10.Penguin

1.Introduction

Penguins are typical seabirds.

Although they cannot fly, their swimming ability is the best among birds.



1.Introduction

Penguins are fascinating creatures with unique adaptations for life in cold environments.

They have complex social behaviours, and within their colonies, they often share food and help raise each other’s chicks.

While penguins might seem aloof or cautious around humans, they can also be curious observers.

Penguins are a bit shy! They like to watch us from afar. But if human approach and close to them in about 2.7 meters, they might become nervous.



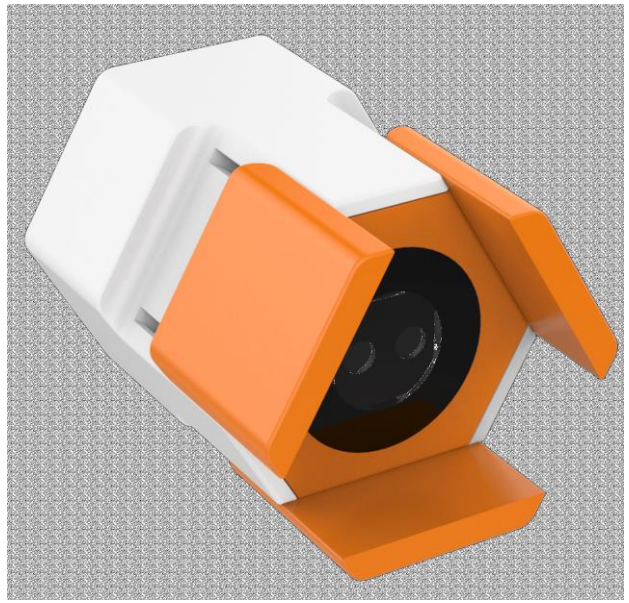
1.Introduction



If we wanted to make a shy penguin, what kind of sensor do you think we would need?

2.Exploration

We can use infrared sensors, which can detect obstacles ahead.

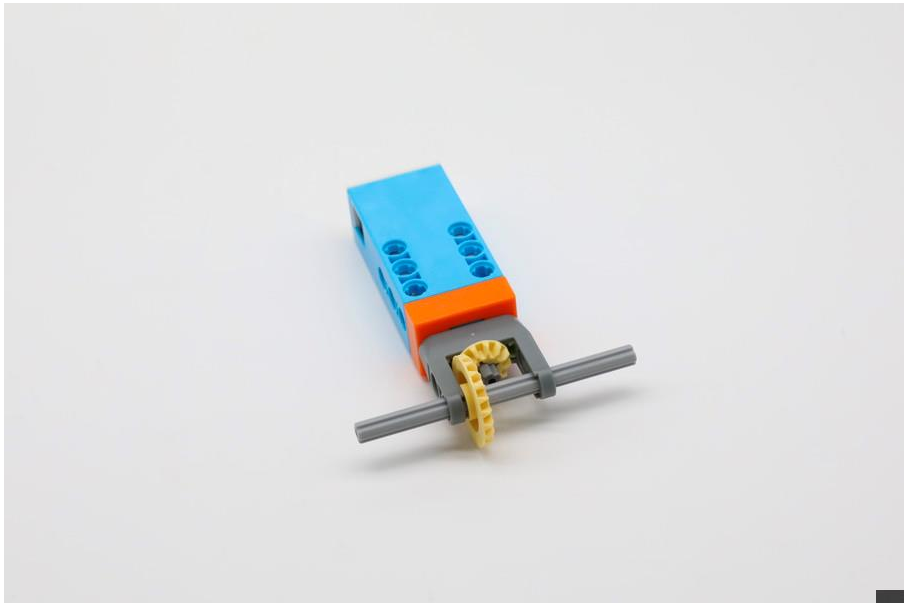


2.Exploration

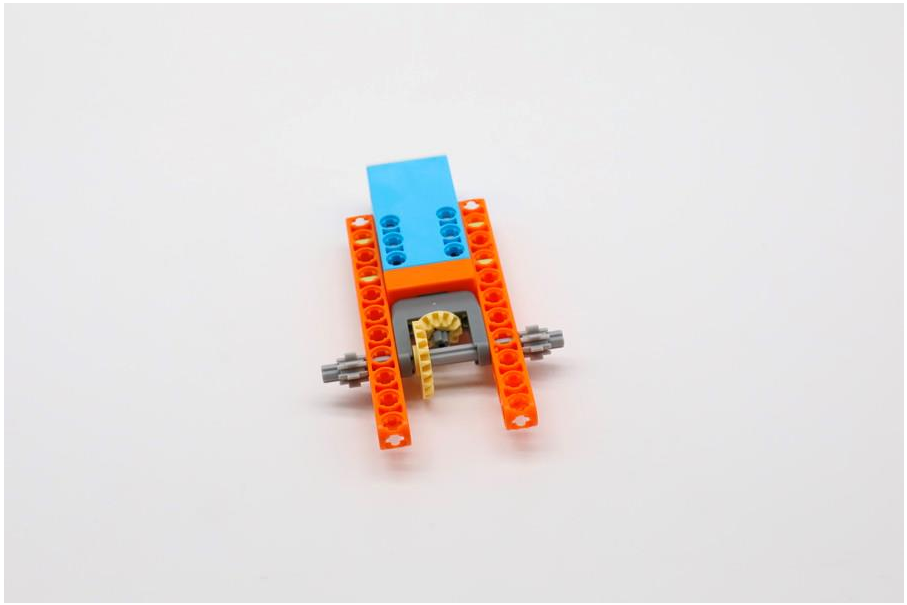
To build a penguin model:
1. Through the construction, the body characteristics of penguins are reflected;
2. Install infrared sensor, add penguin function;
3. Reasonable application of gear drive and bevel gear drive mechanical structure.



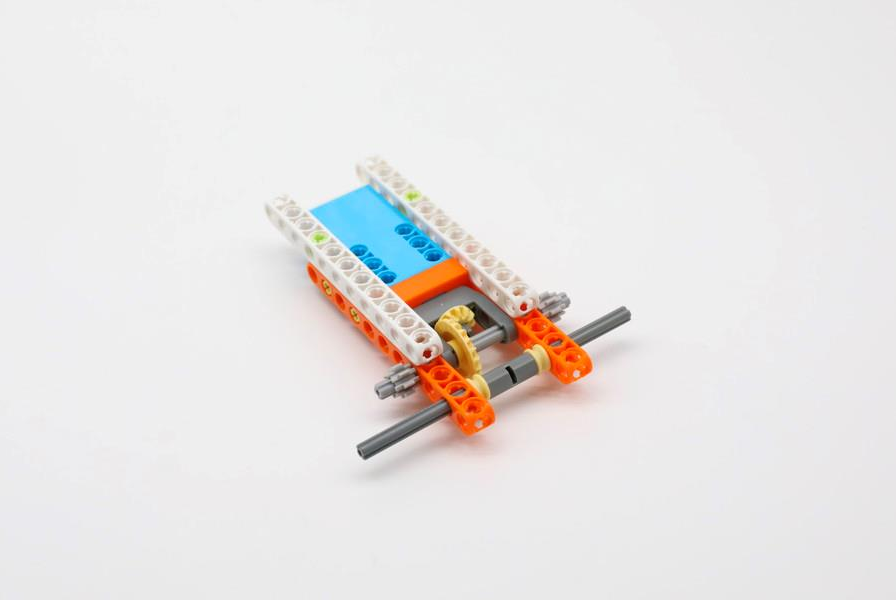
3.Construction



3.Construction



3.Construction



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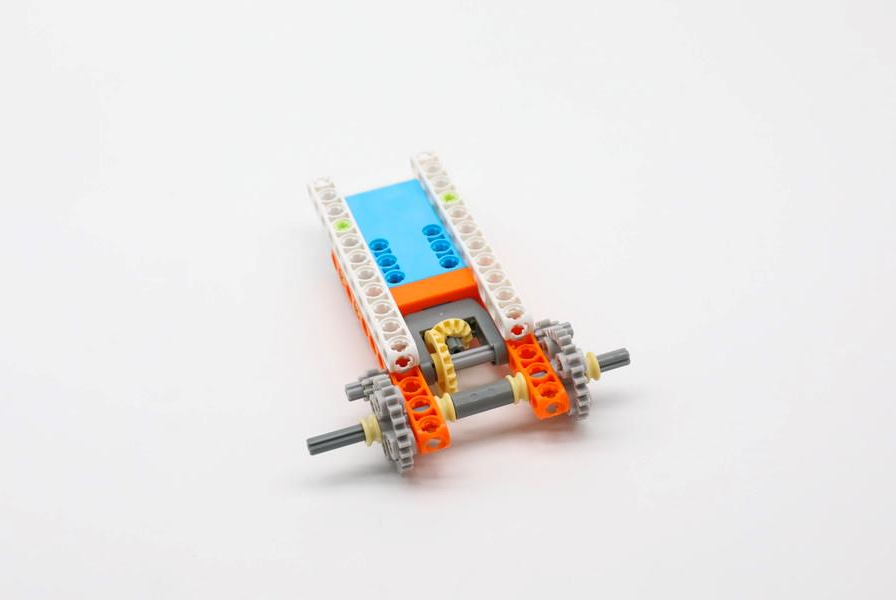

3.Construction



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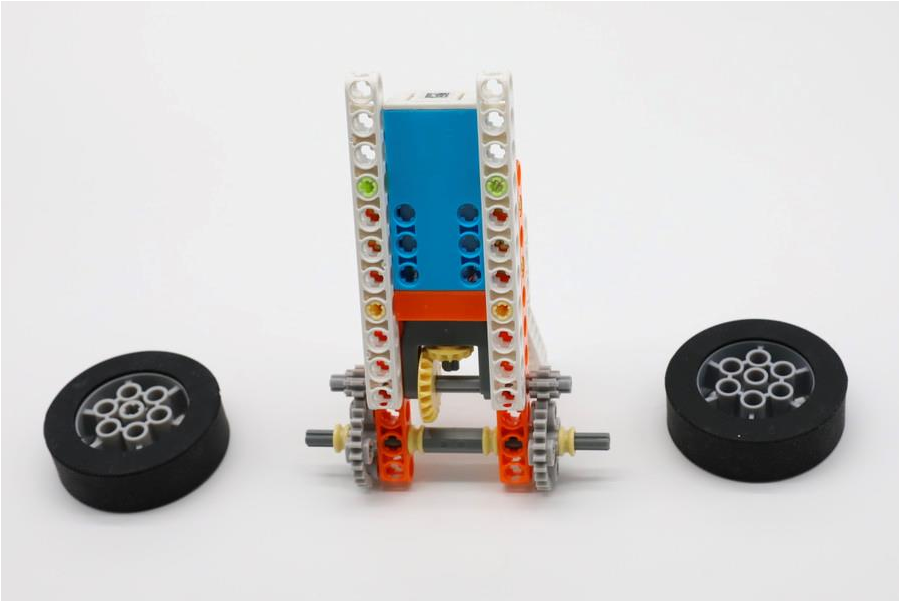
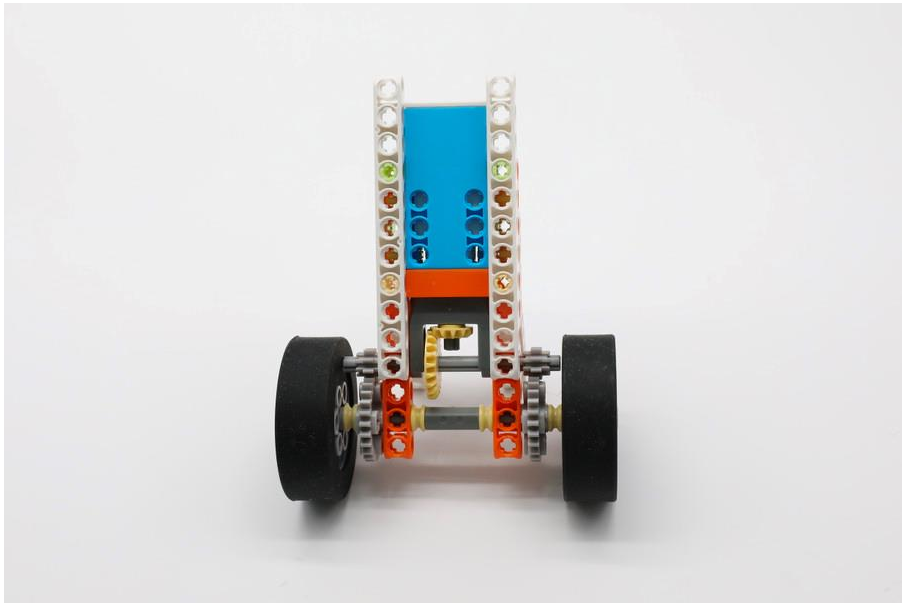
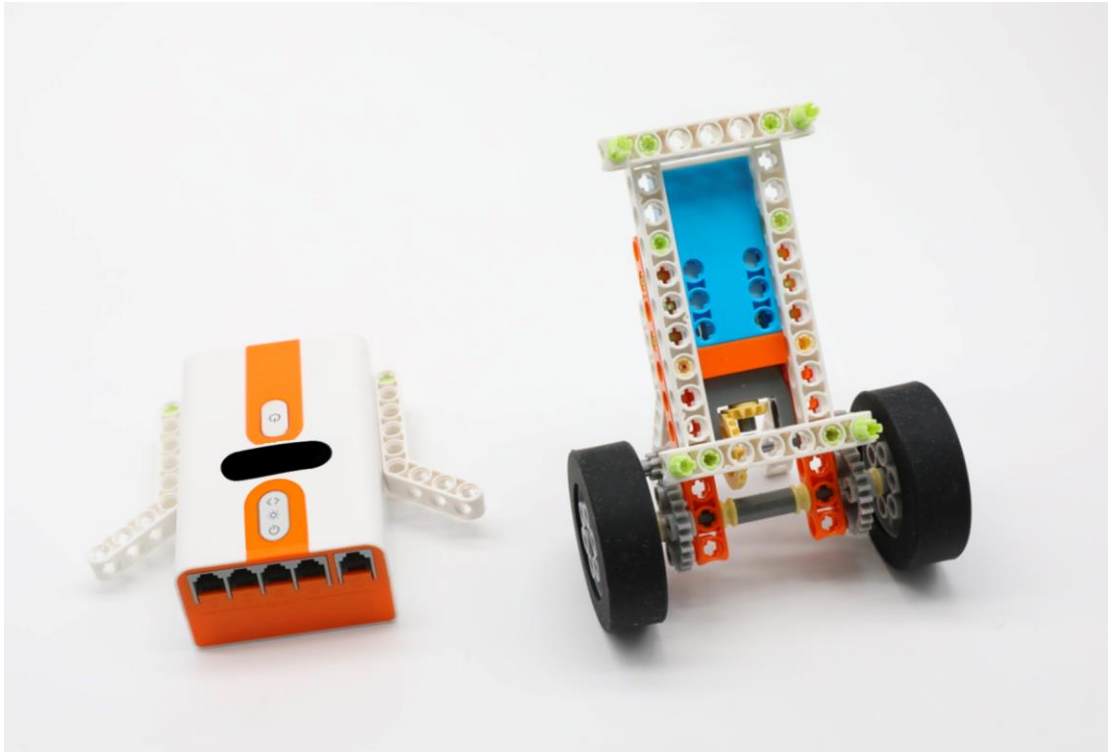


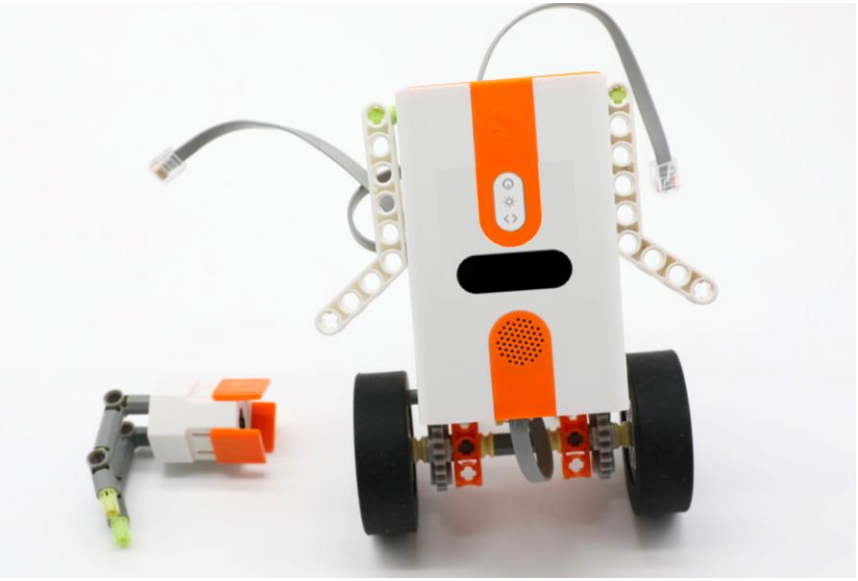
3.Construction



3.Construction



3.Construction



3.Construction



3.Construction

Connect the motor to port A and the infrared sensor to port 1.



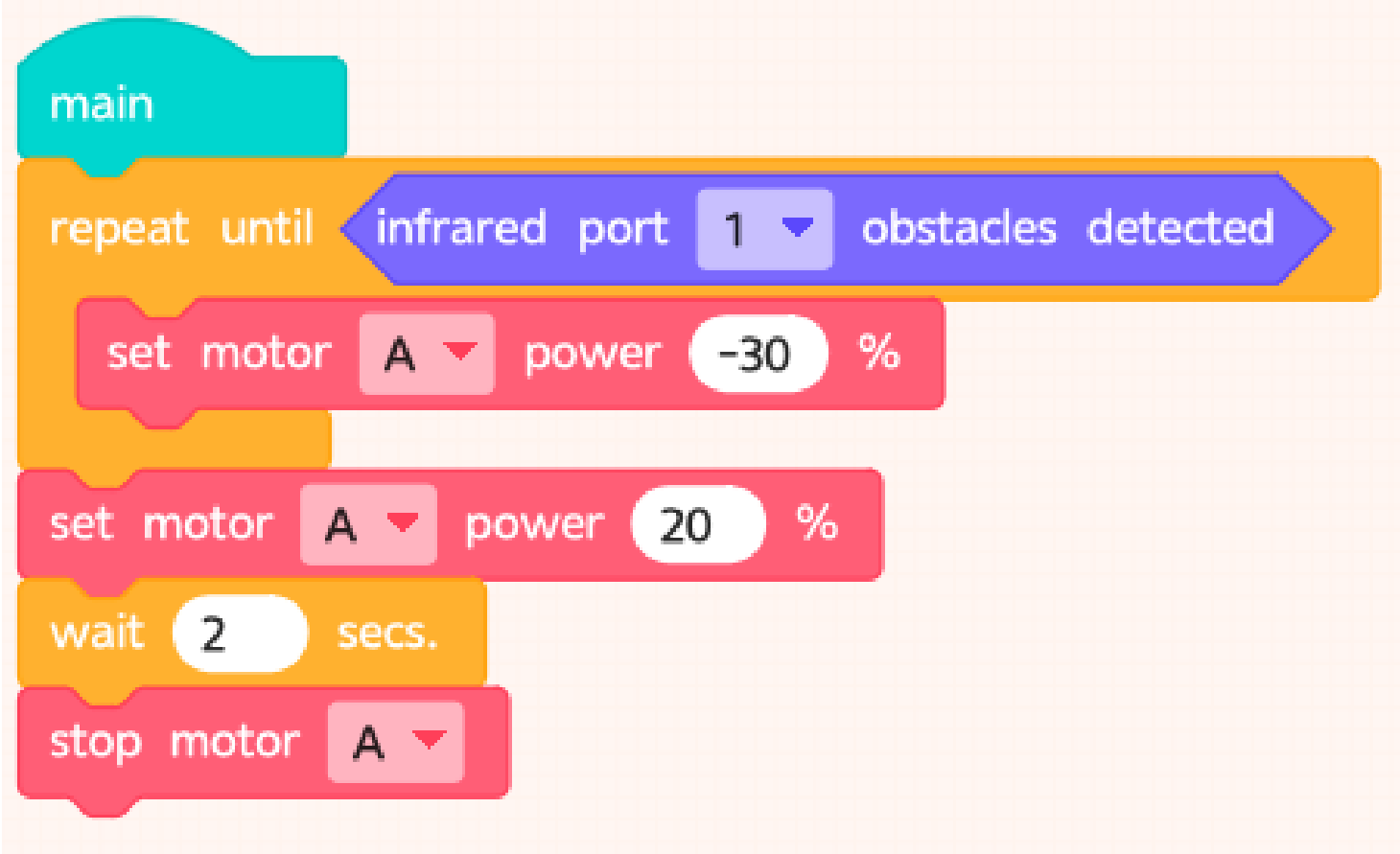
4.Coding

When there is no obstacle in front of the penguin, the penguin moves forward slowly.

When there is an obstacle in front of the penguin, the penguin moves back shyly for two seconds and then stop.



4.Coding


main
repeat until infrared port 1 obstacles detected
set motor A power -30 %
set motor A power 20 %
wait 2 secs.
stop motor A

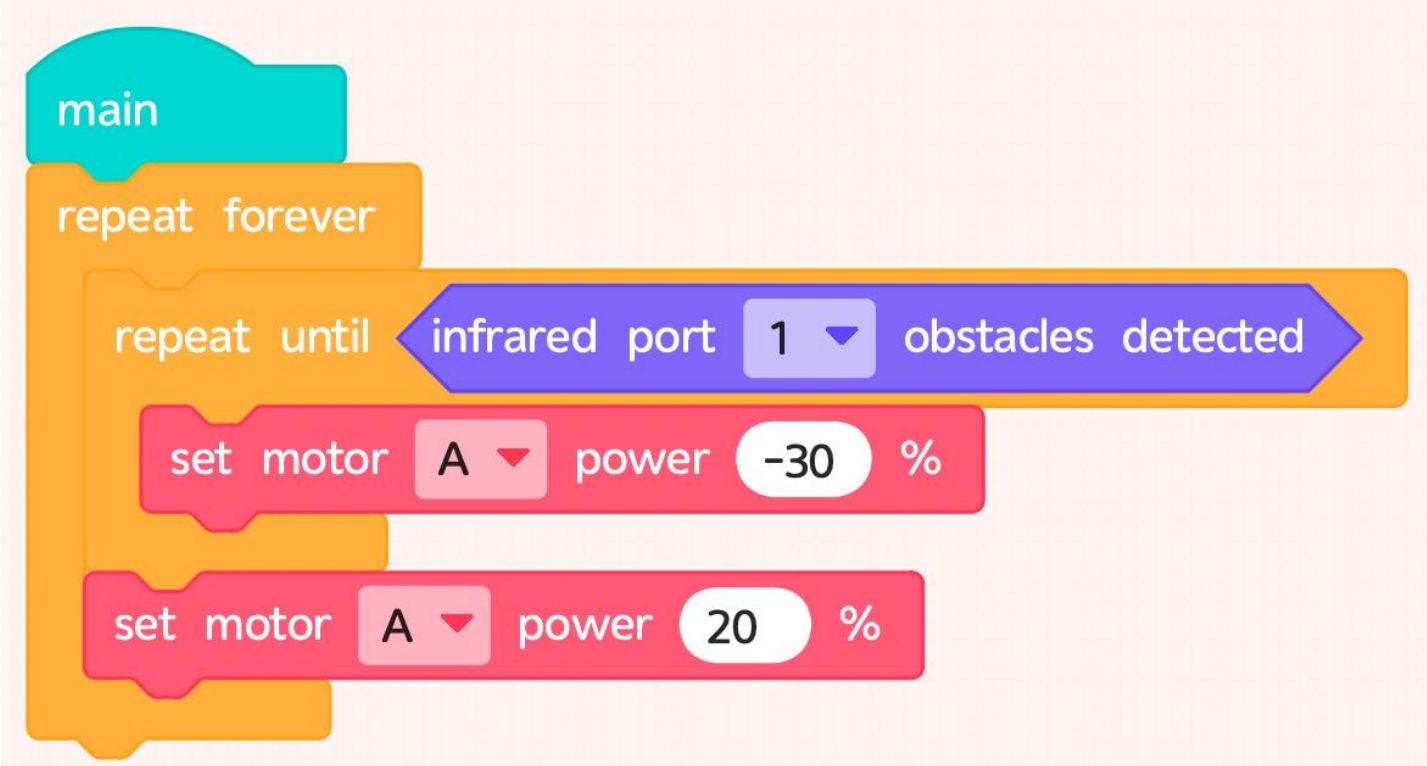
4.Coding

Base on the previous task, the penguins were told to back away when they saw a person.

When they could no longer see the person, they move forward again.



4.Coding


main
repeat forever
repeat until infrared port 1 obstacles detected
set motor A power -30 %
set motor A power 20 %

5.Evaluation

What types of sensors are used in Penguin's models and programming?

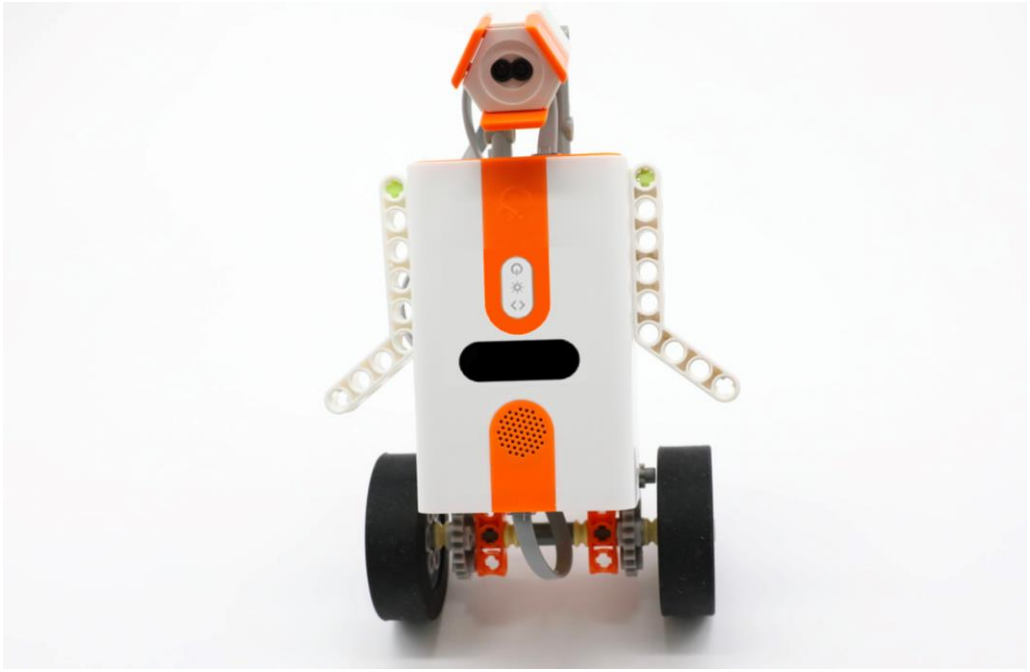
A. Infrared Sensor

B. Gray Sensor

C. Touch Sensor



6.Show



Try adding calls to penguins.
Which sound do you think is appropriate?