

Ros bag files playback :

1. Install the [rviz_imu_plugin](#):

Steps for installation are given here :

https://github.com/ccny-ros-pkg/imu_tools

2. Download the Ros bag files and the launch file required for the project from Onedrive -
https://livettu-my.sharepoint.com/:f:/g/personal/sapnag_ttu_ee/Engdxo57utdlpBOAWhUivTcBcS6KSfBVMFWddMFbnG7IjA?e=NJg2l8
3. Save the rosbag files in your computer and type the instruction on the command line

```
rosbag play _File_name.bag
```

4. Open up a new Terminal and type

```
rostopic list
```

You will be able to see the list of topics saved in the ros bag file

```
robotics2@robotics2-HP-EliteBook-2570p: ~/catkin_ws
robotics2@robotics2-HP-EliteBook-2570p:~/catkin_ws$ rostopic list
/clock
/rosout
/rosout_agg
/tf
/ucat0/capacity_lost
/ucat0/force_req
/ucat0/hw/flippers cmd
/ucat0/hw/imu
/ucat0/hw/pressure
/ucat0/hw/sonar/b
/ucat0/hw/sonar/fd
/ucat0/hw/sonar/ff
/ucat0/hw/sonar/fl
/ucat0/hw/sonar/fr
/ucat0/hw/sonar/fu
/ucat0/hw/sonar/l
/ucat0/hw/sonar/r
/ucat0/hw/water_temperature
/ucat0/imu_temperature
/ucat0/internal_humidity
/ucat0/internal_temperature
/ucat0/odom
/ucat0/rpy
/ucat0/tracking
/ucat0/tracking_x
/ucat0/tracking_yaw
/ucat0/trajectory
robotics2@robotics2-HP-EliteBook-2570p:~/catkin_ws$
```

The one which we will like to use is the `"/ucat0/hw/imu"`

Hence , we will type in our command line `"rostopic echo /ucat0/hw/imu"`

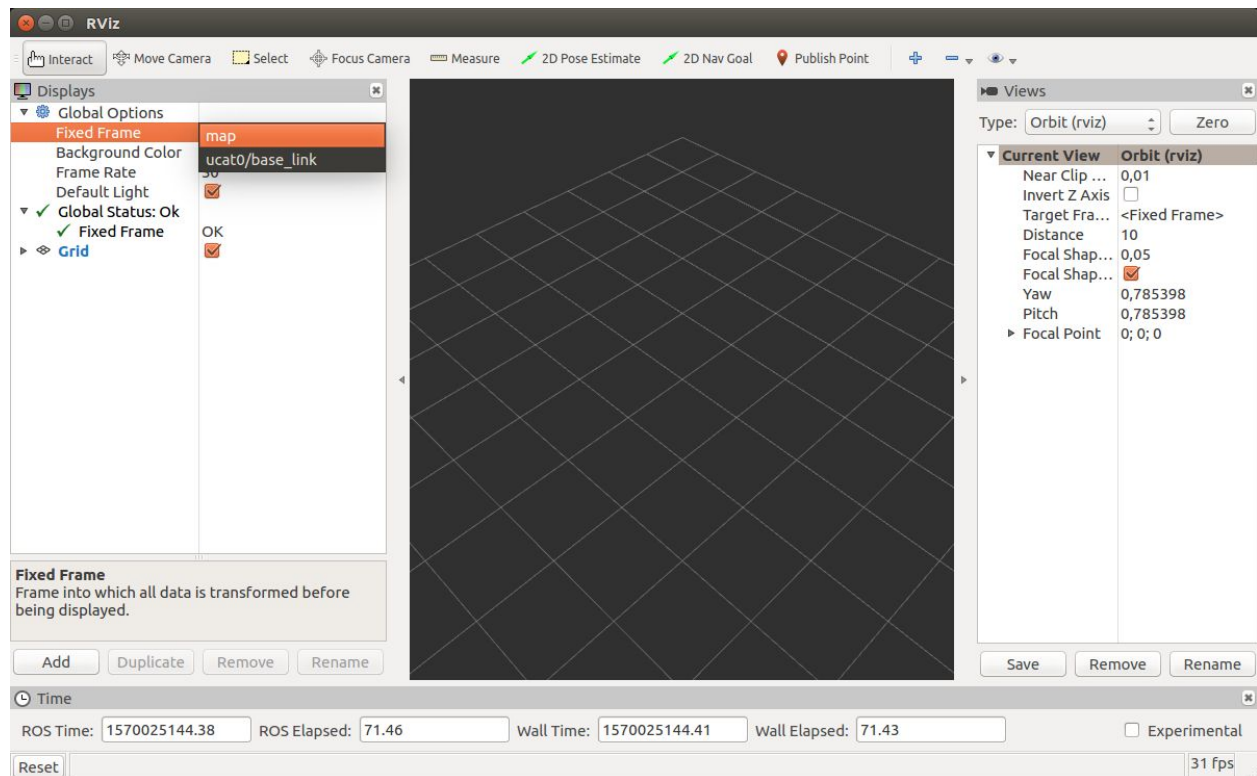
You would be able to see all the Ucat robot's imu data played back

```
robotics2@robotics2-HP-EliteBook-2570p: ~/catkin_ws
linear_acceleration:
  x: -0.219157672806
  y: 0.0670646430444
  z: -0.23831899939
linear_acceleration_covariance: [0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0]
---
header:
  seq: 1070
  stamp:
    secs: 1527691922
    nsecs: 147395260
  frame_id: "ucat0/base_link"
orientation:
  x: -0.00708012790899
  y: 0.0615238701057
  z: -0.809087720359
  w: 0.584415730419
orientation_covariance: [0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0]
angular_velocity:
  x: -0.0106529603491
  y: 0.101203123316
  z: 0.386702460671
angular_velocity_covariance: [0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0]
linear_acceleration:
  x: -0.0634718943099
  y: 0.0970042158321
  z: -0.182032602549
linear_acceleration_covariance: [0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0]
---
```

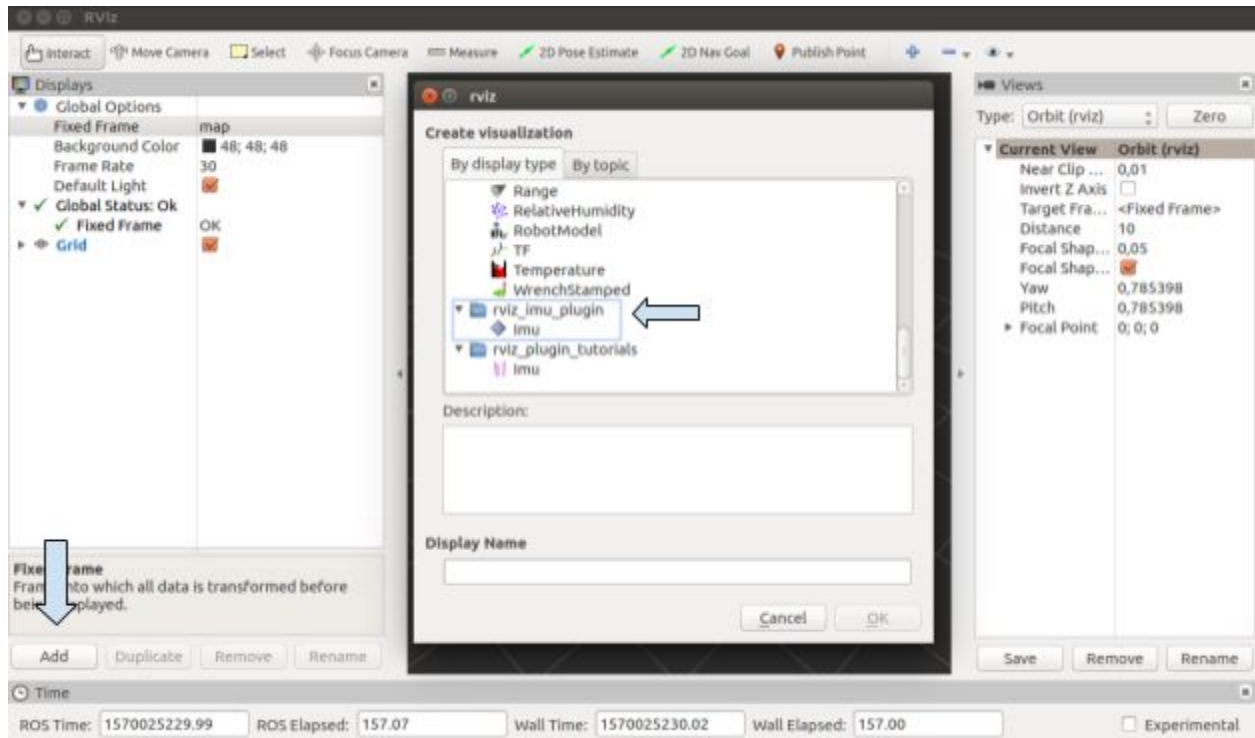
5. While the data from the rosbag file is being played , launch the “test.launch file” , by using the instruction “roslaunch test.launch”. This instruction will launch the “rviz” simulator

```
roslaunch <package_name> test_playback.launch
```

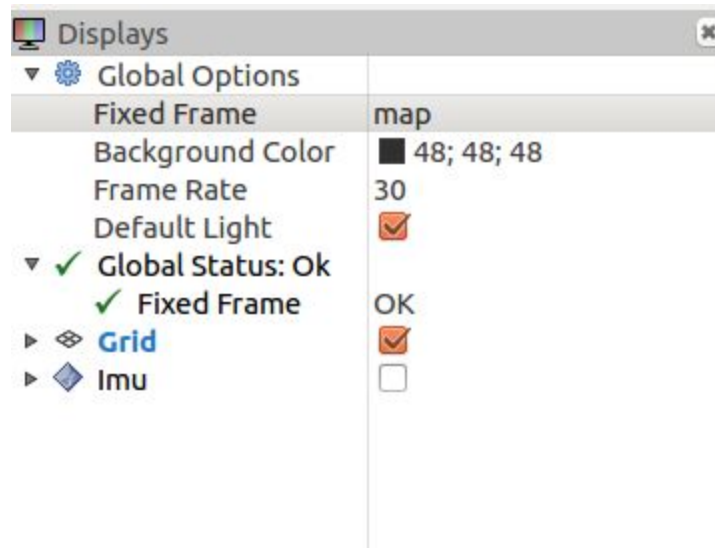
6. Once in the rviz environment, select the bar next to “Fixed frame” you will see a drop down menu where you would select “ucat0/base_link”



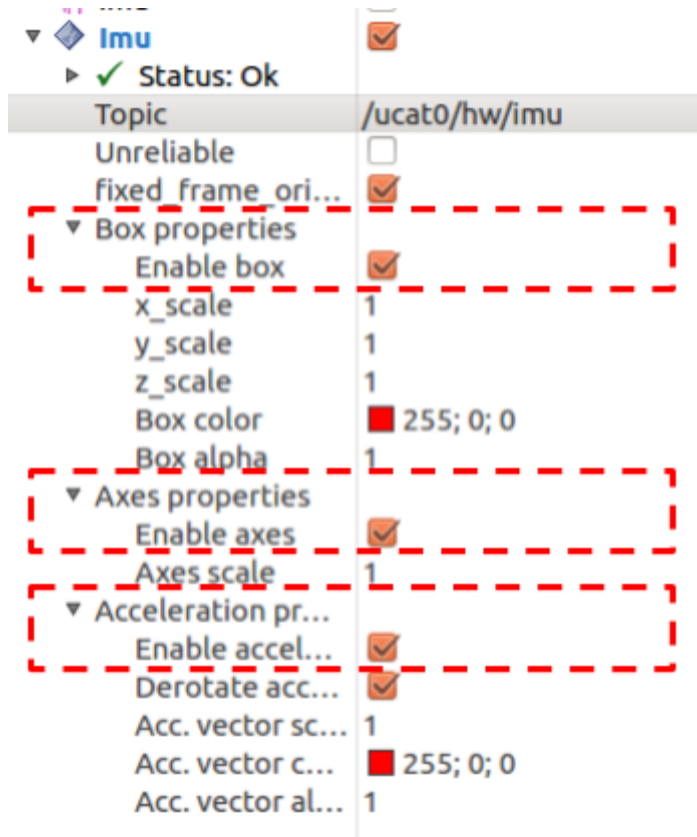
- Click on the add button , If your “rviz_imu_plugin” installation was successful you will get to see the option listed in the “Create Visualization -> By display types”



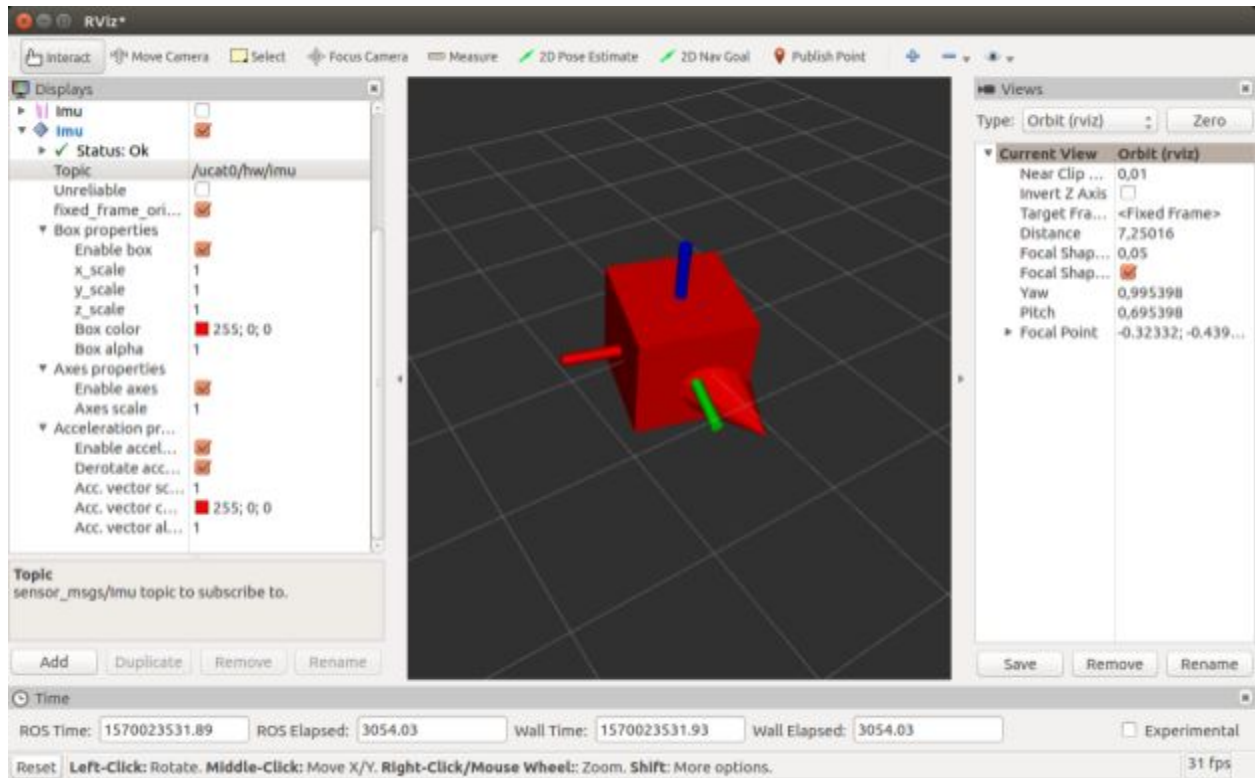
8. You can able to see the option of the imu_plugin now listed in your list of display:



9. Now click to the bar adjacent to the Topic and type down the following topic name “/ucato/hw/imu” and check the boxes adjacent to the “Box properties, Axes properties, Acceleration Properties”



10. That's it, You can be able to see the box and Axes on your Rviz



You can adjust the scale of your boxes and axes to get a better view of all the components

