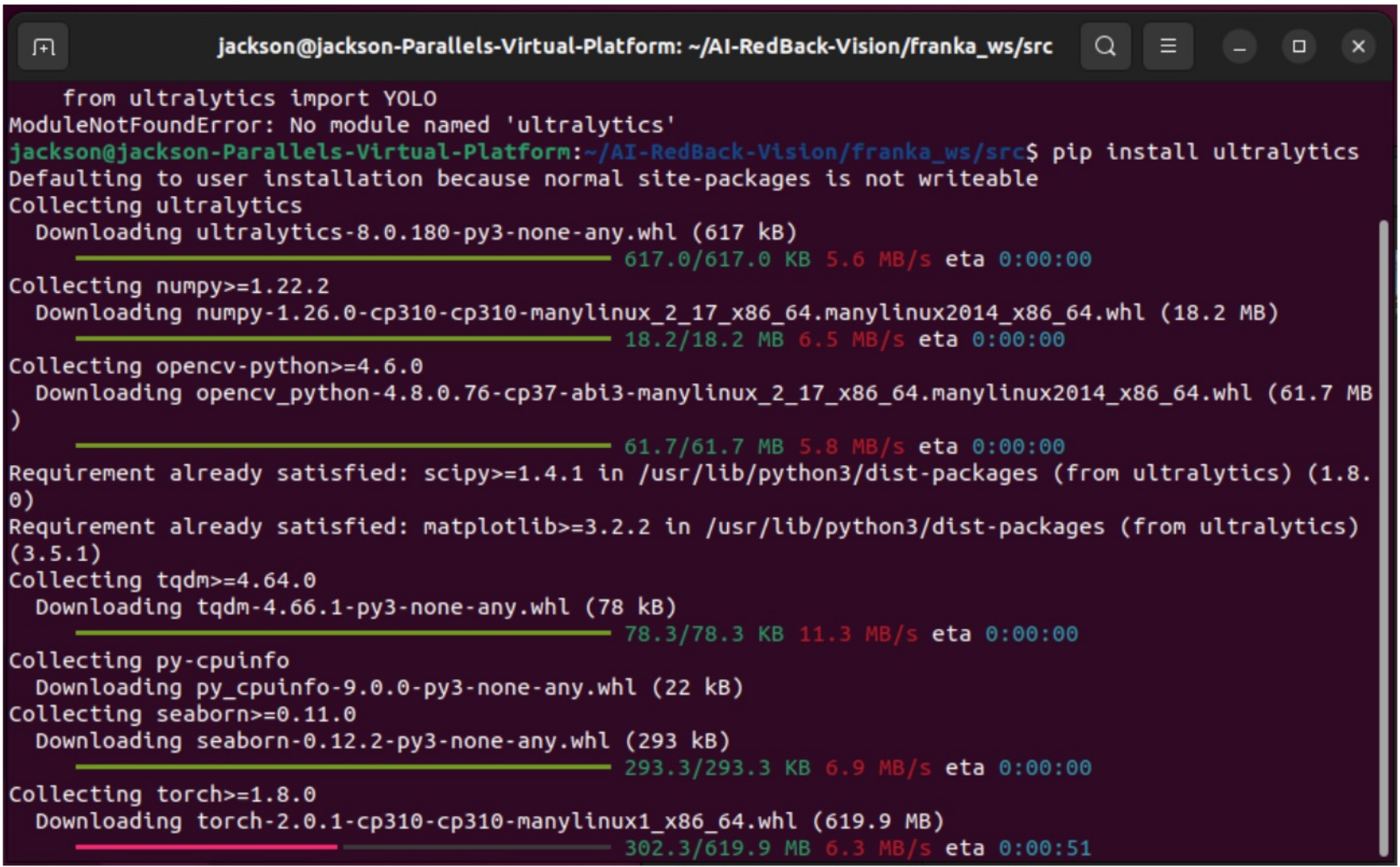# Extract & Publish 2D Coordinates of Objects

Created by Renwei Hu on 19 Sep, 2023

Install Ultralytics Library

Ultralytics library is a prerequisite for using YOLO pre-trained models. PyTorch will also be installed as part of the dependencies since YOLO models are trained and supported by PyTorch.

Check Active Topics

The *yolo_detector* node under the *object_detector* package will try to recognise and extract pixel coordinates of objects. The extracted information will be encapsulated into ROS 2 messages and published to a topic named */vision/yolo_object*. All topics that are currently active can be listed using the following command. This could be helpful to debug if the messages are successfully published to the topic.
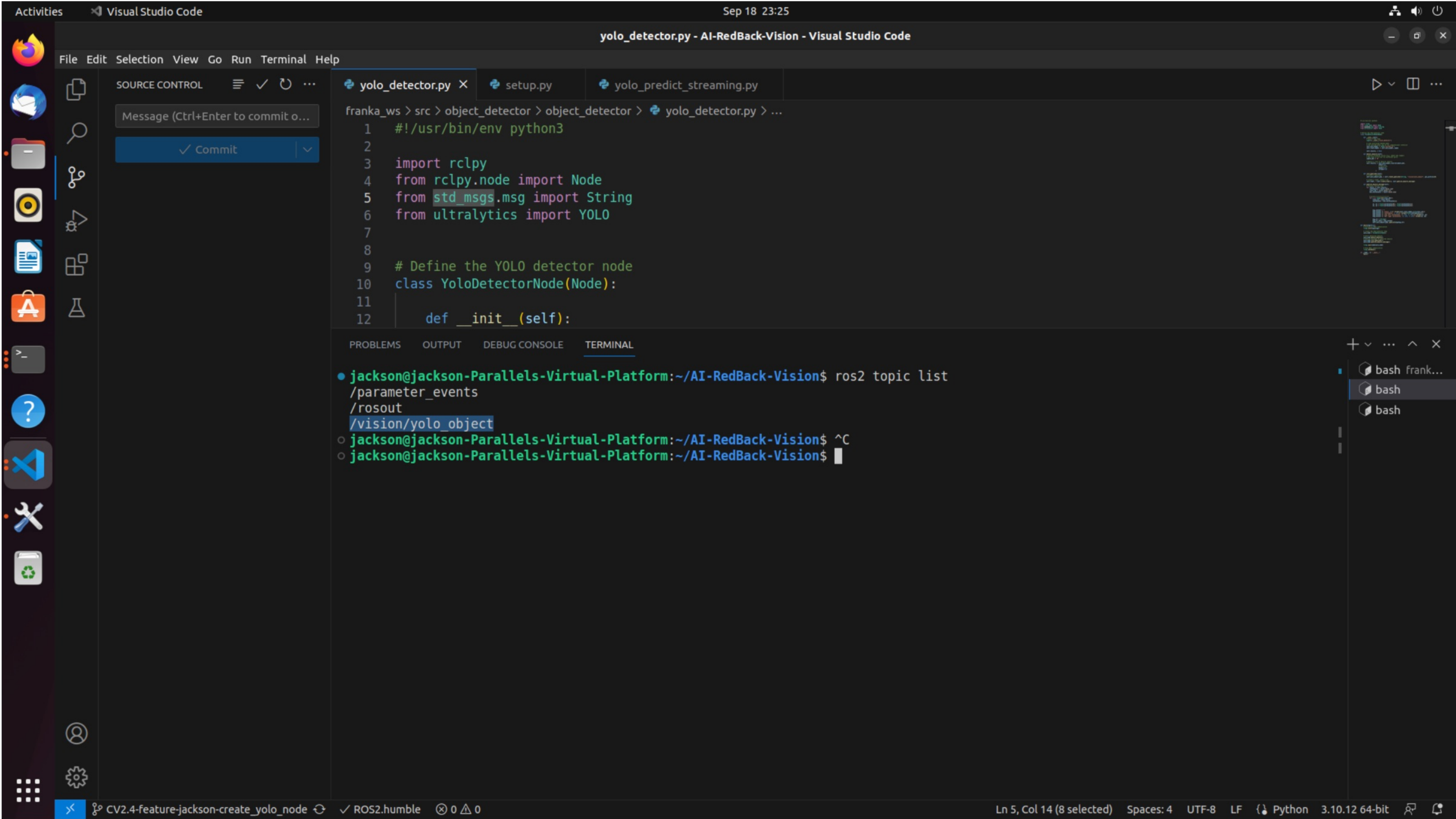
Messages Published to Topic

The relevant information extracted from the objects detected by YOLO models will be encapsulated in the form of *std_msgs.msg.String* and published to */vision/yolo_object* topic every second.

The published message will include the following:

- Object class
- Confidence rate
- Top left coordinates (pixel)
- Bottom right coordinates (pixel)

While the YOLO is configured to show the real-time object detection results on screen, we can launch *rqt_graph* to verify that node *yolo_detector* is active and publishing messages as expected.