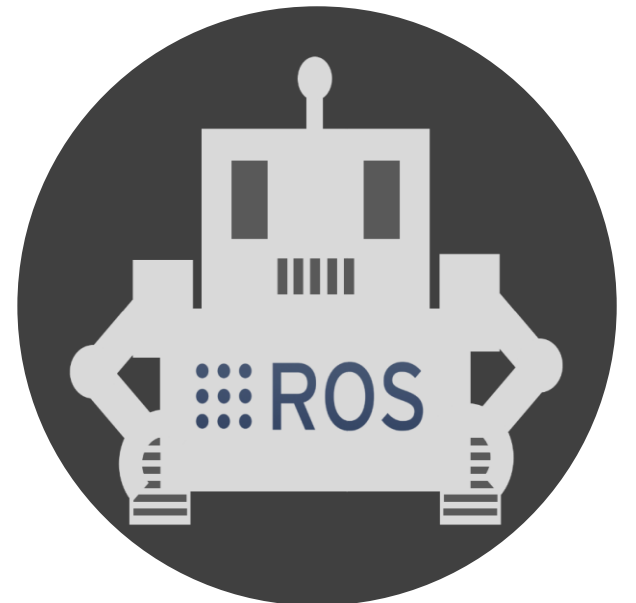


ROS 기초 강의

Chapter 1. ROS 개발환경 셋업

구선생 로보틱스



강의 자료 다운로드



ROS 기초 강의 강의노트

https://drive.google.com/drive/folders/1rRwS2j98HNyj5Is_yVXEGj30ILvMPtrz?usp=drive_link

1. 리눅스 설치

2. ROS 설치

3. ROS 개요

리눅스 설치

Ubuntu 20.04 듀얼부팅 설치



<https://www.youtube.com/watch?v=x7tpah6Tiqw>

Ubuntu 20.04 가상머신 설치



<https://www.youtube.com/watch?v=Widi0MUCeTM>

1. 리눅스 설치

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3. ROS 개요

ROS 설치

1) ROS noetic install 검색 후 사이트 이동

The screenshot shows a Google search interface. The search bar at the top contains the text "ROS noetic install", which is highlighted with a red box and labeled "1) 검색" (Search) with a red arrow. Below the search bar are navigation tabs: "전체" (All), "동영상" (Videos), "이미지" (Images), "뉴스" (News), "쇼핑" (Shopping), and "더보기" (More). The search results show "검색결과 약 105,000개 (0.26초)" (Search results about 105,000 items in 0.26 seconds). Below this is a message in Korean: "도움말: 한국어 검색결과만 검색합니다. 환경설정에서 검색 언어를 지정할 수 있습니다." (Help: Search only for Korean search results. You can specify the search language in the settings). The first search result is from "http://wiki.ros.org > noetic > Installation > Ubuntu", with the title "Ubuntu install of ROS Noetic - ROS Wiki" highlighted by a red box and labeled "2) 클릭" (Click) with a red arrow. The snippet below the title reads: "2022. 5. 25. — **Installation** · First, make sure your Debian package index is up-to-date: · Now pick how much of **ROS** you would like to **install**. · There are even ... Setup your sources.list · Environment setup · Dependencies for building..."

2) 문서의 절차대로 진행

1. Installation

1.1 Configure your Ubuntu repositories

Configure your Ubuntu repositories to allow "restricted," "universe," and "multiverse." You can [follow the Ubuntu guide](#) for instructions on doing this.

1.2 Setup your sources.list

Setup your computer to accept software from packages.ros.org.

```
sudo sh -c 'echo "deb http://packages.ros.org/ros/ubuntu $(lsb_release -sc) main" > /etc/apt/sources.list.d/ros-latest.list'
```

Mirrors [Source Debs](#) are also available

1.3 Set up your keys

```
sudo apt install curl # if you haven't already installed curl  
curl -s https://raw.githubusercontent.com/ros/rosdistro/master/ros.asc | sudo apt-key add -
```

1.4 Installation

First, make sure your Debian package index is up-to-date:

```
sudo apt update
```



순서대로 진행

3) 설치 확인

\$ roscore 명령어 입력시 아래 화면이 출력 되어야 함

```
roscore http://ubuntu:11311/

ubuntu@ubuntu:~$ roscore
... logging to /home/ubuntu/.ros/log/09c34d02-30f0-11ee-a6d7-39c151f3ecd1/roslau
nch-ubuntu-7946.log
Checking log directory for disk usage. This may take a while.
Press Ctrl-C to interrupt
Done checking log file disk usage. Usage is <1GB.

started roslaunch server http://ubuntu:35739/
ros_comm version 1.16.0

SUMMARY
=====

PARAMETERS
* /rostdistro: noetic
* /rosversion: 1.16.0

NODES

auto-starting new master
process[master]: started with pid [7954]
ROS_MASTER_URI=http://ubuntu:11311/

setting /run_id to 09c34d02-30f0-11ee-a6d7-39c151f3ecd1
process[rosout-1]: started with pid [7964]
```


1. 리눅스 설치

2. ROS 설치

3. ROS 개요

ROS 개요

ROS란 무엇인가?

- **R**obot **O**perating **S**ystem의 약자
- 로봇 소프트웨어를 구축하는데 도움이 되는 라이브러리



동영상 강의 - ROS란 무엇인가?

<https://youtu.be/1UGs5PML5Ag?si=gC5KgmvtOHi-JRB>

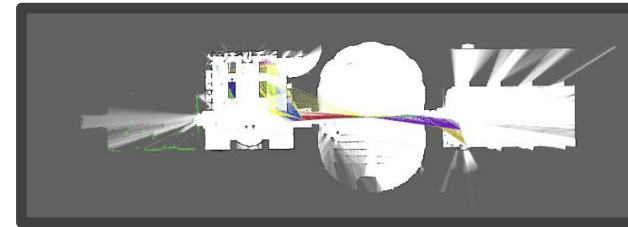
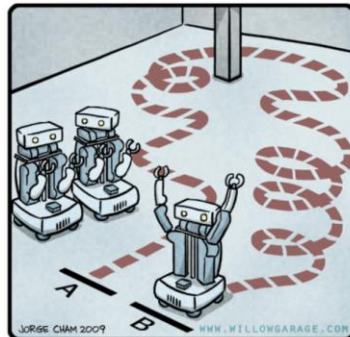
ROS

Hardware

Device
Driver

Algorithm

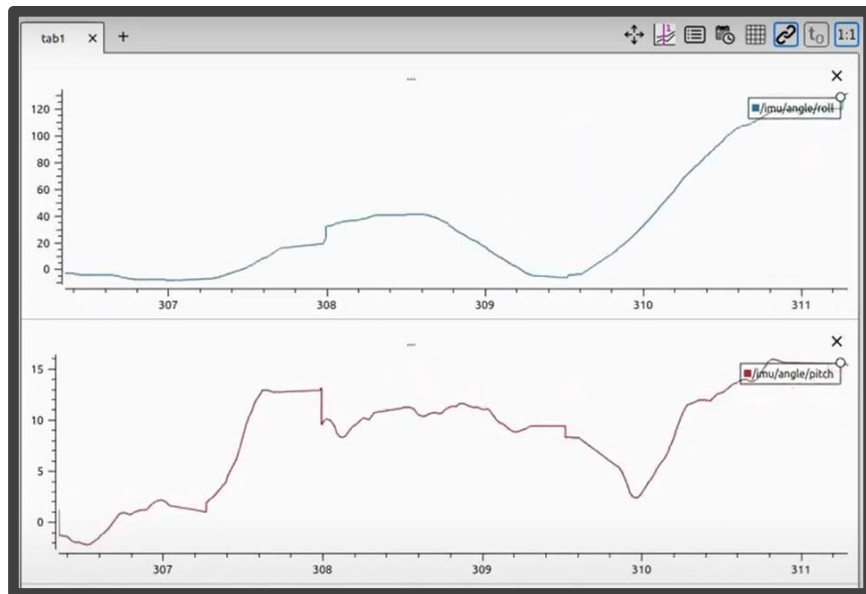
Software
Development Tool



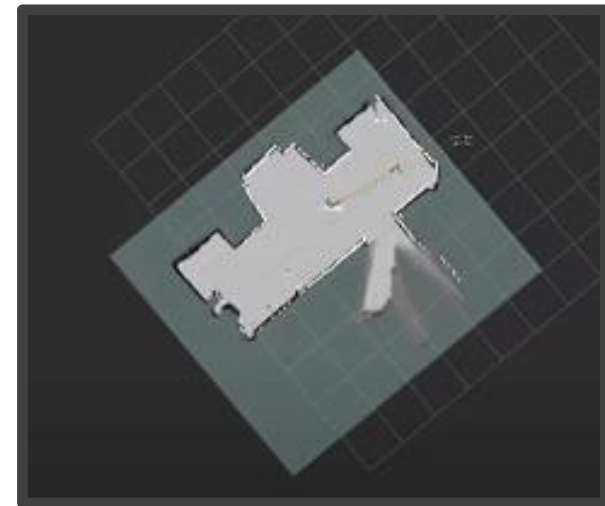
ROS 개요

왜 ROS를 사용해야 하는가?

- 모듈화의 이점
- 개발 및 유지보수 시간 단축
- SLAM 및 Navigation 등 다양한 오픈소스 제공



	O	P	Q	R	S	T	U	V	W	X	Y	Z	AA	AB	AC	AD	AE	AF	AG	AH	AI
1	2.1	0	0	0	0	2.1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	2.4	0	0	0	0	2.4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3	2.7	0	0	0	0	2.7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4	3	0	0	0	0	3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5	3.3	0	0	0	0	3.3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6	3.6	0	0	0	0	3.6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
7	3.9	0	0	0	0	3.9	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
8	4.2	0	0	0	0	4.2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
9	4.5	0	0	0	0	4.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
10	4.8	0	0	0	0	4.8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
11	5.1	0	0	0	0	5.1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
12	5.4	0	0	0	0	5.4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
13	5.7	0	0	0	0	5.7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
14	6	0	0	0	0	6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
15	6.3	0	0	0	0	6.3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
16	6.6	0	0	0	0	6.6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
17	6.9	0	0	0	0	6.9	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
18	7.2	0	0	0	0	7.2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
19	7.5	0	0	0	0	7.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
20	7.8	0	0	0	0	7.8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
21	8.1	0	0	0	0	8.1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
22	8.4	0	0	0	0	8.4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
23	8.7	0	0	0	0	8.7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
24	9	0	0	0	0	9	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
25	9.3	0	0	0	0	9.3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
26	9.6	0	0	0	0	9.6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
27	9.9	0	0	0	0	9.9	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
28	10	0	0	0	0	10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
29	0.3	0	0	0	0	0.3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
30	0.6	0	0	0	0	0.6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
31	0.9	0	0	0	0	0.9	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
32	1.2	0	0	0	0	1.2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
33	1.5	0	0	0	0	1.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
34	1.8	0	0	0	0	1.8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
35	2.1	0	0	0	0	2.1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
36	2.4	0	0	0	0	2.4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
37	2.7	0	0	0	0	2.7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
38	3	0	0	0	0	3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
39	3.3	0	0	0	0	3.3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
40	3.6	0	0	0	0	3.6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
41	3.9	0	0	0	0	3.9	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
42	4.2	0	0	0	0	4.2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00



위의 기능을 모듈형태로 오픈소스로 제공하고 있어 쉽게 적용 가능

감사합니다

구선생 로보틱스

