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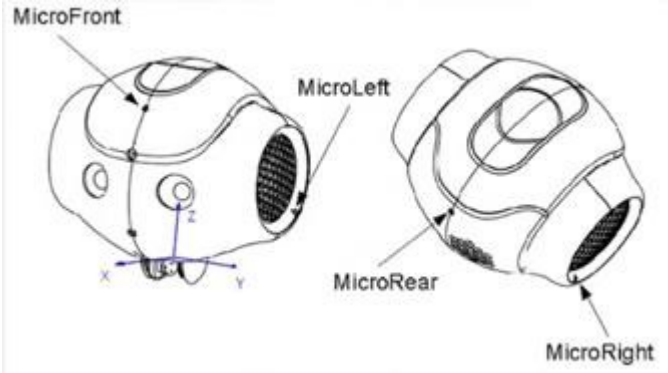
Robot Talks Speech Recognition and Switch Case

Goals for this session:

- Understand how to program the robot to listen and respond in Choregraphe.
- Understand how to use and customize the "Speech Recognition" and "Switch Case" boxes.
- Create a unique, interactive conversation program in Choregraphe.

Getting Started:

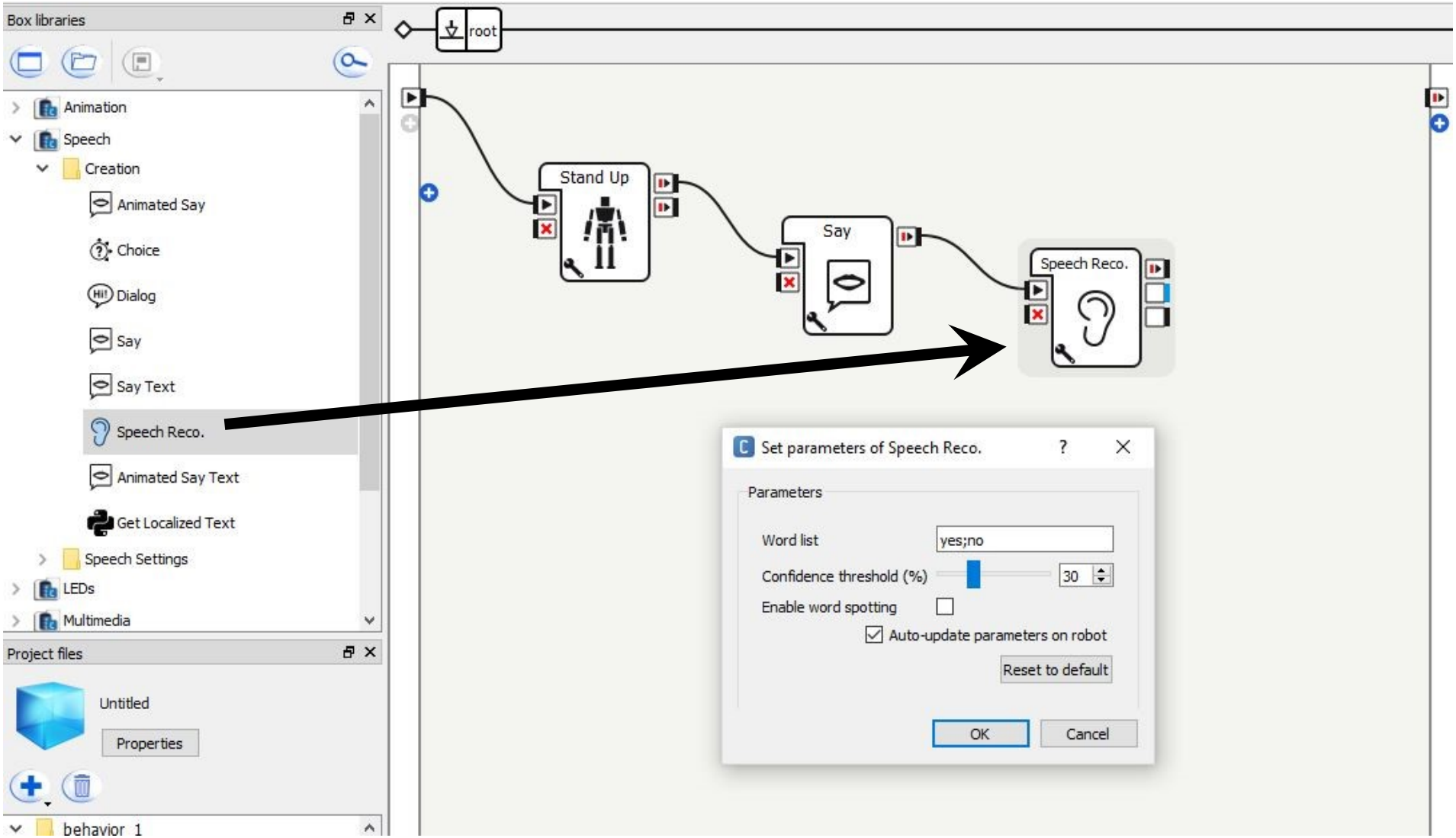
- NAO robot has 4 microphones around its head, front, rear, right and left, to listen for sounds and words. The robot then uses and internal algorithm to process the sounds and words to locate a word it recognizes.
- In Choregraphe using "Speech Recognition" we are able to program the specific words the robot will listen for and process.
- These specific words will then prompt the robot to respond to perform and action. The robot's responses or actions are programmed using "Switch Case".



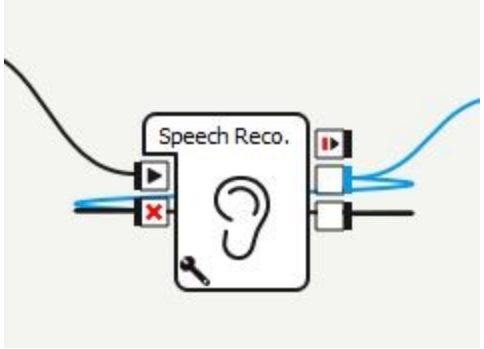
Start by dragging a Say box onto the workspace and inputting a question for your robot to ask.

Then navigate to "Speech" > "Creation" > "Speech Reco." and drag the speech recognition box onto your workspace. Connect to your program with flow lines.

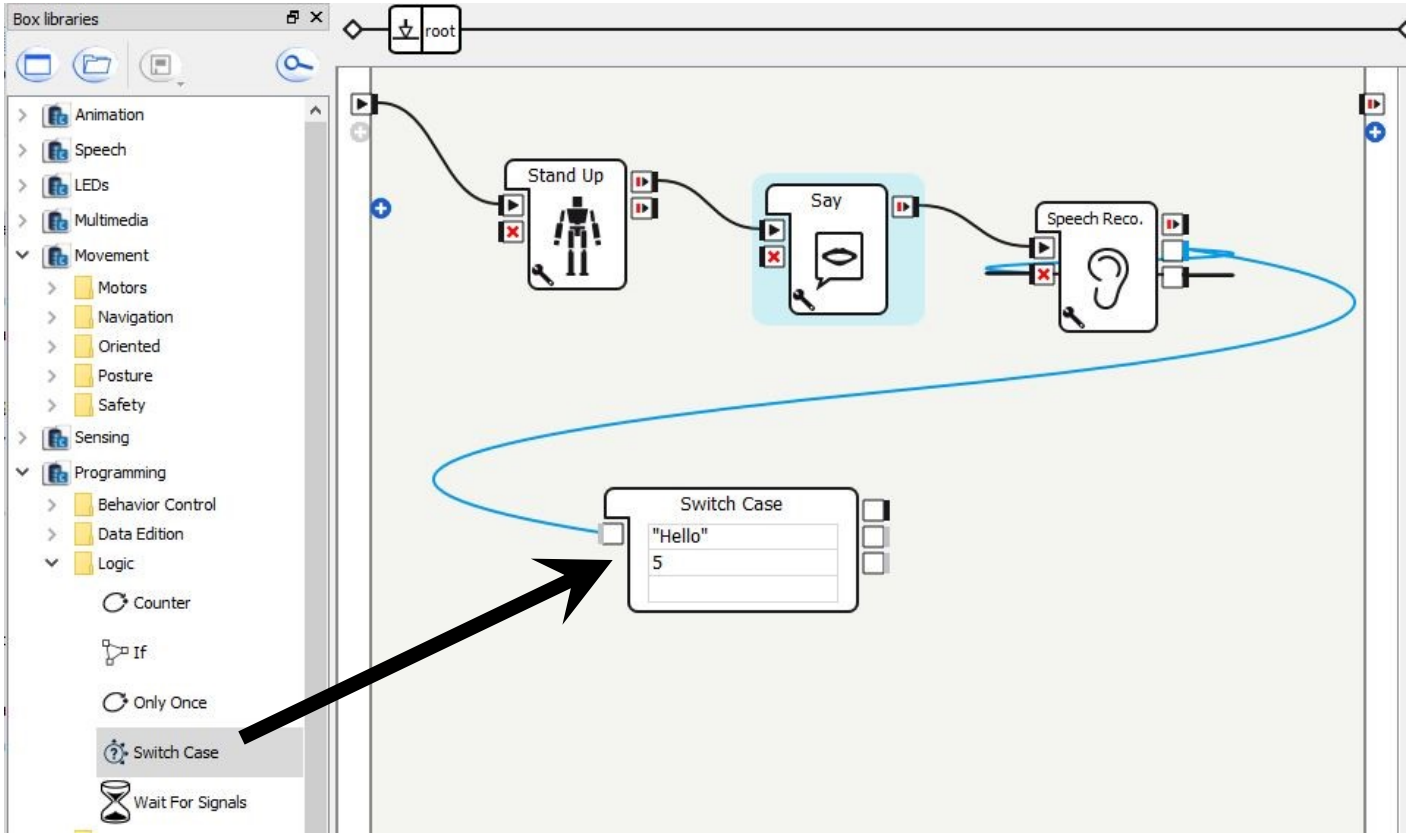
Click the wrench on the Speech Reco. box. This is where you will type the words the robot will be listening for. All words and numbers are written lower case, spelled phonetically, with a semi-colon between words and no spaces.



Before adding the robot's reactions to the recognized words, the Speech Reco box needs to make the robot stop listening for words after it recognizes the word inputted. Both output boxes on the right of the Speech Reco box need to be looped and closed by connecting them to the red X on the left side of the Speech Reco box. (see diagram)



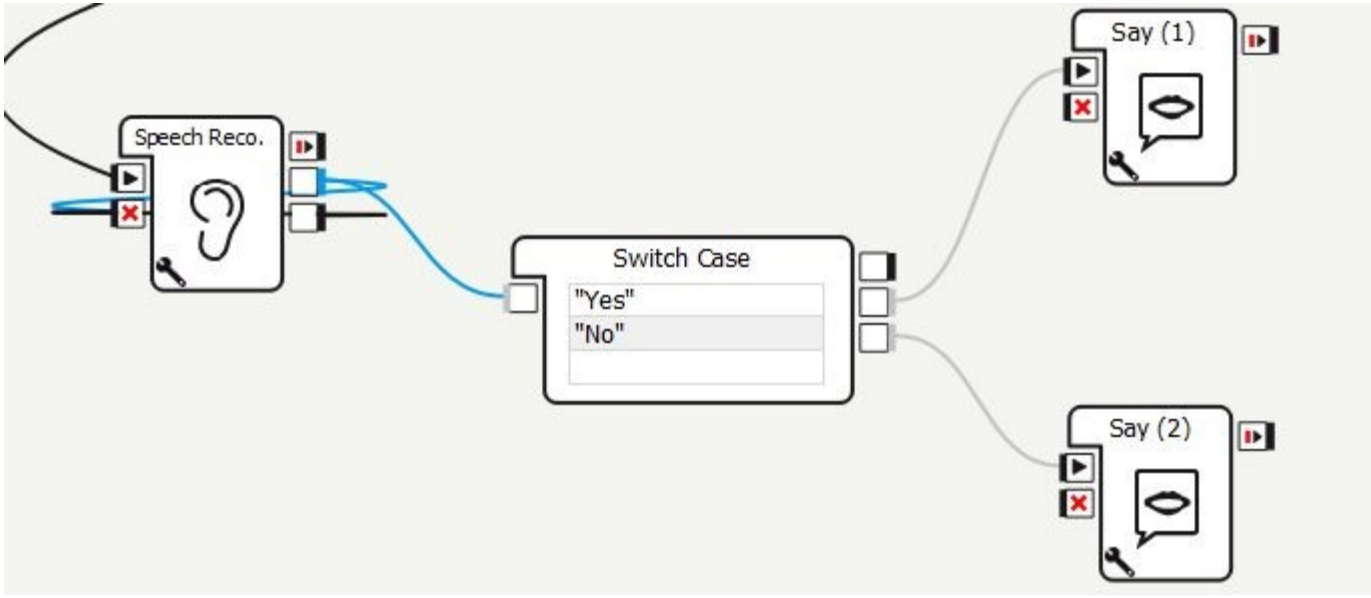
Navigate to "Programming" > "Logic" > Switch Case" and drag the Switch Case box onto the workspace. Connect to your program with flow lines. The Switch Case box tells the robot what to say or do when it recognizes a specific word. You will write the same words you put in the Speech Reco box in the same order. But this time write them in quotes with one word on each line.



Now drag out two more Say boxes. Connect one box to the second output box on the right side of the Switch Case box. Connect the other Say box to the bottom output box.

Open each say box to program the robot's response.

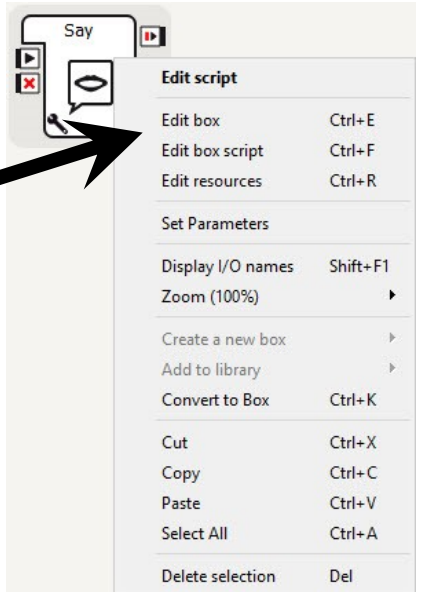
Then connect each box to the end.

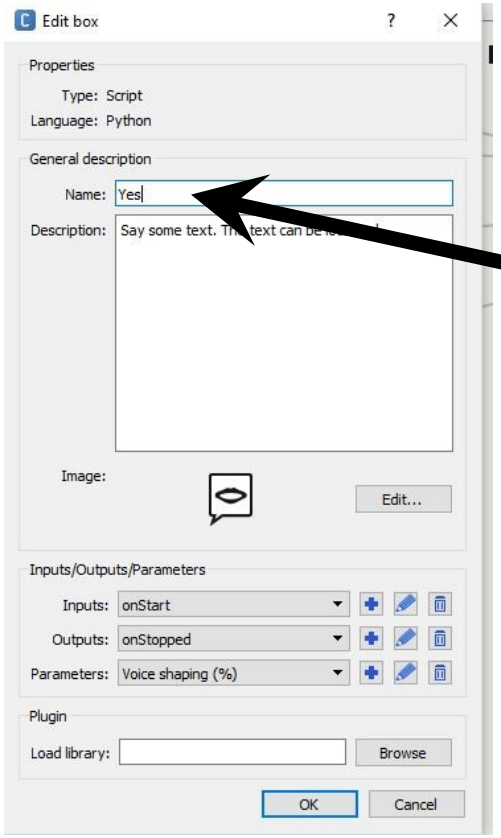


It's a good habit to label your boxes.

Right click on the Say box to get this drop down menu.

Click on "Edit Box"





Now change the name of the box from "Say" to something descriptive that will help you remember what you programmed.

As your programs become more complicated, this helps you know where in your program you are.

Previewing an audio interaction on a virtual robot is a bit challenging, however it can be done virtually. Click the green Play button and watch the flow lines turn green as the program runs. When the robot is supposed to speak a speech bubble will appear above its head in the virtual robot view.

Then the Speech Reco box will turn red. The program cannot continue until the robot receives input. Double click on the output box and type the appropriate word for that box. Click OK.

The virtual robot will show a speech bubble with its response. Try again with the other word to get the other response.