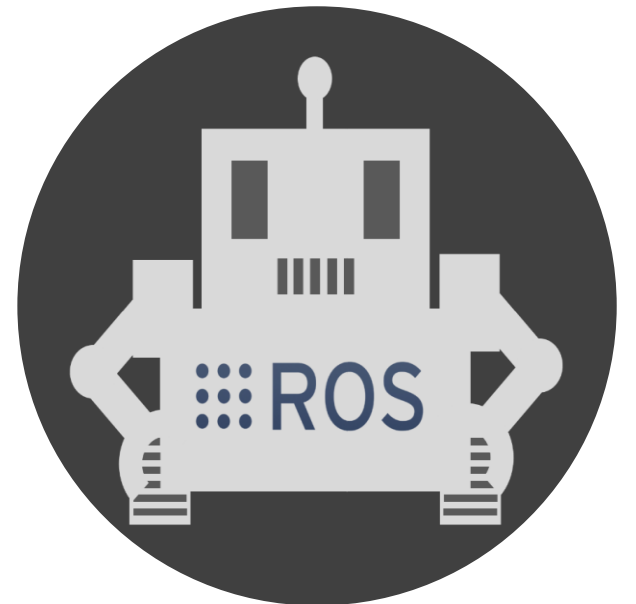


# ROS 기초 강의

## Chapter 1. ROS 개발환경 셋업

구선생 로보틱스



# 강의 자료 다운로드

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ROS 기초 강의 강의노트

[https://drive.google.com/drive/folders/1rRwS2j98HNyj5Is\\_yVXEGj30ILvMPtrz?usp=drive\\_link](https://drive.google.com/drive/folders/1rRwS2j98HNyj5Is_yVXEGj30ILvMPtrz?usp=drive_link)

1. 리눅스 설치

2. ROS 설치

3. ROS 개요

# 리눅스 설치

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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

2. ROS 설치

3. ROS 개요

# ROS 설치

## 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 for "전체" (All), "동영상" (Videos), "이미지" (Images), "뉴스" (News), "쇼핑" (Shopping), and "더보기" (More). The search results show approximately 105,000 results in 0.26 seconds. A message in Korean suggests searching in Korean. The first search result is from the ROS Wiki, titled "Ubuntu install of ROS Noetic - ROS Wiki", which is highlighted with 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..."

Google

ROS noetic install 1) 검색

전체 동영상 이미지 뉴스 쇼핑 : 더보기 도구

검색결과 약 105,000개 (0.26초)

도움말: 한국어 검색결과만 검색합니다. 환경설정에서 검색 언어를 지정할 수 있습니다.

http://wiki.ros.org › noetic › Installation › Ubuntu ▾

Ubuntu install of ROS Noetic - ROS Wiki 2) 클릭

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...

## 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

# ROS 설치

## 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

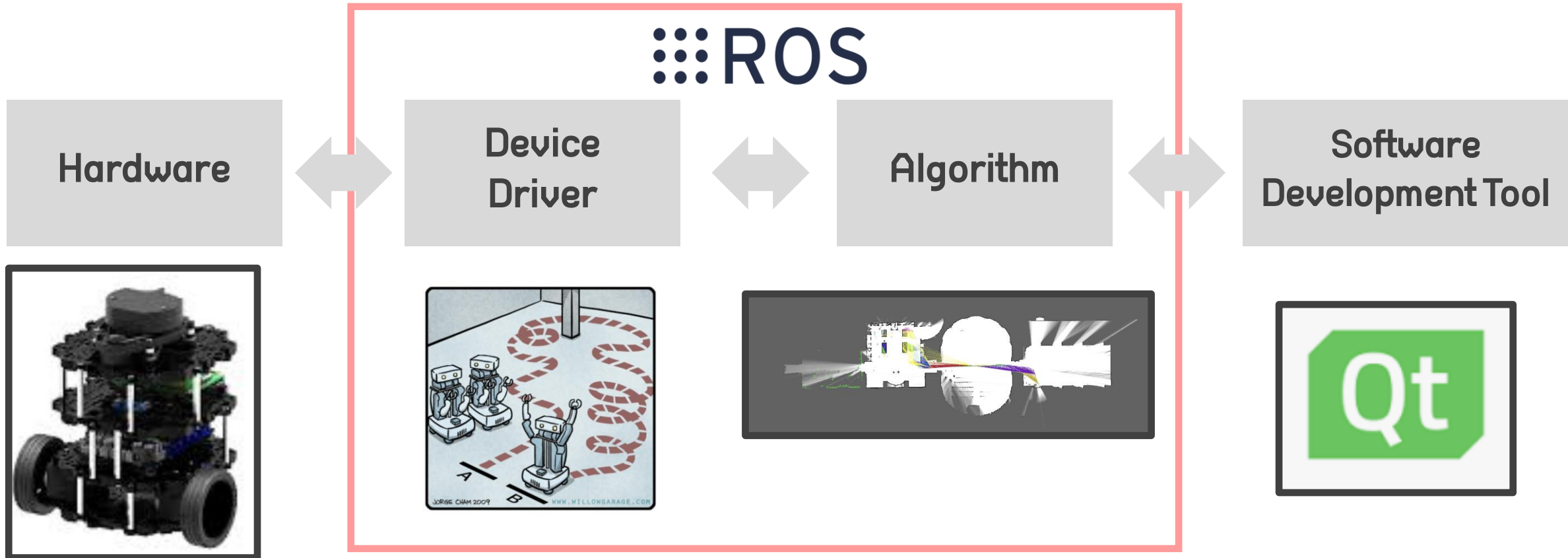
2. ROS 설치

3. ROS 개요

# ROS 개요

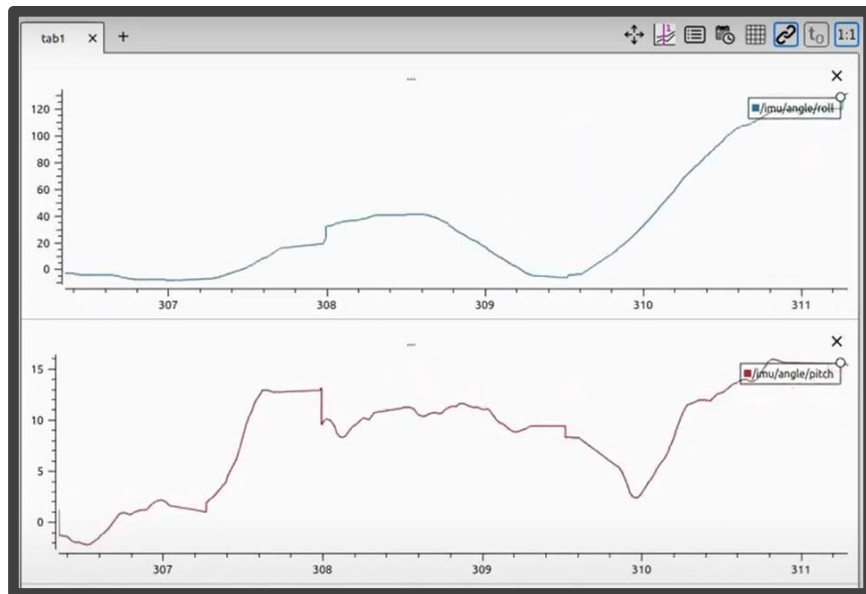
## ROS란 무엇인가?

- Robot Operating System의 약자
- 로봇 소프트웨어를 구축하는데 도움이 되는 라이브러리

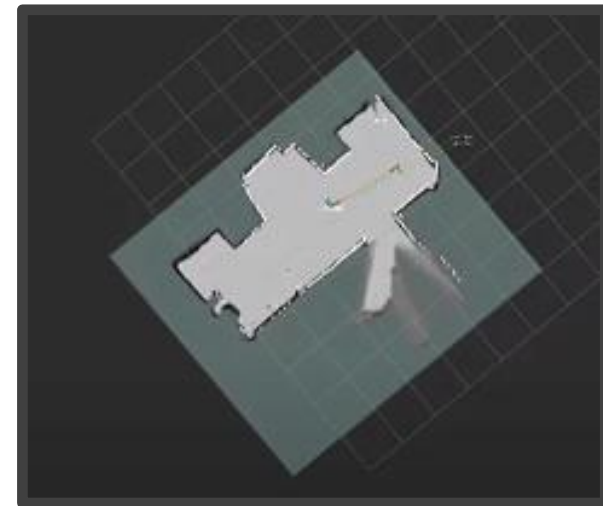


## 왜 ROS를 사용해야 하는가?

- 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	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	2.4	0	0	0	0	2.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3	2.7	0	0	0	0	2.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
4	3	0	0	0	0	3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5	3.3	0	0	0	0	3.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6	3.6	0	0	0	0	3.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
7	3.9	0	0	0	0	3.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
8	4.2	0	0	0	0	4.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
9	4.5	0	0	0	0	4.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10	4.8	0	0	0	0	4.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
11	5.1	0	0	0	0	5.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
12	5.4	0	0	0	0	5.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
13	5.7	0	0	0	0	5.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
14	6	0	0	0	0	6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
15	6.3	0	0	0	0	6.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
16	6.6	0	0	0	0	6.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
17	6.9	0	0	0	0	6.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
18	7.2	0	0	0	0	7.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
19	7.5	0	0	0	0	7.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
20	7.8	0	0	0	0	7.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
21	8.1	0	0	0	0	8.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
22	8.4	0	0	0	0	8.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
23	8.7	0	0	0	0	8.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
24	9	0	0	0	0	9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
25	9.3	0	0	0	0	9.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
26	9.6	0	0	0	0	9.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
27	9.9	0	0	0	0	9.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
28	10	0	0	0	0	10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
29	0.3	0	0	0	0	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
30	0.6	0	0	0	0	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
31	0.9	0	0	0	0	0.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
32	1.2	0	0	0	0	1.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
33	1.5	0	0	0	0	1.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
34	1.8	0	0	0	0	1.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
35	2.1	0	0	0	0	2.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
36	2.4	0	0	0	0	2.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
37	2.7	0	0	0	0	2.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
38	3	0	0	0	0	3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
39	3.3	0	0	0	0	3.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
40	3.6	0	0	0	0	3.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
41	3.9	0	0	0	0	3.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
42	4.2	0	0	0	0	4.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0



위의 기능을 모듈형태로 오픈소스로 제공하고 있어 쉽게 적용 가능

# 감사합니다

구선생 로보틱스

