

Lesson 7: Worksheet 7.1 - Infrared obstacle detection

In this activity, you will learn more about infrared (IR) light and how Edison can use IR to detect obstacles.

What is infrared (IR) light?

There is a wide range of light, some of which is visible to the human eye and some of which is not. Infrared, also called IR, is not visible to humans.

Did you know? Even though people cannot see it, infrared is a type of light. Therefore, it will work in the dark. That's why you can turn on a TV set using a remote control even if there are no lights on in the room!

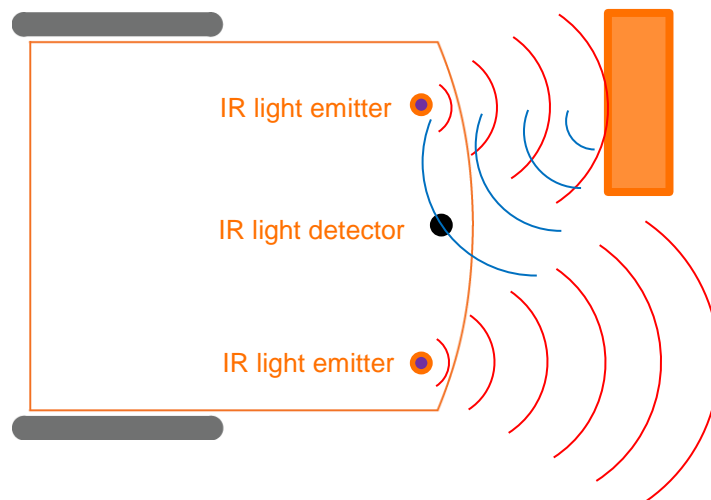
Edison and infrared

The Edison robot is equipped with an infrared system that gives the robot 'vision' of a sort. This infrared system allows Edison to detect obstacles around the robot.

Edison's infrared system is made up of two IR light emitter diodes (or LEDs) on the front. One is on the left, and one is on the right. Edison also has an IR sensor on the front, directly in the middle.

For Edison to detect obstacles, infrared light is emitted forward from the left and right IR LEDs. If the IR light encounters an obstacle, such as a wall, it is reflected back towards Edison. Edison's IR sensor then detects the reflected light.

Look at the illustration below:



Edison emits IR light (shown in red) from both the robot's left and right IR LEDs. Reflected IR light (shown in blue) bounces off obstacles and is detected by Edison's IR sensor.

In this picture, there is an obstacle in front of Edison's left side, but not the right side. That's why only IR light from the left emitter is reflected.

From the received signal Edison can determine that there is an obstacle to the left, but no obstacle to the right.

Your turn:

1. Draw the emitted IR light and reflected IR light for this obstacle.

