

CENG 6838 Robotics

TURTLEBOT

Homework 2 TURTLEBOT Spring 2016

Due March 2, 2016

THOSE USING TURTLEBOT

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Put your name, Student ID, HW number, date, and the Course Number on your homework. Please submit a paper copy at the beginning of class. The assignment should be typed.

Review the New TurtleBot Guide on our WEB site – To page 43.

http://sceweb.sce.uhcl.edu/harman/CENG_all/TurtleBotGuide2_19_2016a.pdf

Review the Rules for essays but In these assignments - just a short paragraph or two about the reading or video since there are so many to consider.

- I. Read and write a short essay about the TurtleBot – its Nodes and Topics. Describe as best you can what the Nodes and Topics do for the TurtleBot. (20 points)
- II. Visit the ROS website: <http://wiki.ros.org/Robots/TurtleBot>
Choose **INDIGO**

In the tutorial read the following sections and write a brief summary (30 points)

Bringup

1. [PC Bringup](#) Connecting to the turtlebot from the PC.
2. [TurtleBot Care and Feeding](#) This tutorial explains how to charge and maintain your TurtleBot.
3. [Create Odometry and Gyro Calibration](#) ⚠ This is only necessary if you have a Create base. The Kobuki comes with a factory calibrated gyro. This will show you how to calibrate or test the calibration of a TurtleBot which is highly recommended when running any navigation based application.

Teleoperation

1. [Keyboard Teleop](#) Keyboard teleoperation of a turtlebot.
2. [Joystick Teleop](#) Joystick teleoperation of a turtlebot.

Simulation

2. [Explore the Gazebo world](#) Cruise around in the Gazebo world and use RViz to "see" what's in it.

III. Visit the website:

<http://learn.turtlebot.com/>

1. [We Want You to Learn Turtlebot \(and Robotics\)!](#)
2. [What You Will Need](#)
3. [Hardware Setup](#)
4. [Skip](#)
5. [Installing ROS](#)
6. [Testing TurtleBot Installation](#)
7. [Setting Up Networking](#)
8. [\(Skip Later with Vision\)](#)
9. [Teleoperation](#) Keyboard and Joystick
10. [Writing Your First Script](#)

One Script:

<https://github.com/markwsilliman/turtlebot/blob/master/goforward.py>

Read the sections and watch the videos and write a brief summary of the reading and the videos.
(50 Points)