# **ROS Exercise 3**

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```
The smb_common_v2 was symlinked with the src folder.

swaminathan@swaminathan-ASUS-TUF-Dash-F15-FX517ZM-FX517ZM:~/Workspa
c$ ln -s ~/git/smb_common_v2/ smb_common_v2
```

The \$ catkin build command was used to build the newer version. Now, to change the launch file -

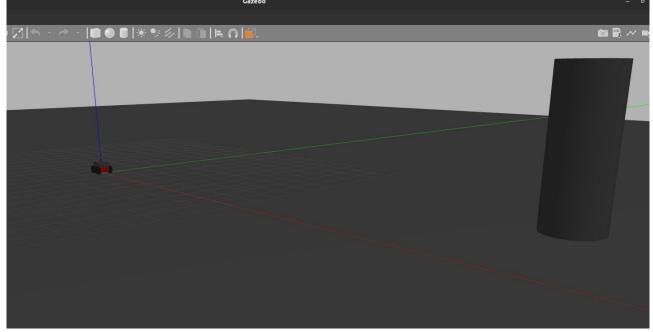
The singlepillar.world file was download and placed in the smb\_gazeebo/worlds/ folder.



### This is the modified .launch file:



After lauching this file, we get:



Getting the laser scan data and finding the distance of pillar relative to it: Source(s):

http://docs.ros.org/en/melodic/api/sensor msgs/html/msg/LaserScan.html

#### sensor\_msgs/LaserScan Message

File: sensor\_msgs/LaserScan.msg

#### **Raw Message Definition**

```
# Single scan from a planar laser range-finder
# If you have another ranging device with different behavior (e.g. a sonar
# array), please find or create a different message, since applications
# will make fairly laser-specific assumptions about this data

Header header # timestamp in the header is the acquisition time of
# the first ray in the scan.
# in frame frame id, angles are measured around
# the positive Z axis (counterclockwise, if Z is up)
# with zero angle being forward along the x axis

float32 angle min
float32 angle min
float32 time_increment

float32 time_increment

float32 time_increment
# time between measurements [seconds] - if your scanner
# is moving, this will be used in interpolating position
# of 3d points
# time between scans [seconds]

float32 range min
# minimum range value [m]
# maximum range value [m]
# minimum range value [m]
# minimum range value [m]
# range data [m] (Mote: values < range min or > range_max should be discarded)
# intensity data [device-specific units]. If your
# device does not provide intensities, please leave
# the array empty.
```

It is found that float32[] ranges returns the distances relative to the lase r scanner for each m(th) step. This is published to the topic /scan.

```
| Needer | Seq | 0 | Starp | Sec | 1 | Seq | 0 | Starp | Sec | 26 | Sec | 1 | Seq | 0 | Sec | 1 | Sec | 1
```

### (\*)If inf, not in range

Thus we observe that the pillar is approximately at a distance from 19.6 to 20.5. **To find the**