# In the Jungle

**Model Number: YE.314**

**Lesson Subjects**: Distance Sensor and its function.

**Accessories**: Sewing thread, according to the number of participants.

**Objectives**:

- The children will become acquainted with the function of the distance sensor.
- The children will perfect their abilities working with the distance sensor.

**Lesson Plan**:

1. Presenting the model and its function.
2. Algorithm discussion.
3. Pseudo Code.
4. Explanation about the function of the distance sensor.
5. Building programming.
6. If necessary, display the programming screenshot.
7. Improvements.

**Banana and Monkey – Model Operation**:

Monkeys are known to love bananas! And indeed, what wouldn't a monkey do to get a banana?!
During this lesson the children will build a banana hung on a branch, used as a bait for the monkey.
Whenever we put the banana close to the monkey's face, the monkey will jump to catch the banana.

**Algorithm Discussion**:

1. When putting the banana close to the monkey's face.
2. Make the monkey jump towards the banana.

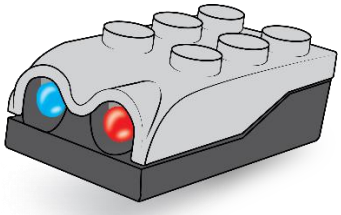
**Pseudo Code**:

1. Start
2. Loop
   2.1. Wait for distance sensor.
   2.2. Move Motor (A, Left, pw(8), sec(1))
   2.3. Stop Motor.

**Distance Sensor and its Function**:

Show the distance sensor to the children, and focus on the sensor eyes:

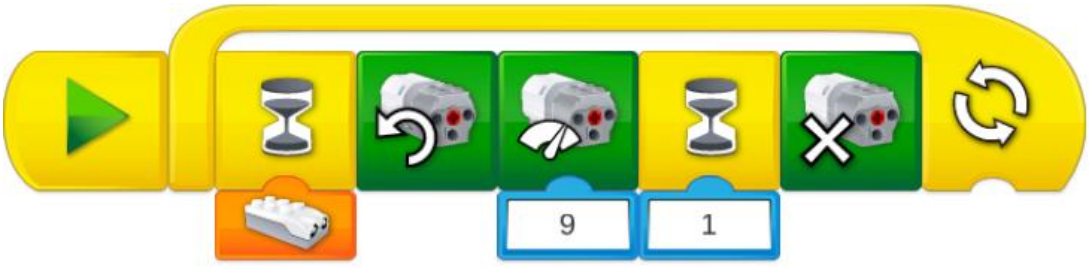
Explain that each distance sensor includes an eye that sends a ray (in our case, infrared) and another eye which receives the ray as it is reflected from the object. Draw the following on the whiteboard



In the illustration above, the left eye sends the infrared ray and the right eye receives its reflection.
The objective of the distance sensor is to figure out the distance of the object. Ask the children how to measure the distance.
Answer: the ray sent from the sensor eye meets an object in front of it, and is reflected to the receiving eye. Thus, the sensor calculates the distance of the object, according to the amount of time it took to receive the reflection or to its strength.

It is important to mention that the sensitivity of the sensors varies. Not any sensor will pick up an object at any distance. For instance, the sensor of the kit will not identify objects that are too far away.

**Programming Screenshot**:




**Instructor Comments**:

- ✓ The way the cables connect to the model is important. Use two extenders, as described.
- ✓ On step 2, there is symmetry between the gears and the nails.

**Improvements**:

- ✓ You can improve the hands and the face of the monkey, and make it look nicer.
- ✓ You can improve the software in a way to change the motor power in order to get a more realistic behavior of the monkey, in the following way:
- ✓