

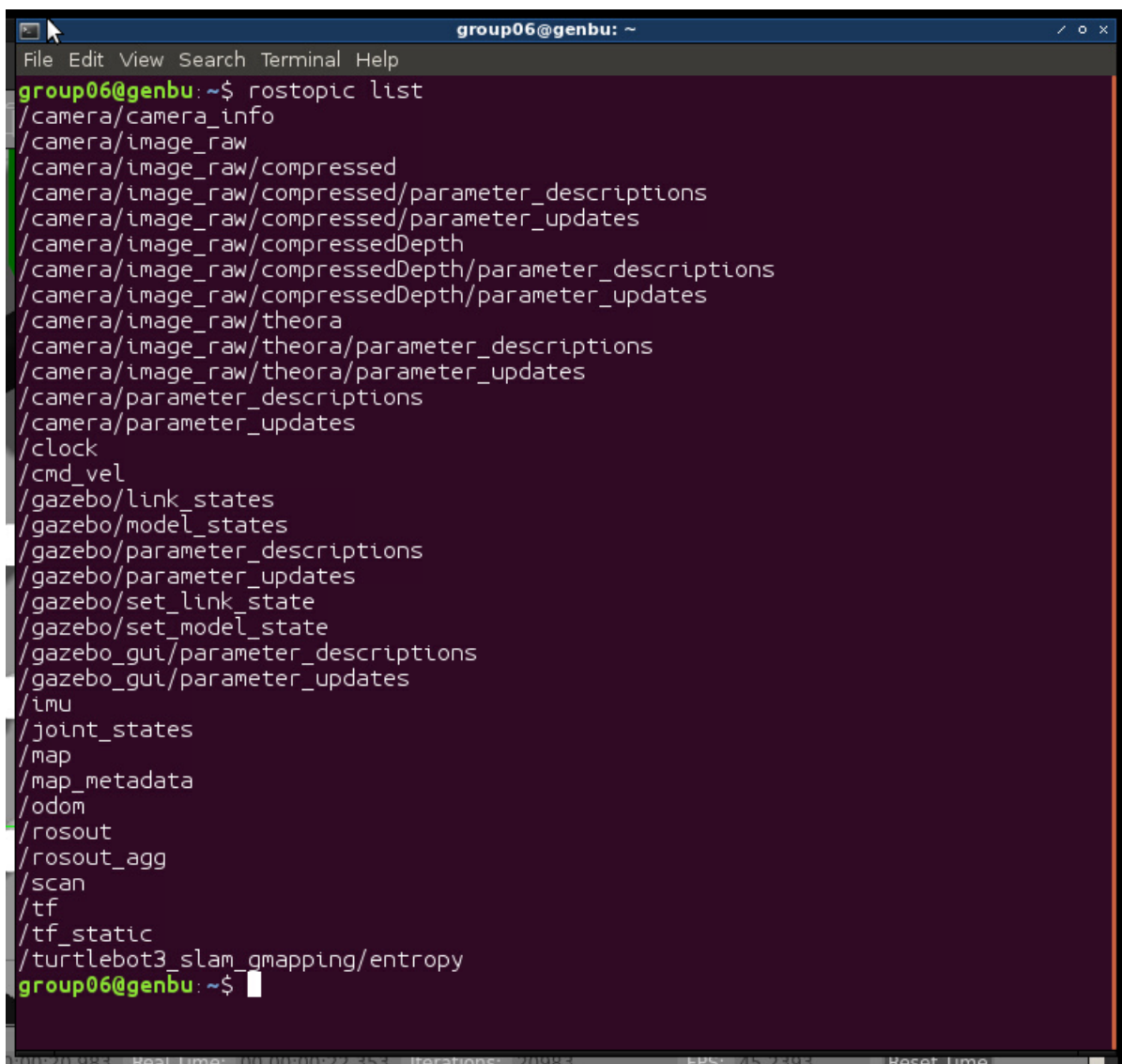
AA274A Section 4: Rviz

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1. Question 1

These are the active ROS topics:

A terminal window titled 'group06@genbu: ~' with a menu bar (File, Edit, View, Search, Terminal, Help). The terminal shows the command 'rostopic list' and its output, which is a list of active ROS topics. The topics are listed in a single column, starting with '/camera/camera_info' and ending with '/turtlebot3_slam_gmapping/entropy'. The prompt 'group06@genbu: ~\$' is visible at the bottom of the terminal.

```
group06@genbu: ~$ rostopic list
/camera/camera_info
/camera/image_raw
/camera/image_raw/compressed
/camera/image_raw/compressed/parameter_descriptions
/camera/image_raw/compressed/parameter_updates
/camera/image_raw/compressedDepth
/camera/image_raw/compressedDepth/parameter_descriptions
/camera/image_raw/compressedDepth/parameter_updates
/camera/image_raw/theora
/camera/image_raw/theora/parameter_descriptions
/camera/image_raw/theora/parameter_updates
/camera/parameter_descriptions
/camera/parameter_updates
/clock
/cmd_vel
/gazebo/link_states
/gazebo/model_states
/gazebo/parameter_descriptions
/gazebo/parameter_updates
/gazebo/set_link_state
/gazebo/set_model_state
/gazebo_gui/parameter_descriptions
/gazebo_gui/parameter_updates
/imu
/joint_states
/map
/map_metadata
/odom
/rosout
/rosout_agg
/scan
/tf
/tf_static
/turtlebot3_slam_gmapping/entropy
group06@genbu: ~$
```

Figure 1: Active ROS Topics

2. Question 2

Screenshot of RViz display:

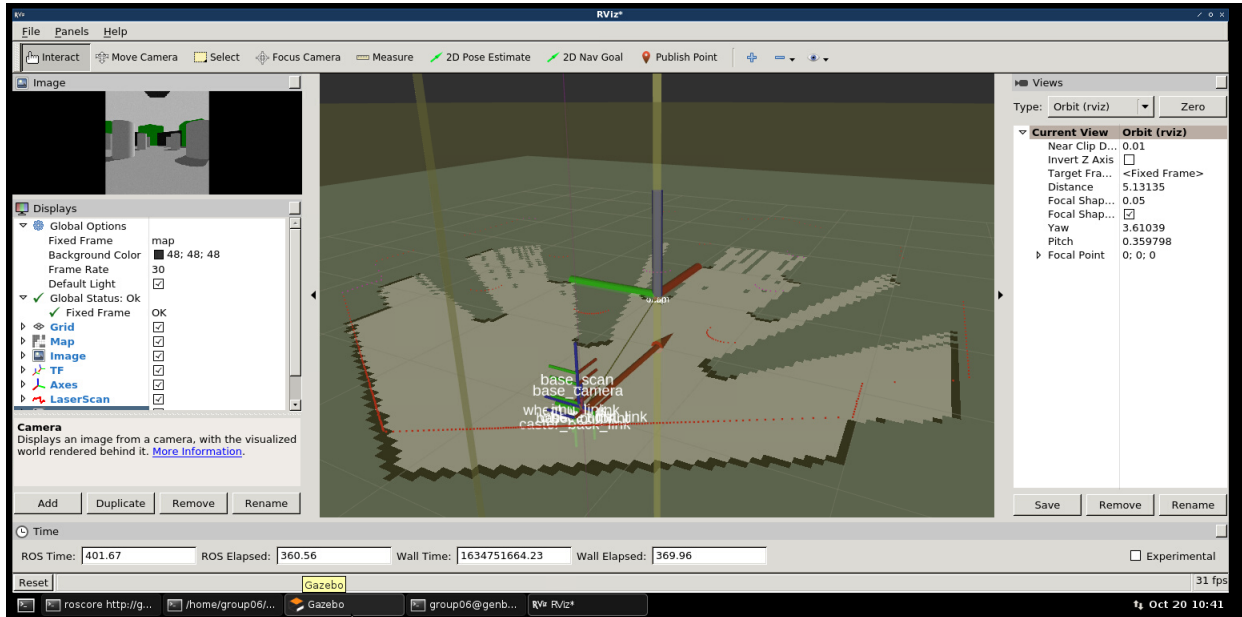


Figure 2: RViz Visualization Display

3. Question 3

Contents of RViz configuration file:

```
Panels:
- Class: rviz/Displays
  Help Height: 89
  Name: Displays
  Property Tree Widget:
    Expanded:
      - /Global Options1
      - /Status1
      - /Odometry1
    Splitter Ratio: 0.5
  Tree Height: 243
- Class: rviz/Selection
  Name: Selection
- Class: rviz/Tool Properties
  Expanded:
    - /2D Pose Estimate1
    - /2D Nav Goal1
```

```

    - /Publish Point1
      Name: Tool Properties
      Splitter Ratio: 0.588679016
  - Class: rviz/Views
    Expanded:
      - /Current View1
      Name: Views
      Splitter Ratio: 0.5
  - Class: rviz/Time
    Experimental: false
    Name: Time
    SyncMode: 0
    SyncSource: Image
Toolbars:
  toolButtonStyle: 2
Visualization Manager:
  Class: ""
  Displays:
    - Alpha: 0.5
      Cell Size: 1
      Class: rviz/Grid
      Color: 160; 160; 164
      Enabled: true
      Line Style:
        Line Width: 0.0299999993
        Value: Lines
      Name: Grid
      Normal Cell Count: 0
      Offset:
        X: 0
        Y: 0
        Z: 0
      Plane: XY
      Plane Cell Count: 10
      Reference Frame: <Fixed Frame>
      Value: true
    - Alpha: 0.699999988
      Class: rviz/Map
      Color Scheme: map
      Draw Behind: false
      Enabled: true
      Name: Map
      Topic: /map
      Unreliable: false
      Use Timestamp: false
      Value: true
    - Class: rviz/Image
      Enabled: true
      Image Topic: /camera/image_raw
      Max Value: 1

```

```

Median window: 5
Min Value: 0
Name: Image
Normalize Range: true
Queue Size: 2
Transport Hint: raw
Unreliable: false
Value: true
- Class: rviz/TF
Enabled: true
Frame Timeout: 15
Frames:
  All Enabled: true
  base_camera:
    Value: true
  base_footprint:
    Value: true
  base_link:
    Value: true
  base_scan:
    Value: true
  caster_back_link:
    Value: true
  imu_link:
    Value: true
  map:
    Value: true
  odom:
    Value: true
  wheel_left_link:
    Value: true
  wheel_right_link:
    Value: true
Marker Scale: 1
Name: TF
Show Arrows: true
Show Axes: true
Show Names: true
Tree:
  map:
    odom:
      base_footprint:
        base_link:
          base_camera:
            {}
          base_scan:
            {}
          caster_back_link:
            {}
          imu_link:

```

```

    {}
    wheel_left_link:
    {}
    wheel_right_link:
    {}
Update Interval: 0
Value: true
- Class: rviz/Axes
  Enabled: true
  Length: 1
  Name: Axes
  Radius: 0.100000001
  Reference Frame: <Fixed Frame>
  Value: true
- Alpha: 1
  Autocompute Intensity Bounds: true
  Autocompute Value Bounds:
    Max Value: 10
    Min Value: -10
    Value: true
  Axis: Z
  Channel Name: intensity
  Class: rviz/LaserScan
  Color: 255; 255; 255
  Color Transformer: Intensity
  Decay Time: 0
  Enabled: true
  Invert Rainbow: false
  Max Color: 255; 255; 255
  Max Intensity: 999999
  Min Color: 0; 0; 0
  Min Intensity: 0
  Name: LaserScan
  Position Transformer: XYZ
  Queue Size: 10
  Selectable: true
  Size (Pixels): 3
  Size (m): 0.009999999978
  Style: Flat Squares
  Topic: /scan
  Unreliable: false
  Use Fixed Frame: true
  Use rainbow: true
  Value: true
- Class: rviz/Camera
  Enabled: false
  Image Rendering: background and overlay
  Image Topic: /camera/image_raw
  Name: Camera
  Overlay Alpha: 0.5

```

```

Queue Size: 2
Transport Hint: raw
Unreliable: false
Value: false
Visibility:
  "": true
  Axes: true
  Grid: true
  Image: true
  LaserScan: true
  Map: true
  TF: true
  Value: true
Zoom Factor: 1
- Angle Tolerance: 0.100000001
Class: rviz/Odometry
Covariance:
  Orientation:
    Alpha: 0.5
    Color: 255; 255; 127
    Color Style: Unique
    Frame: Local
    Offset: 1
    Scale: 1
    Value: true
  Position:
    Alpha: 0.300000012
    Color: 204; 51; 204
    Scale: 1
    Value: true
  Value: false
Enabled: true
Keep: 100
Name: Odometry
Position Tolerance: 0.100000001
Shape:
  Alpha: 1
  Axes Length: 1
  Axes Radius: 0.100000001
  Color: 255; 25; 0
  Head Length: 0.300000012
  Head Radius: 0.100000001
  Shaft Length: 1
  Shaft Radius: 0.0500000007
  Value: Arrow
Topic: /odom
Unreliable: false
Value: true
Enabled: true
Global Options:

```

```

    Background Color: 48; 48; 48
    Default Light: true
    Fixed Frame: map
    Frame Rate: 30
Name: root
Tools:
  - Class: rviz/Interact
    Hide Inactive Objects: true
  - Class: rviz/MoveCamera
  - Class: rviz/Select
  - Class: rviz/FocusCamera
  - Class: rviz/Measure
  - Class: rviz/SetInitialPose
    Topic: /initialpose
  - Class: rviz/SetGoal
    Topic: /move_base_simple/goal
  - Class: rviz/PublishPoint
    Single click: true
    Topic: /clicked_point
Value: true
Views:
  Current:
    Class: rviz/Orbit
    Distance: 4.84211159
    Enable Stereo Rendering:
      Stereo Eye Separation: 0.0599999987
      Stereo Focal Distance: 1
      Swap Stereo Eyes: false
      Value: false
    Focal Point:
      X: 0
      Y: 0
      Z: 0
    Focal Shape Fixed Size: true
    Focal Shape Size: 0.0500000007
    Invert Z Axis: false
    Name: Current View
    Near Clip Distance: 0.00999999978
    Pitch: 0.359797776
    Target Frame: <Fixed Frame>
    Value: Orbit (rviz)
    Yaw: 3.61038995
  Saved: ~
Window Geometry:
  Camera:
    collapsed: false
  Displays:
    collapsed: false
  Height: 713
  Hide Left Dock: false

```

```

Hide Right Dock: false
Image:
  collapsed: false
QMainWindow State: 000000
ff00000000fd0000000400000000000016a0000022afc020000000afb0000001200530065006c006500630074006f

Selection:
  collapsed: false
Time:
  collapsed: false
Tool Properties:
  collapsed: false
Views:
  collapsed: false
Width: 1520
X: 0
Y: 0

```

4. Question 4

Screenshot of red marker 1m in front of robot:

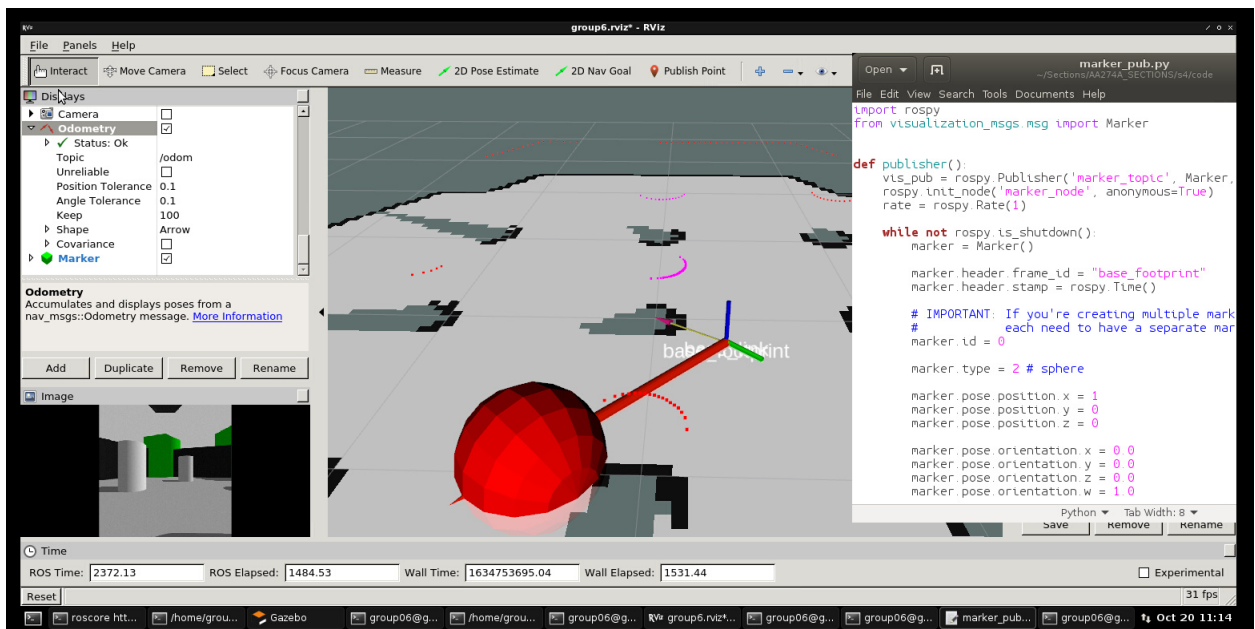


Figure 3: Red Marker 1m away from robot