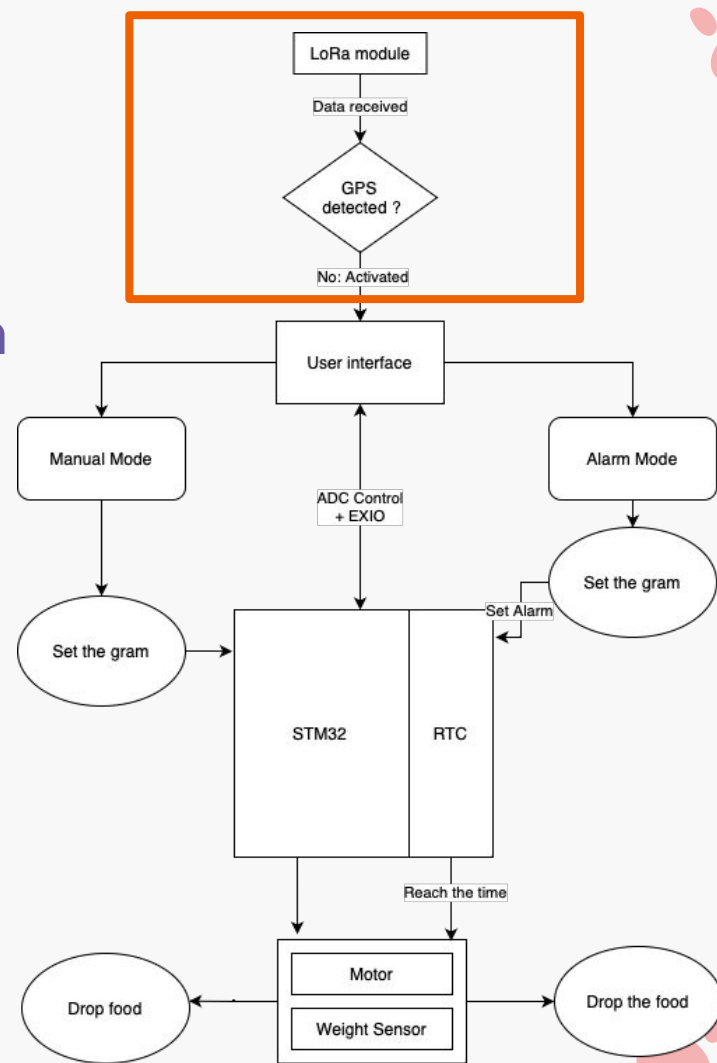
At the beginning of our process, we use GPS to detect whether the pet is at home or go out to play.

NEO6M

Check the pet current location

LoRa Wireless Transmission

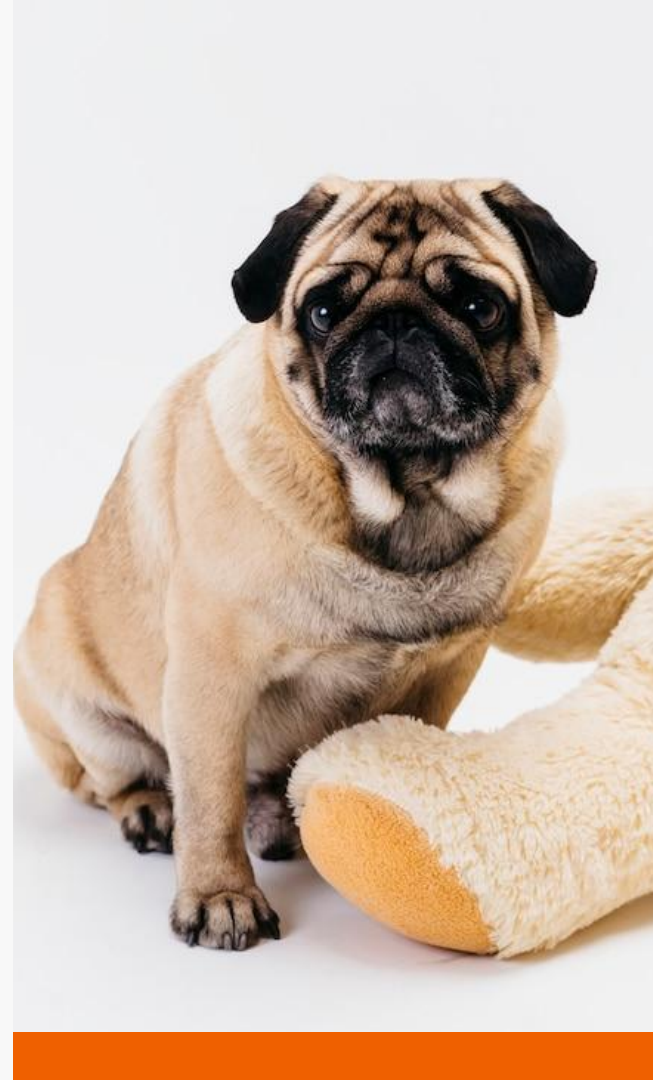
Transmit the location (longitude and latitude) to our main board, check if the pet is at home, if so, then the feeder will activate.



Thanks!

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Notes for our project

1. We use additional STM32F103C8T6, due to our main board I2C pins assignment are fully occupied.