Quiz: Clap On, Clap Off

Introduction to Mobile Robotics > Clap On, Clap Off

1. What is a threshold and how did you calculate it?

A threshold is a number that marks a cutoff point between two classifications of values, such as "high" vs. "low". Thresholds help the robot to make sense of sensor inputs by dividing them into two distinct categories. In the case of this activity, we took all sound sensor values below the threshold number and classified them as "quiet," and all values above the threshold and classified them as "loud." This way, the robot can make decisions based on whether things are "quiet" or "loud."

We calculated the threshold by taking readings when it was "quiet" and taking readings during the "loud" events that we expect to have, then finding the average of the two values. Recording "quiet" and "loud" values gave us two numbers, one low, one high. We then averaged these two numbers by adding them together and dividing the result by two. This became the threshold, midway between the two original readings.

2. Recall the "Wait For Clap" behavior you created using these two blocks in the program.

a. What does the "Wait for Clap" behavior do?
The "Wait For Clap" behavior uses a Sound Sensor to wait for a single "loud" sound, then waits for the sound to end (for it to get "quiet" again) before proceeding on with the program.

b. What are the blocks that make it up?
It is made up of two blocks: one that waits for it to get "loud" (Wait For Sound > threshold) **and one that waits for it to get "quiet"** (Wait For Sound < threshold).

c. Why isn't a single Wait For Sound block good enough?
If you didn't wait for it to get "quiet" using the second Wait For Block, then you would never know whether or not the loud sound had ended, and you might count the same sound twice, as shown in the Clap On, Clap Off activity.