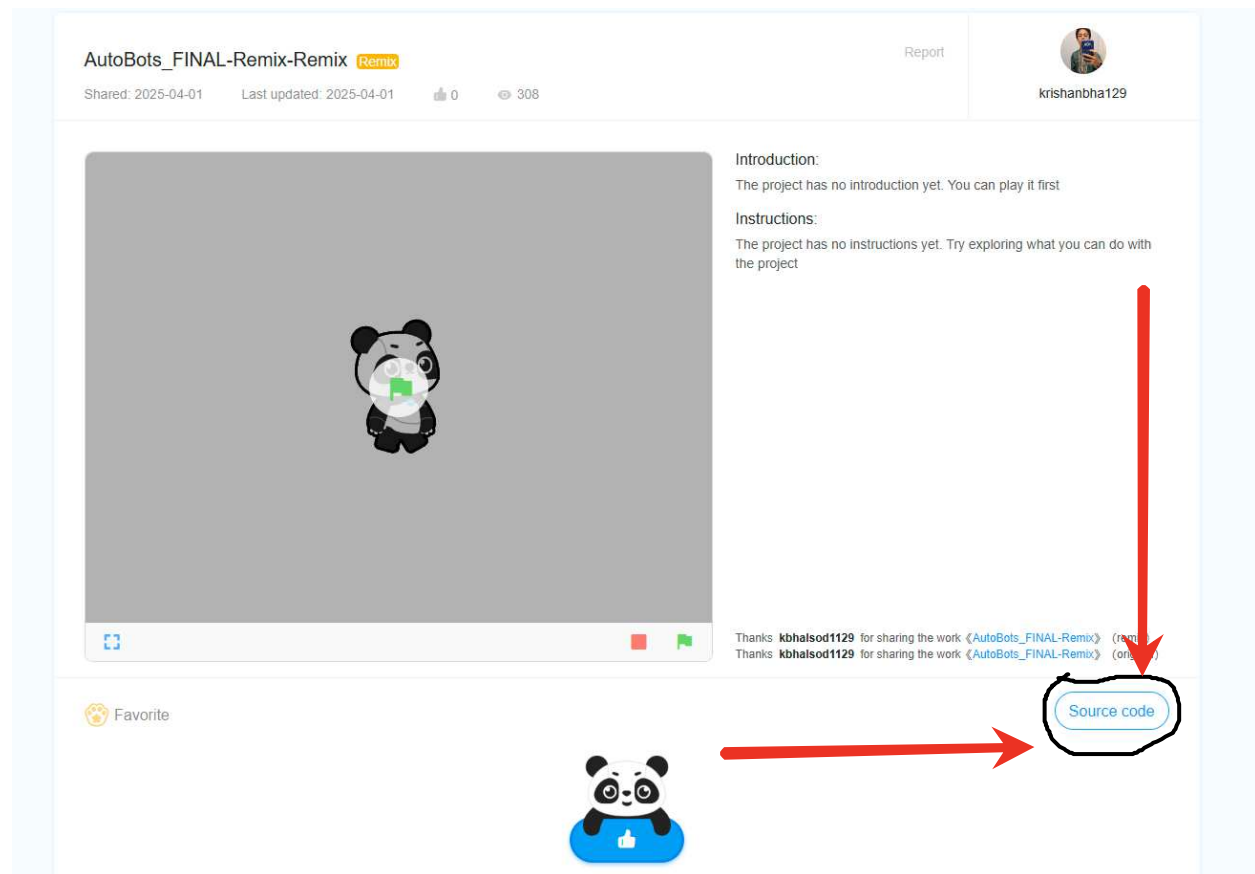


LINK TO SOURCE CODE: <https://planet.mblock.cc/project/5574657>

Step 1: Visit the link attached above using Google Chrome. The file uses Mblock's Chrome Editor. This means the file is only available for use with Google Chrome until Mblock adds additional editors in other browsers.

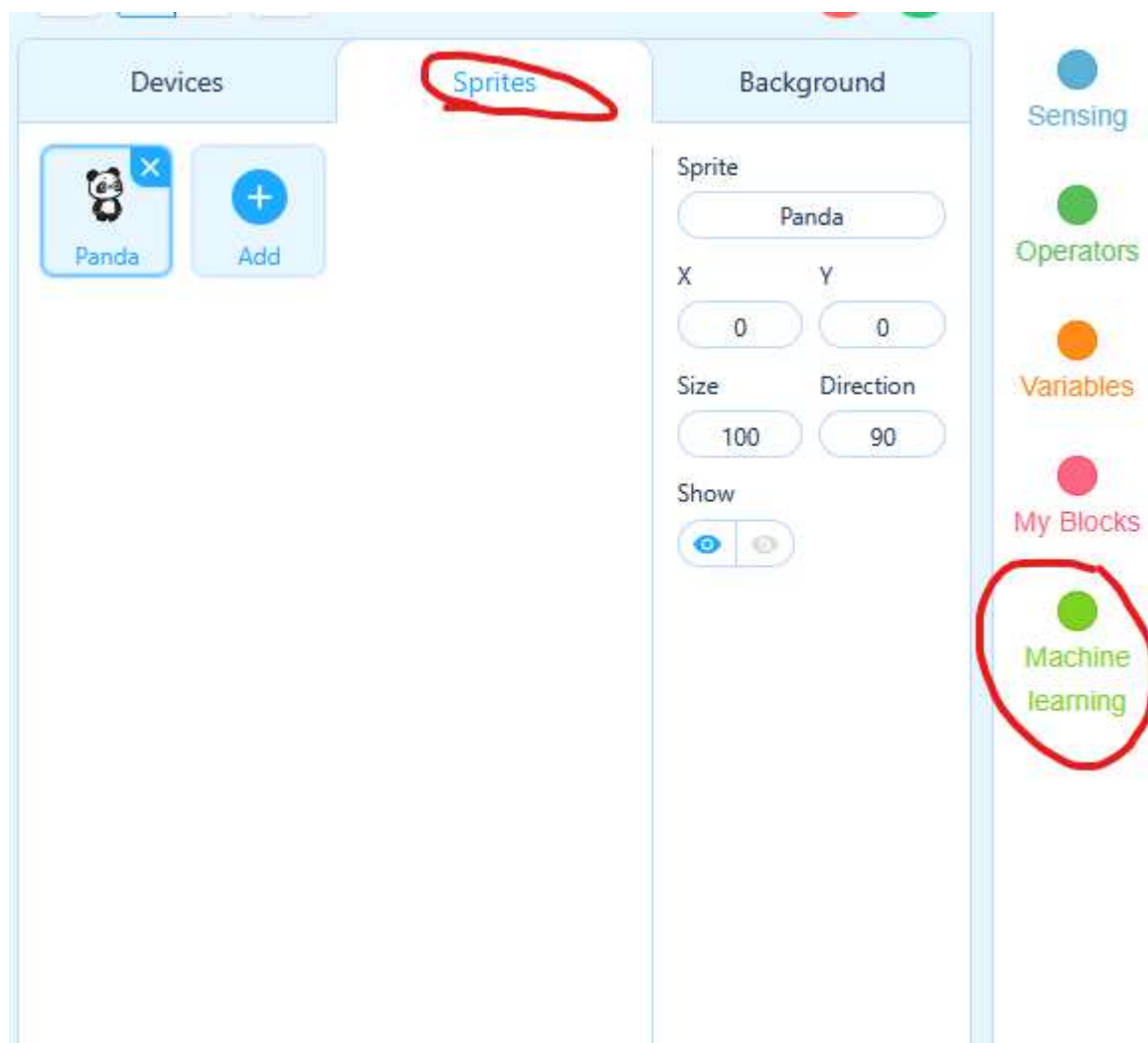
Step 2: Click on **Source Code**



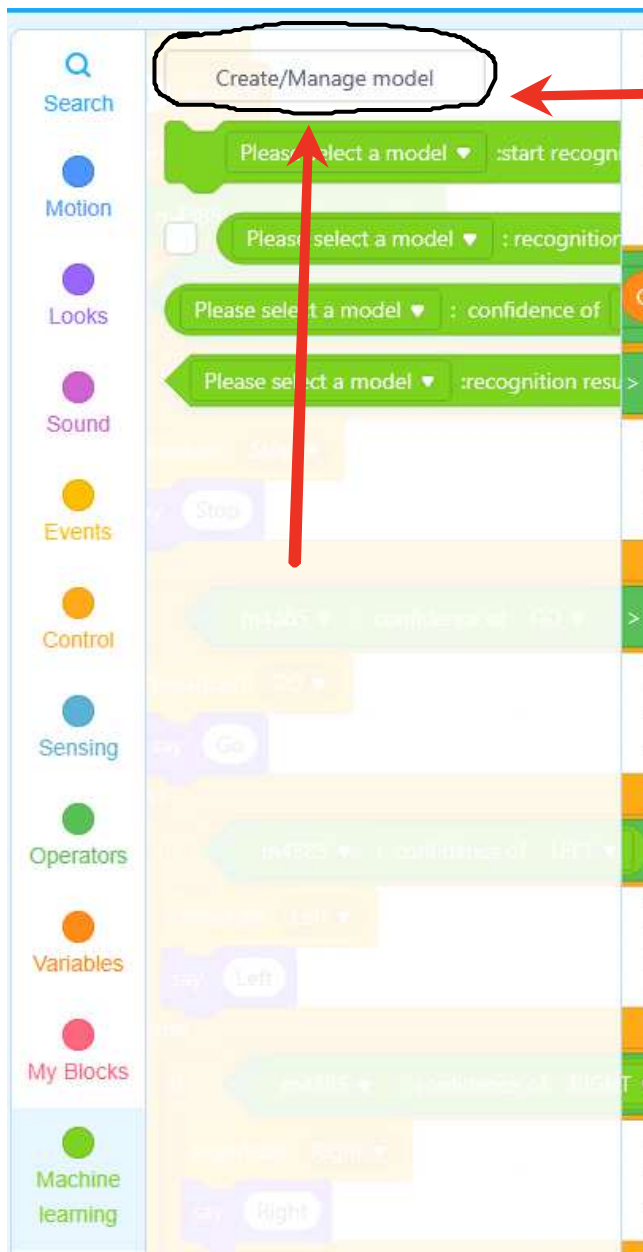
Step 3: Click on the **Sprites Tab** and find the **Machine Learning** section next to it.

Note: At times it may appear as if all the code was deleted from the file ! This is likely NOT the case.

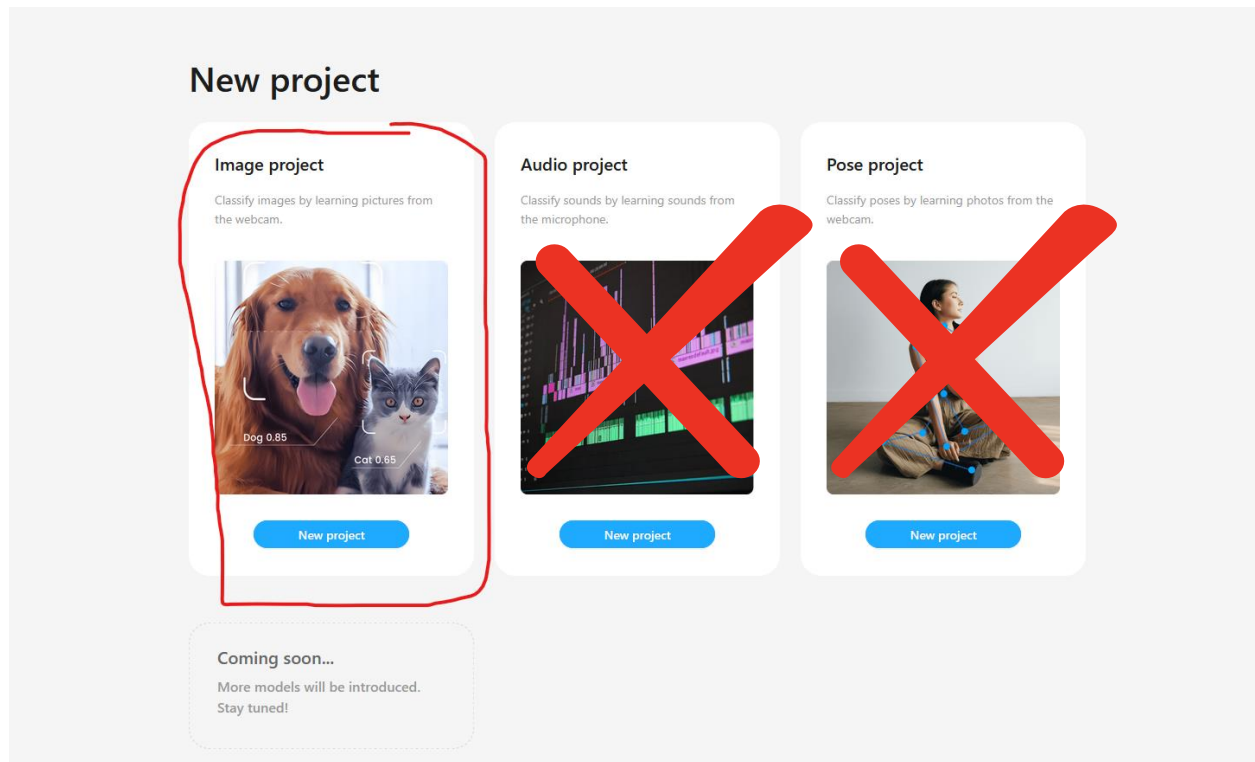
Please check which tab you are currently under (Devices, Sprites, Background) as each tab has its own code and you may have accidentally opened the background tab which is blank.



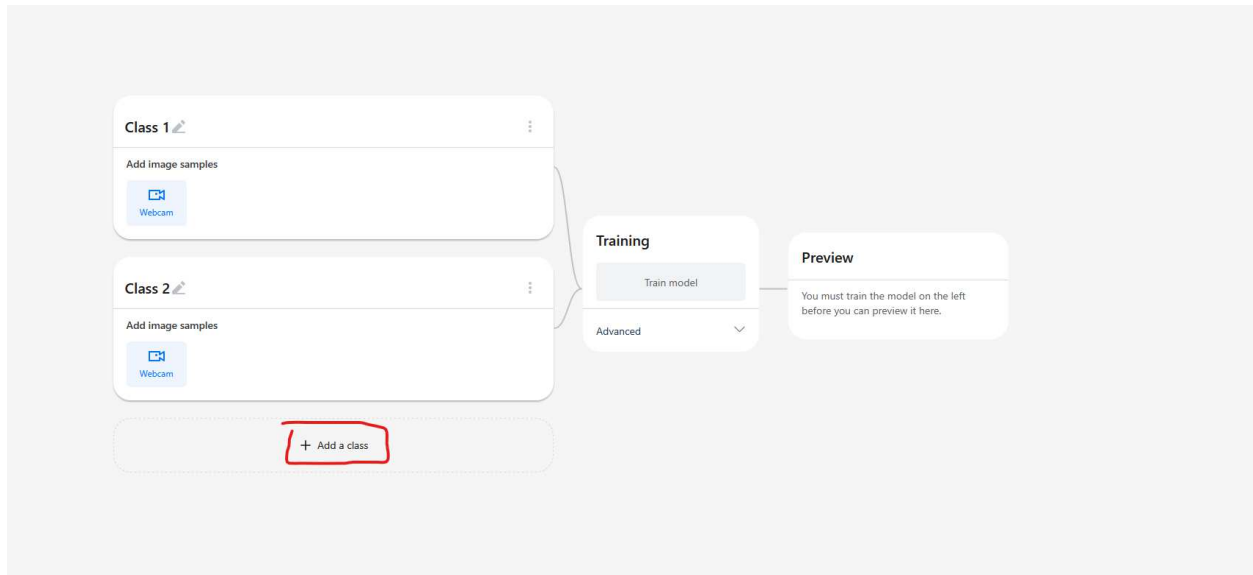
Step 4: Click on **Create/Manage model**



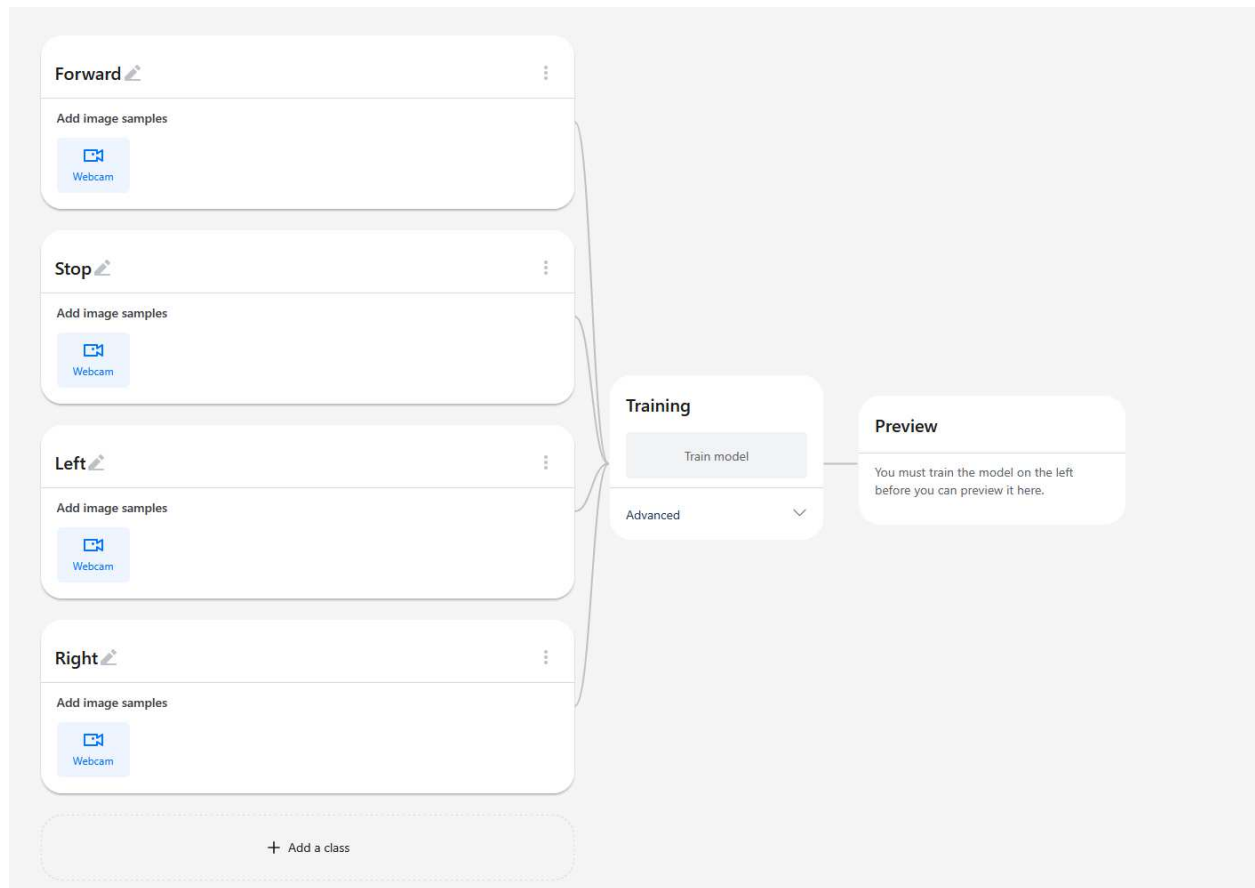
Step 5: Click on **New Project** under the **Image project** section. It will open a small window asking you to name your image project model. Name your model however you would like.



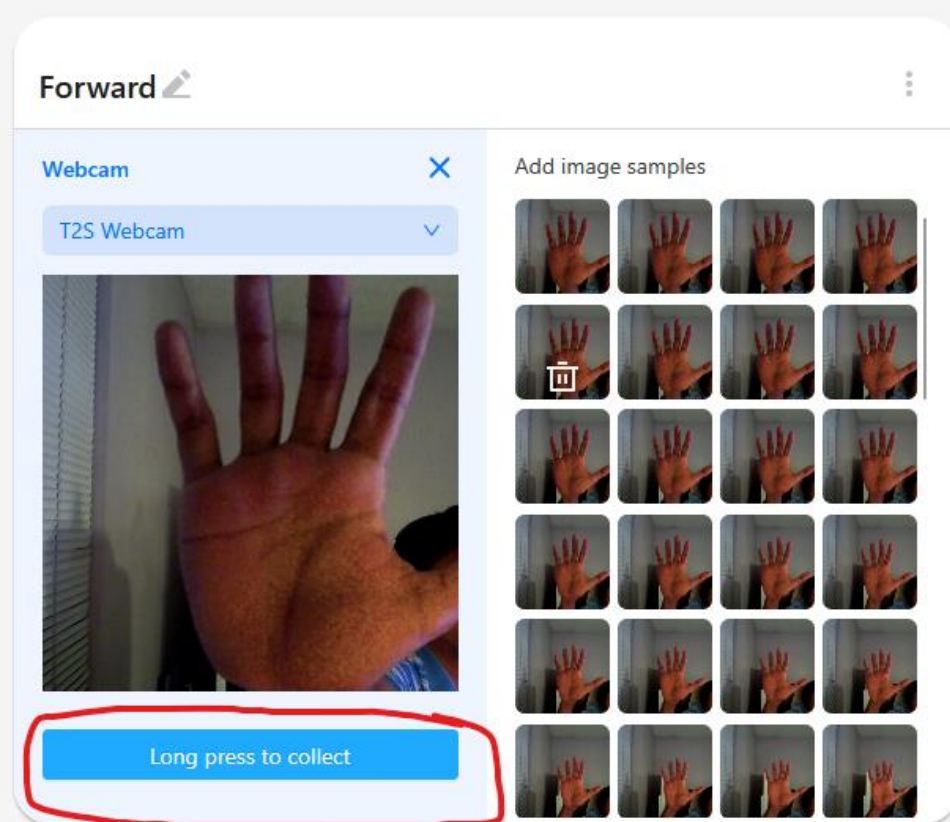
Step 6: You will be presented with 2 classes: Class 1 and Class 2. Because we want to create a gesture for each direction, add 2 more classes by clicking the add class at the bottom.



Step 7: Upon creating the class, please name them something other than Class 1 or Class 2, preferably name your classes something that will be related to the gesture you choose (like Peace Sign, Fist, etc)



Step 8: For each class, you need to enable your webcam so you can collect pictures that would represent each direction the robot will move. Starting with the top, press the webcam, and take pictures. Note. You can hold down the button to take multiple pictures at the same time. Please keep it within 20-50 images per class so it won't crash. You can choose any hand gesture you want but ensure that the gestures are very different for each class, so the image recognition does not get confused. Background also plays an impact so try not to change the background around you. This includes things like turning your camera to face another direction as things like windows, posters, and even light can skew results.



Stop 



Webcam



T2S Webcam



Long press to collect

Add image samples











(etc.)

Forward

Add image samples









Webcam



Stop

Add image samples









Webcam



Left

Add image samples









Webcam



Right

Add image samples

Webcam



Training

Train model

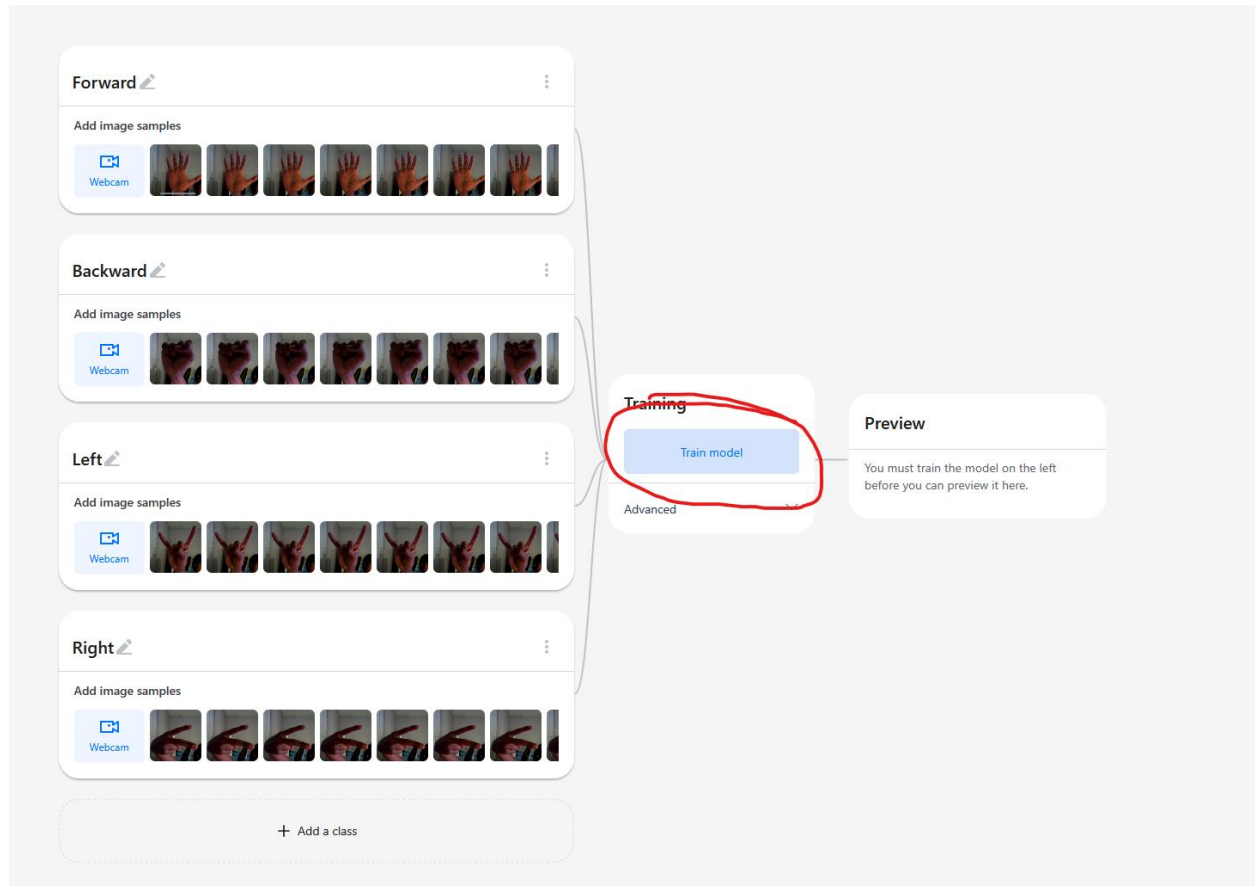
Advanced

Preview

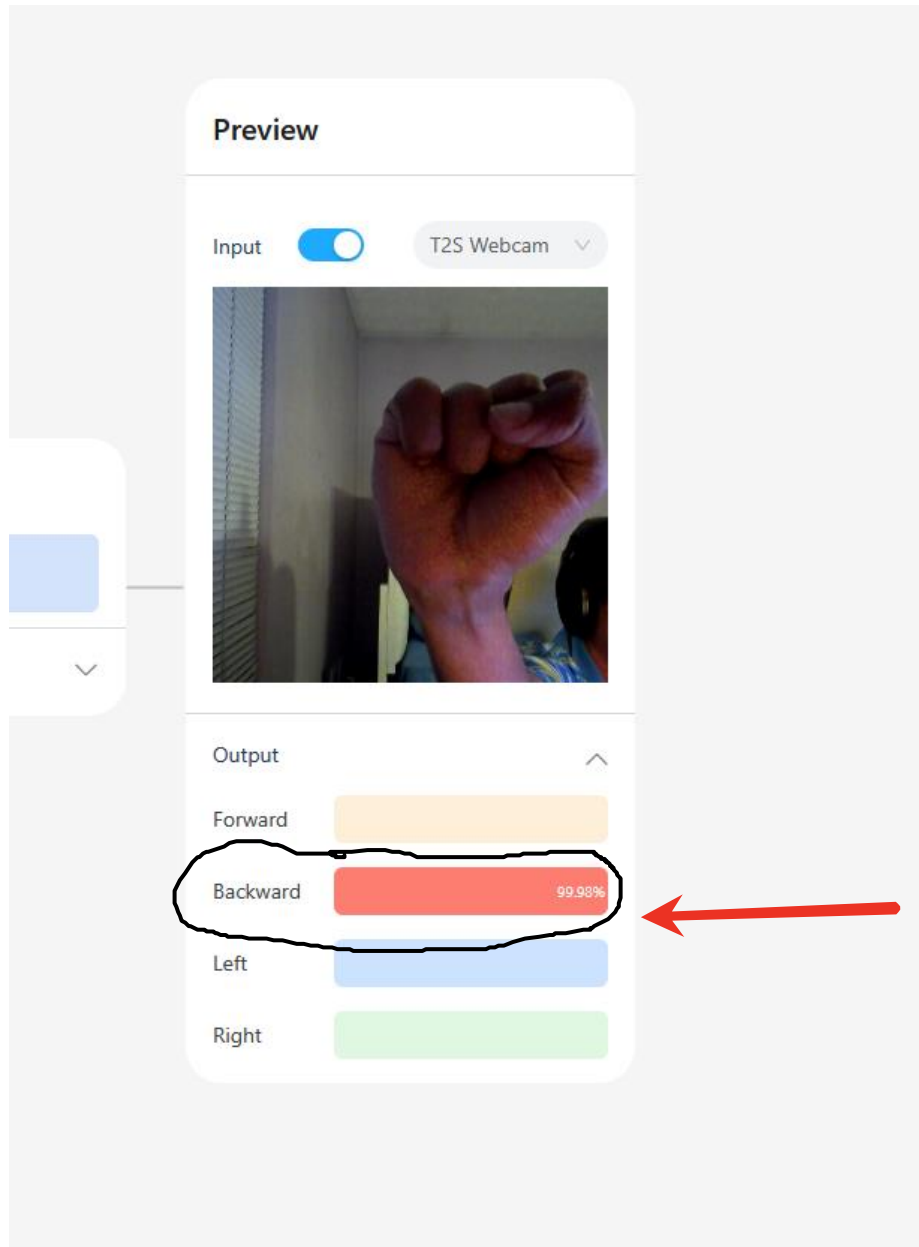
You must train the model on the left before you can preview it here.

+ Add a class

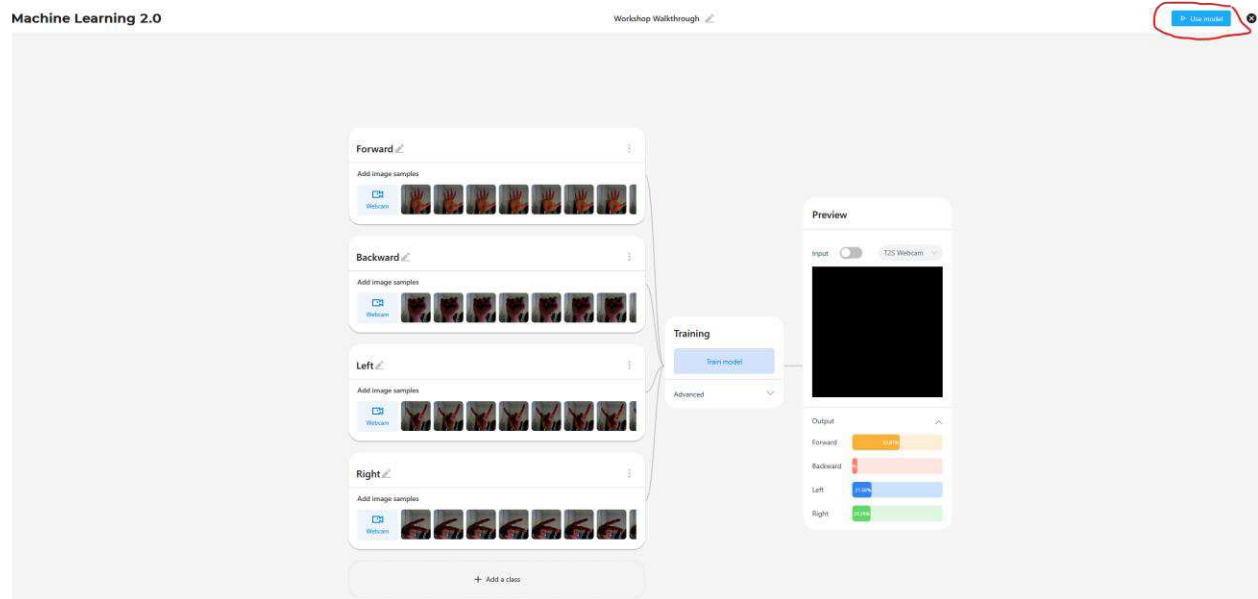
Step 9: Once you finish creating your classes and capturing your images. Click on the **Train Model** wait for your model to finish training



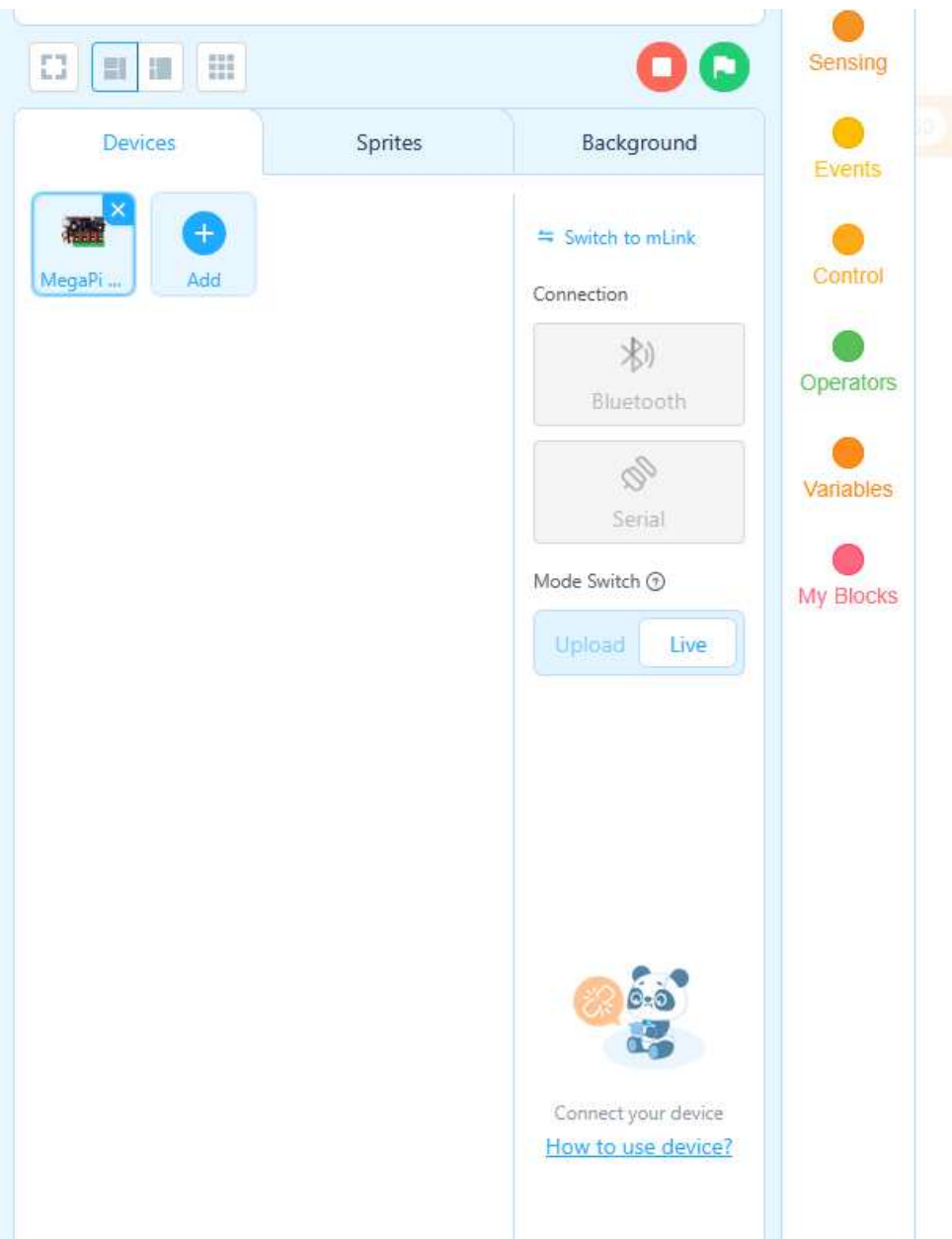
Step 10: Ensure your model can accurately tell which gesture represents which command for your MBot. Please ensure each gesture is recognized with over 70% accuracy in the bar for your MBot. If you are not satisfied with your model's confidence, feel free to go to the class you are not confident in and click the 3 dots to remove all samples and recapture the images, and then retrain your model.



Step 11: Once you're confident, click on the **Use Model** button on the top right. That will bring you back to your mBlock code page.

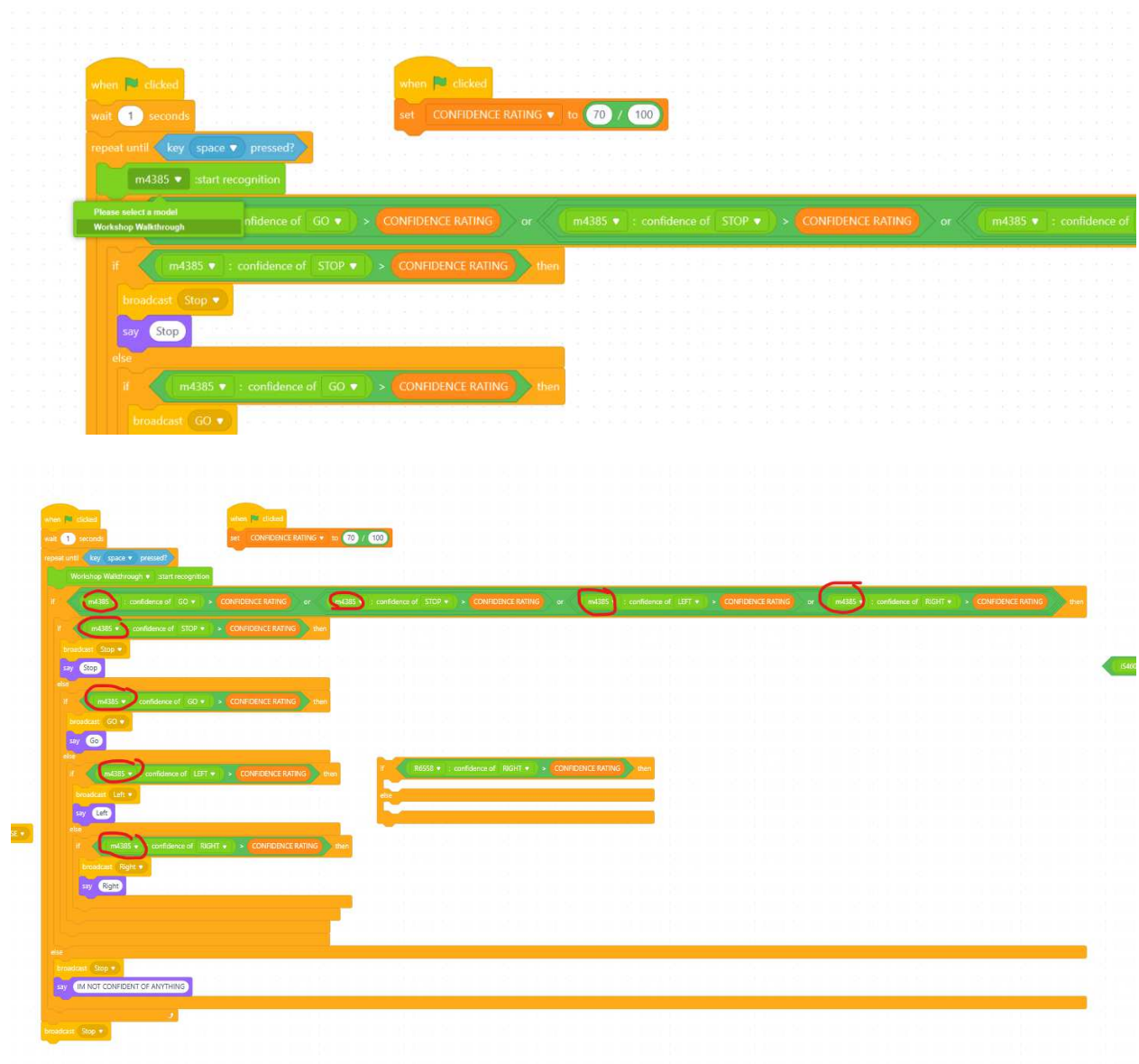


Step 12: Before we can apply the model, we need to connect the MBot to the software so it can communicate with it. Click on the devices tab and click Bluetooth. That will bring a pop-up showing all connectable devices. Turn the MBot on by flipping a black switch. A blue light will flash. Find the MBot on the pop-up and connect it. You'll know it's connected if the flashing blue light no longer flashes and maintains a steady blue light.



When connecting your MBot to your device, the Bluetooth icon will not be greyed out.

Step 13: Once the mBot is connected, go back to the **Sprites** tab. We need to apply our model to the code. Everywhere it says “m4385” or something similar, change it to your model name.



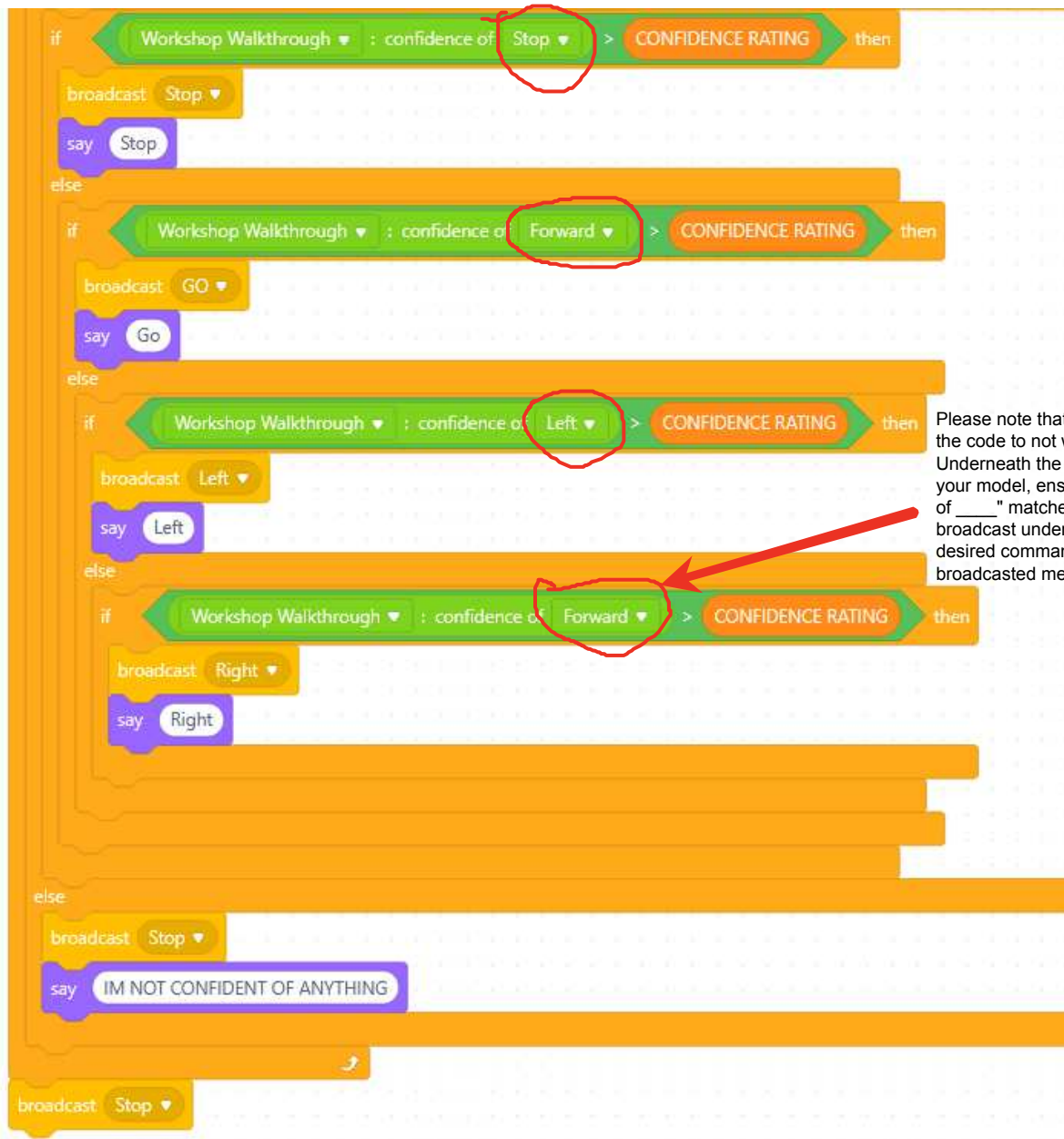
Step 14: Once you applied your model name, we need to ensure that the long statement contains all of our commands:





The long if statement is right below the “:start recognition.” Make sure that it contains each of your class commands.

Step 15. Once that's good modify the statements below so it matches with the broadcast statement.



Step 16: Finally, press the green flag where the panda is and test out your robot! Press the red square to stop the code.

