Region or Country (e.g. Europe or Spain)

Region/Country	Count
USA	6
asia	1
Malaysia	1
FRANCE	1
Japan	1
south korea	1
United Kingdom	1
Hong Kong	1
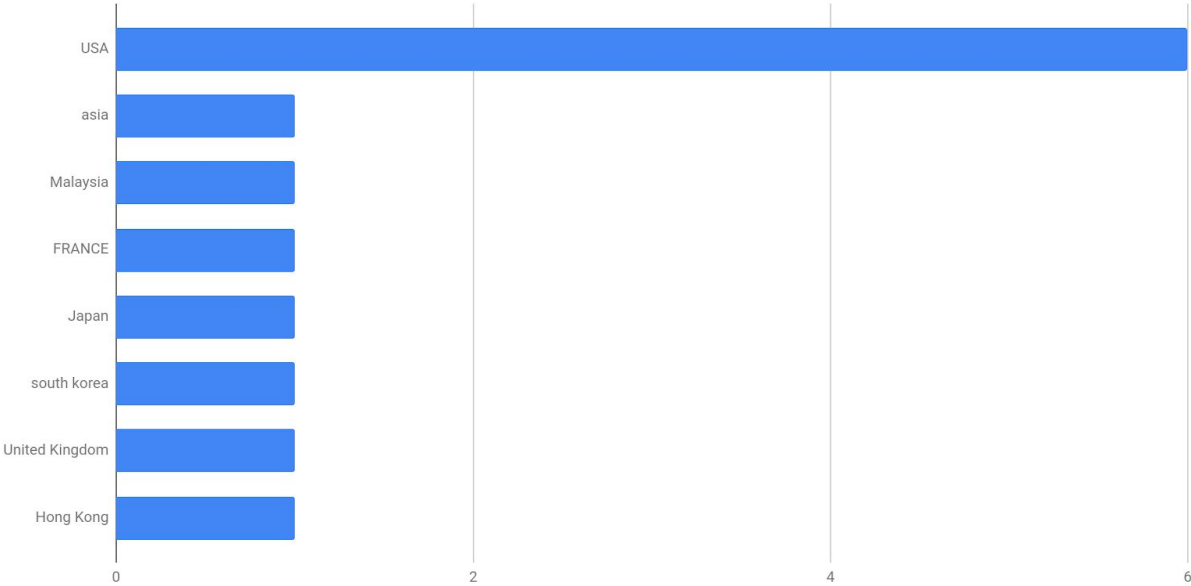
Are you using Autoware in

Category	Count
Industry	2
R&D	10
Hobby	1
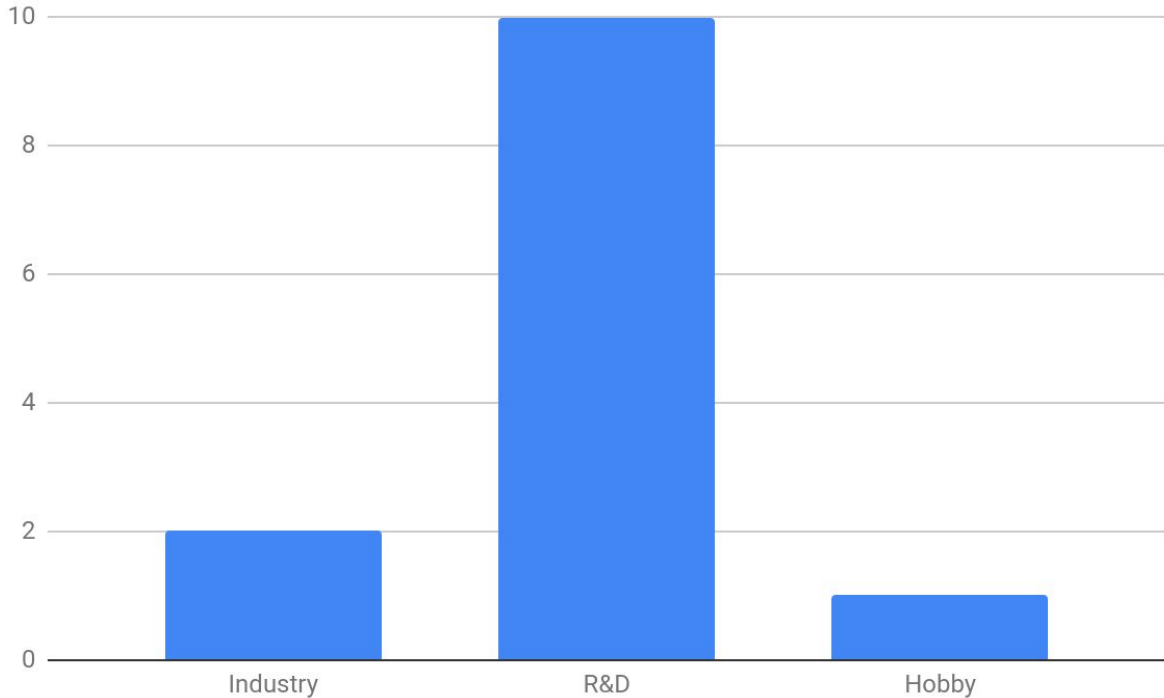
Which application are you developing with Autoware?

Bar chart showing counts by application category:
- Autonomous Valet...: 1
- Autonomous Driving: 4
- Simulator, PoC AD...: 2
- OpenSource Coope...: 1
- DELIVERY: 1
- Providing Manycor...: 1
- Sensing: 1
- sensor fusion: 1
- NA: 1
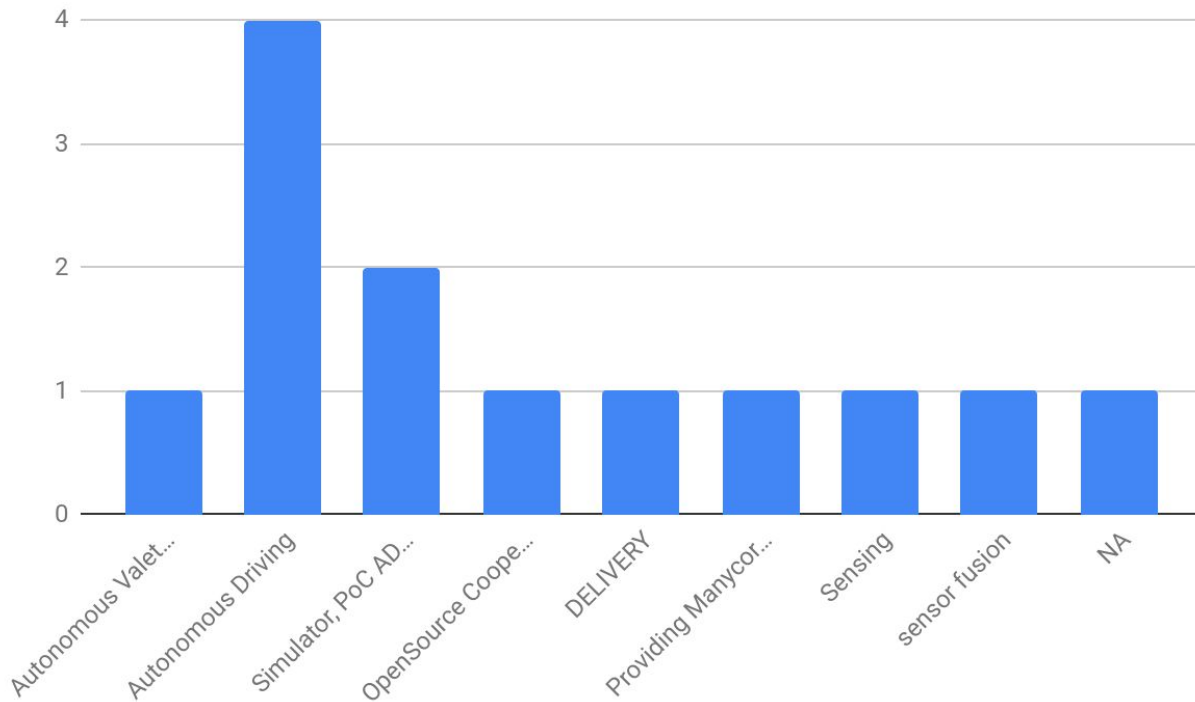
Which Autoware package do you most use (list top 5 as pkg1, pkg2, ...)?

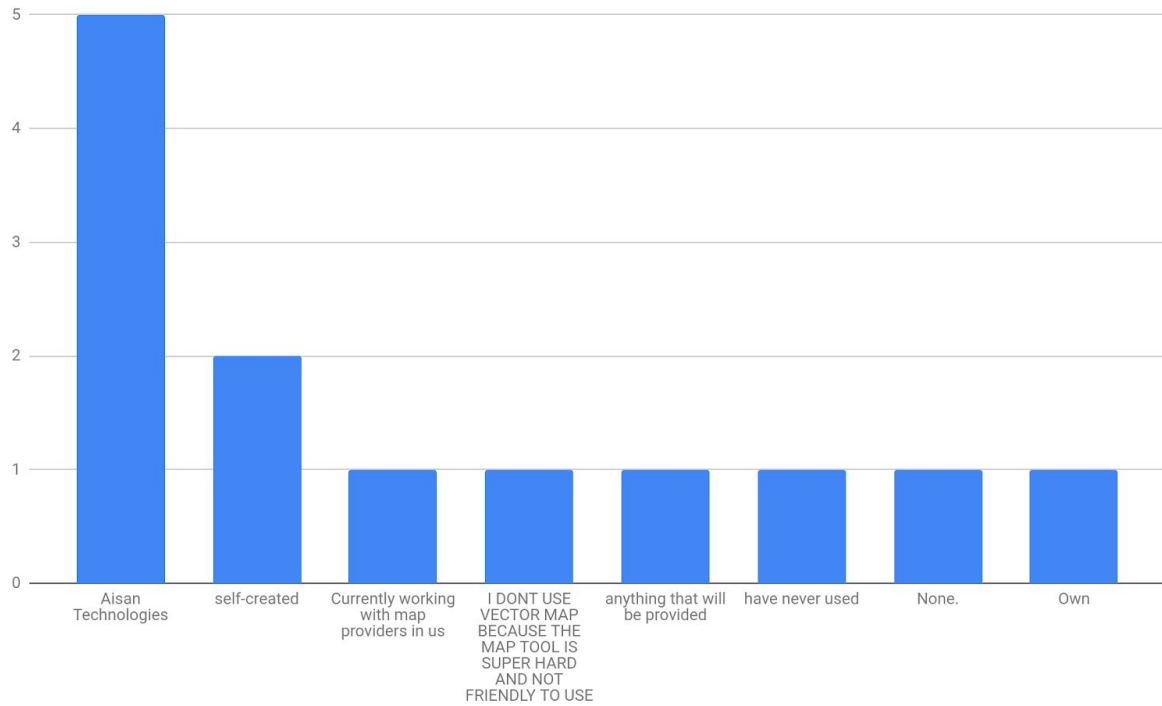| |
|---|
| ndt_matching |
| ndt_matching, waypoint_following |
| All packages |
| ndt_matching, Camera fusion (YOLO3), Lidar point filters/clusters, pure_pursuit |
| astar planner, ndt_matching, object detection, lane planner, motion planner |
| ndt_matching, pure_pursuit, waypoint_following |
| All packages |
| Perception: Camera detection & lidar detection |
| ndt_matching, yolo3, autoware_camera_lidar_calibration, euclidean_clustering, range_vision_fusion |
| autoware_camera_lidar_calibration |
| At this stage, the build system |
| ndt_matching, gmsl, vlp16, waypoint_following, astarplanner |
| points_downsampler, ndt_matching, waypoint_following |

Which is your most needed feature that does not exist yet?

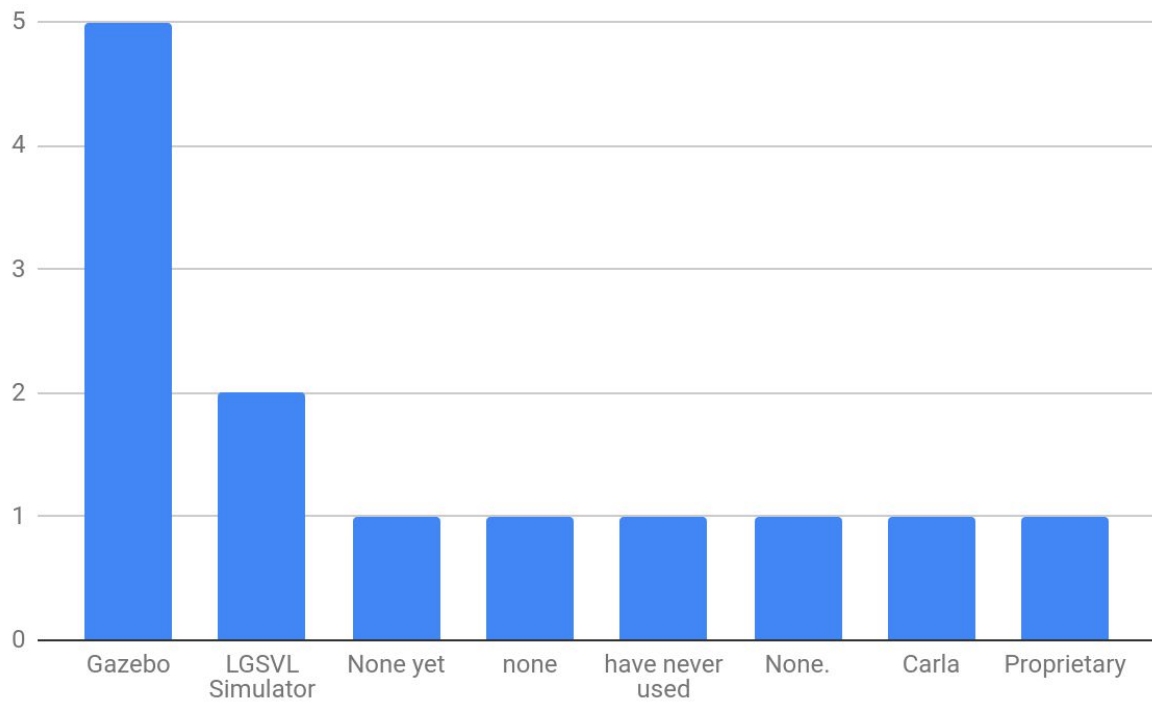| |
|---|
| tests |
| dynamic route planning |
| Collision avoidance, lane change |
| Localization that works at high speeds and in areas with sparse features (eg GPS/NDT fusion) |
| vector maps |
| DIFFERENTIAL DRIVE MODEL OTHER THAN JUST CAR LIKE MODEL |
| Collision avoidance, lane change |
| Investigating the platform before answering |
| lidar-only detection and tracking that doesn't have too many requirements/assumptions |
| control module |
| None |
| Moving Object Tracking |
| world model |

What convinced you to use Autoware?

| |
|---|
| shinpei |
| easily available and free to use |
| open source model |
| Open Source and active community |
| curiosity |
| COMMUNITY |
| open source model |
| Open Source and Eco-system |
| being a student in nagoya university |
| calibration tool kit |
| The fact it is an open source stack |
| Its based on ROS and easy to start. |
| Ease of use, availability, open source |

Which AD map do you use in Autoware?

Bar chart showing responses:
- Aisan Technologies: 5
- self-created: 2
- Currently working with map providers in us: 1
- I DONT USE VECTOR MAP BECAUSE THE MAP TOOL IS SUPER HARD AND NOT FRIENDLY TO USE: 1
- anything that will be provided: 1
- have never used: 1
- None.: 1
- Own: 1

Which simulator do you use in Autoware?

Bar chart showing responses:
- Gazebo: 5
- LGSVL Simulator: 2
- None yet: 1
- none: 1
- have never used: 1
- None.: 1
- Carla: 1
- Proprietary: 1

Are you satisfied with the license (Apache 2) of Autoware?

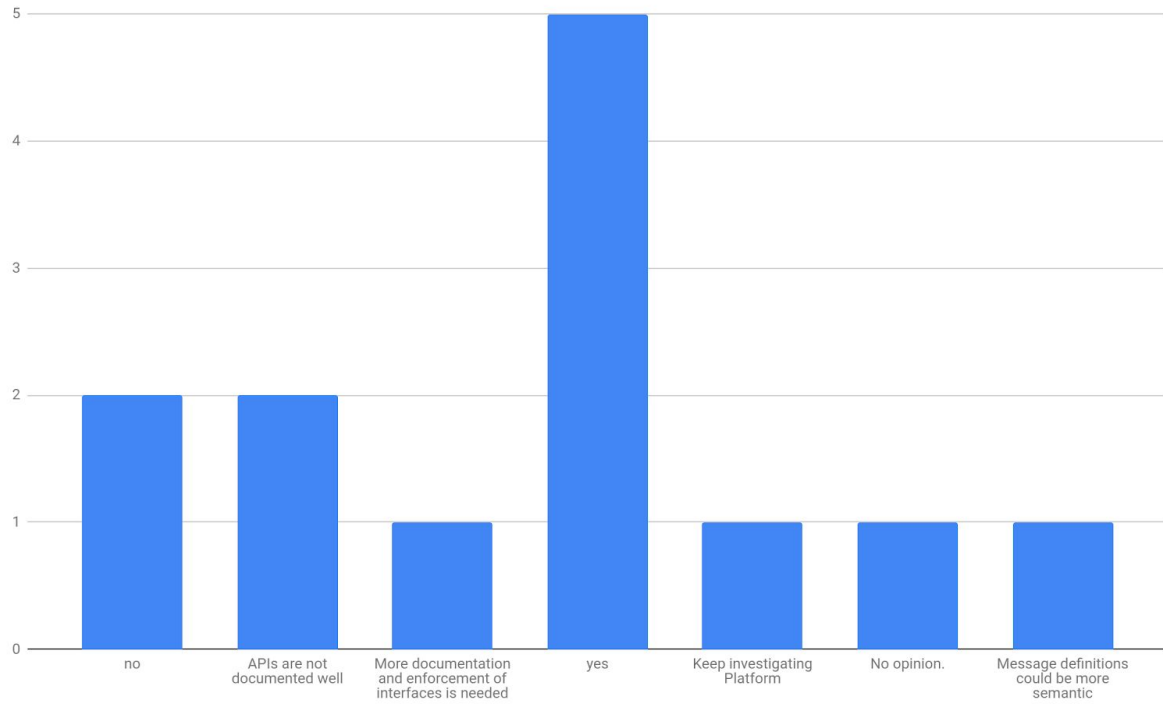Mostly ok, though I would prefer something simpler as BSD 3-Cl...
7.7%
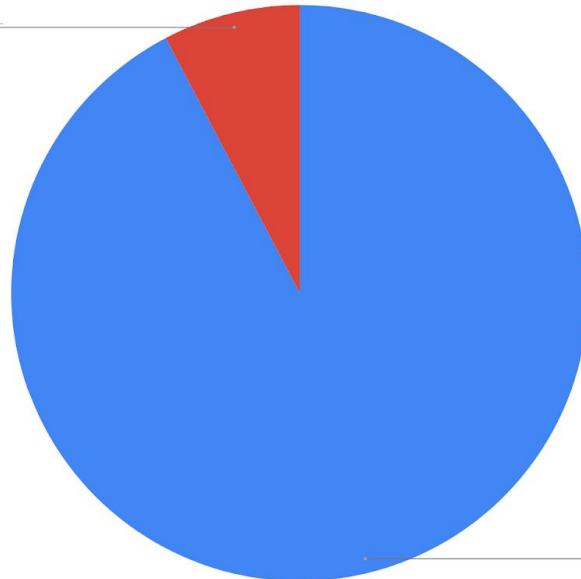
Yes
92.3%

What do you most like in Autoware?

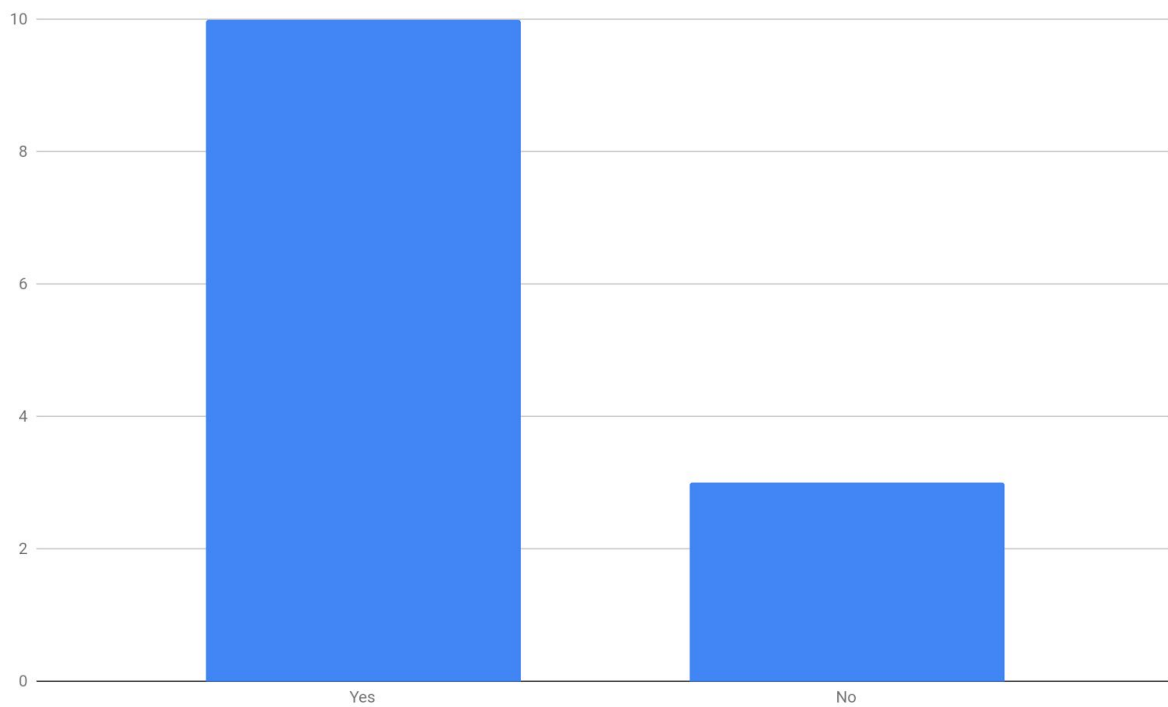| |
|---|
| community |
| Easy to use |
| All code is open, aligned with ROS / ROS2 |
| Open and active community |
| its ROS operated |
| PURE PURSUIT |
| All code is open, aligned with ROS / ROS2 |
| Flexibility |
| Plenty of useful functions, messages and tools |
| i dont know yet |
| The fact is open source |
| Acceptable performance |
| Full stack nature allowing isolated testing |

What do you most dislike about Autoware?

lack of tests
The code quality
Lack of documentation, HD map format, unused code
The long term plans and upcoming features are not mapped out in a way that is clear to users (this has been improving over the last few months)
errors
VECTOR MAP MAKING
Lack of documentation, HD map format, unused code
Many modules are not documented
THE GUI; the lack of documentation, the existing documentation being difficult to find; the seemingly difficult communication between different parties involved in various projects related to autoware; lack of clear direction with respect to when, or how, or who will solve glaring, outstanding issues with autoware (such as the GUI)
i don't know yet, neither
Lose development process, low-quality code accepted.
Missing advance technologies. Fusion method is not robust.
Strong dependencies, forcing use of to many components

Are you satisfied with Autoware APIs? If not, select Other and please explain?


no	2
APIs are not documented well	2
More documentation and enforcement of interfaces is needed	1
yes	5
Keep investigating Platform	1
No opinion.	1
Message definitions could be more semantic	1

Do you favor API stability over new features?

Yes	10
No	3

Are you satisfied with Autoware testing infrastructure? If not, select Other and please explain?

no
no
We don't use testing infrastructure.
Have not worked with the release testing process
they need improvement
yes
We don't use testing infrastructure.
Keep investigating Platform
testing infrastructure?
yes
I have not tried the new Testing Framework Servando has been working on. Apart from that, would be good to have some basic tools checking code style and doing more static analysis.
Not clear how to debug and test
yes

Are you satisfied with Autoware CI? If not, select Other and please explain?
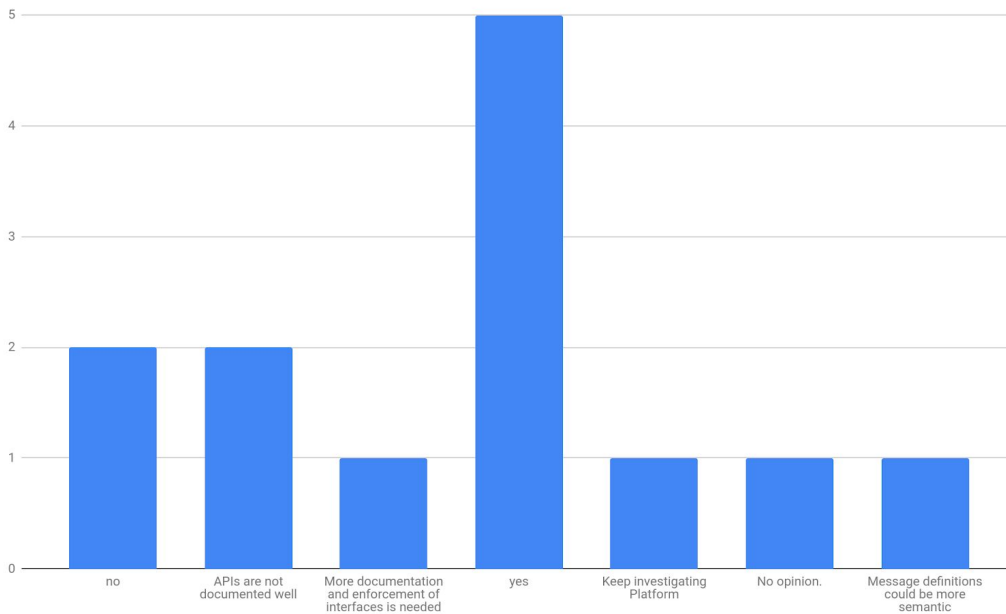
Are you satisfied with Autoware release process? If not, select Other and please explain?
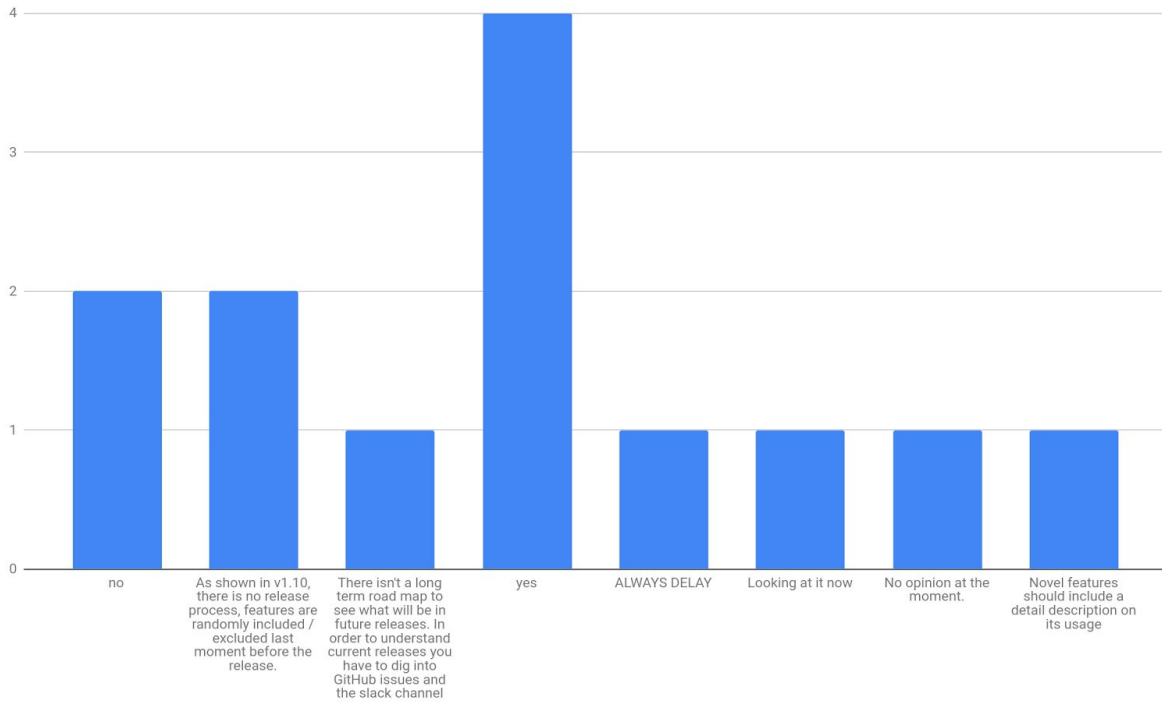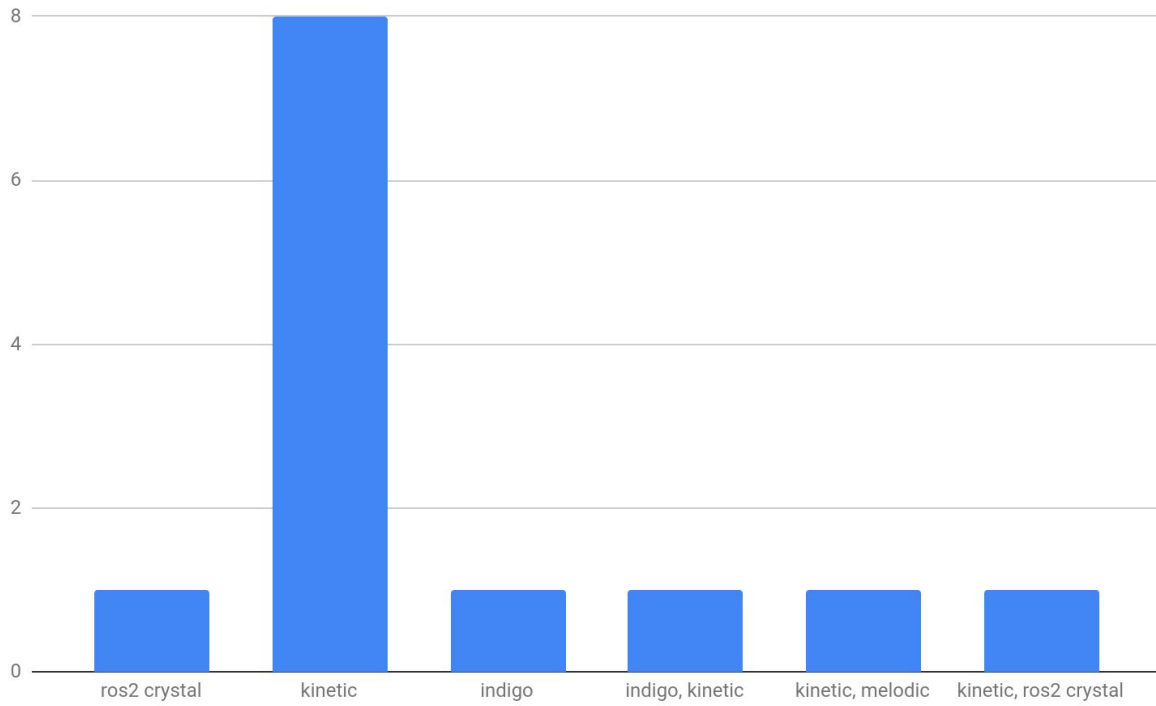

Do you want to continue building Autoware form src or want to use a pre-built version? If you want pre-built packages, for what platforms? (e.g. amd64, NVIDIA Drive PX2 + CUDA bits, generic aarch64, etc.)

| |
|---|
| amd64, NVIDIA AGX |
| generic aarch64, x86, drive px2 |
| Pre-built version is nice to have, amd64 |
| Still plan to build from source, but like the idea of having pre-built versions. Definitely want to keep using docker |
| building from src |
| NVIDIA JETSON TX2 |
| Pre-built version is nice to have, amd64 |
| Source |
| src |
| source is fine but I hope this one supporting ubuntu 18.04 |
| Mainly building from source. We do want to have containers with dependencies pre-built. |
| From source is okay, but better with prebuilt one in PX2 |
| amd64 |

Are you satisfied with Autoware documentation? If not, select Other and please explain?

| |
|---|
| no |
| no |
| Insufficient documentation for APIs and individual nodes / algorithms. And there is zero documentation for HD map. |
| There is very little documentation in source code, and the upper level documentation is not centralized. |
| some modules have no explanations |
| NO COMMENTS IN THE CODE AND NO DOCUMENTATION ABOUT NDT MATCHING AND PATH PLANNING ALONG WITH OTHER PACKAGES AS WELL |
| Insufficient documentation for APIs and individual nodes / algorithms. And there is zero documentation for HD map. |
| Many modules are not documented |
| There is barely any documentation. A rosrun command in a markdown file is NOT documentation. A one-minute, no sound video with "where to click on the 2016 GUI" is NOT documentation. Having to find said markdown file by navigating through folders is terrible. Why isn't there a table of contents with links to all packages on the front page of the github? For any substantial features (i.e. a tracking node) some kind of explanation of how this node works should be given, a little more than "UKF tracking" maybe, contributors are largely researchers, right? |
| If version upgrade, wiki also should be updated |
| There is lots of room for improvements. The main issues being the fact the docs are spread everywhere and in different formats (e.g. README, Github wiki, PDFs in other repos and even Youtube (where the steps for the demo is)). For someone starting, there is no much info on what to do after the demo. |
| No. Not in a step by step manner and not define well the parameters |
| Something like scikit-learn style would be better |

Which ROS distro do you use?.

Which ECU/Computer do you use (if other please list all ECUs as comma separated list)?
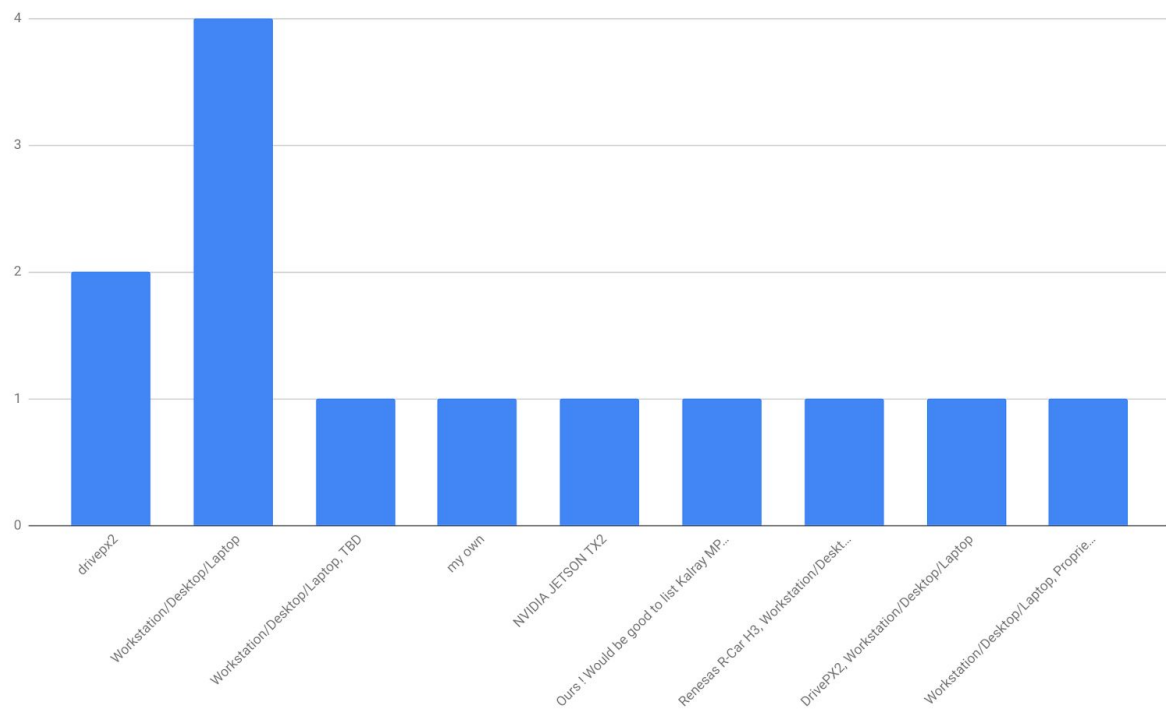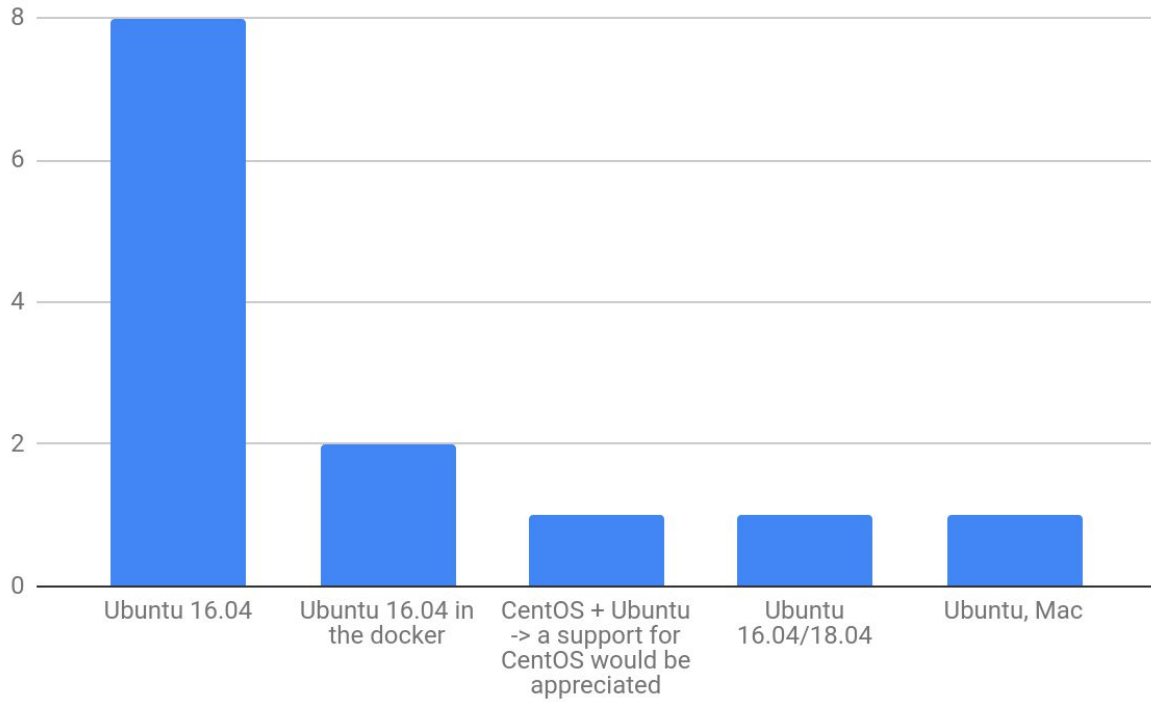
Which sensors do you use (if other please list all sensors as comma separated list)?
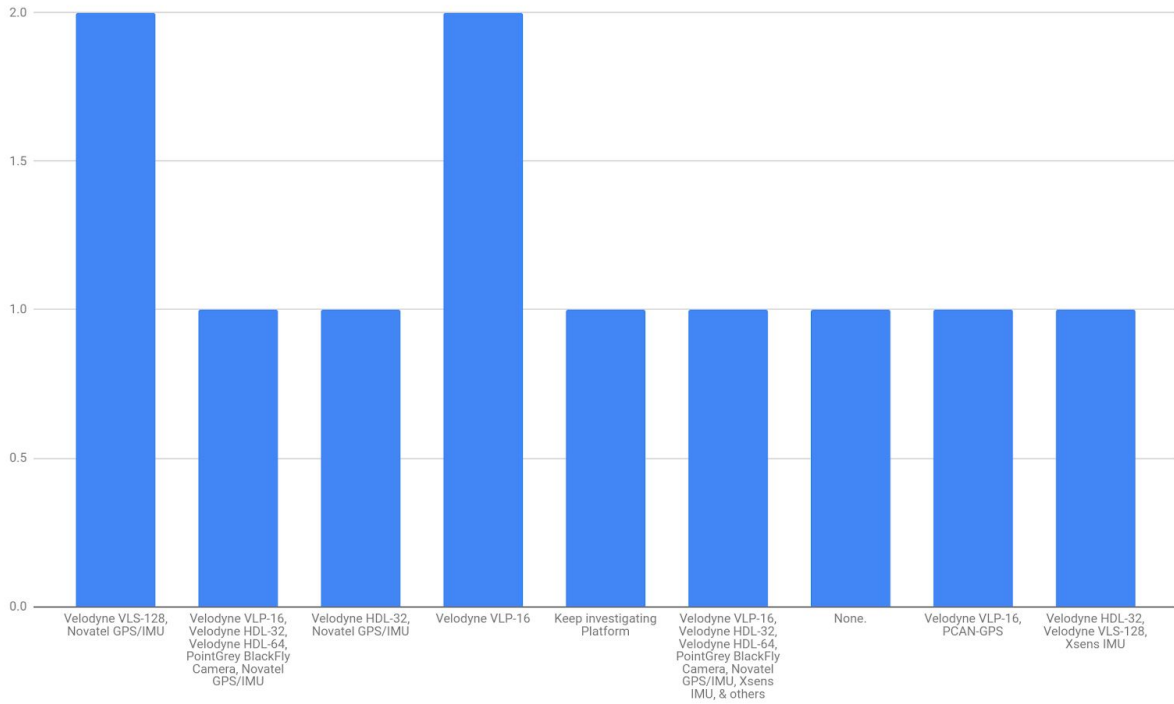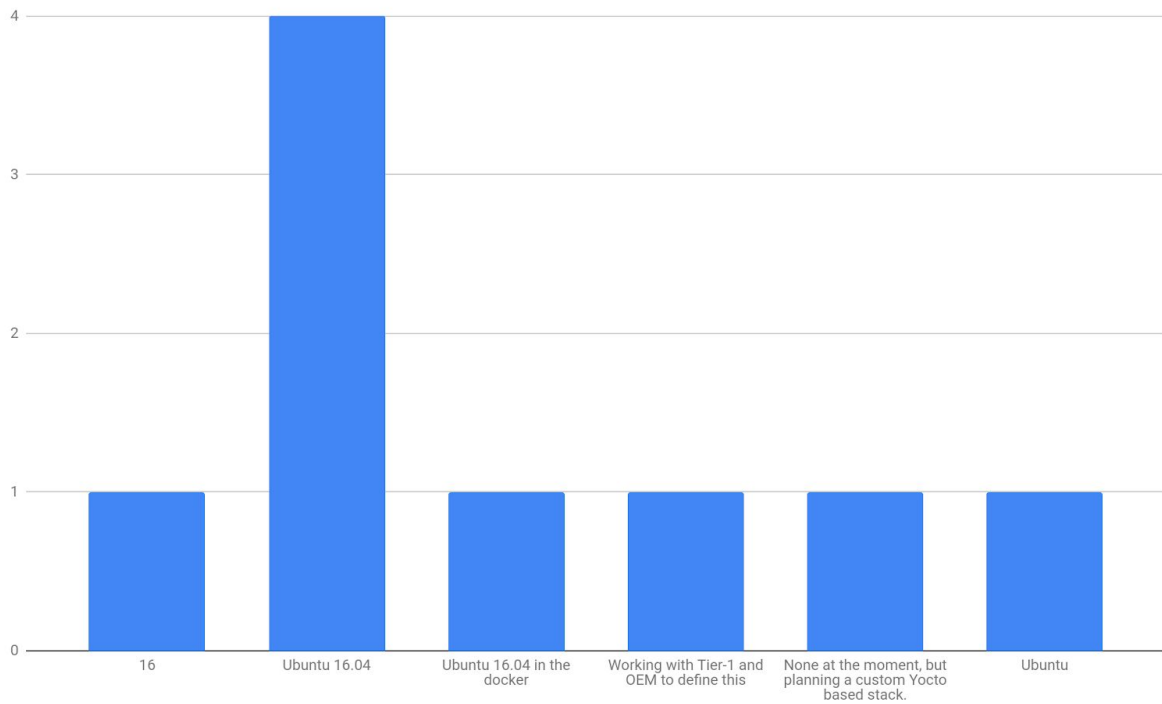

Which DBW Interface do you use (if other please list all DBWs as comma separated list)?
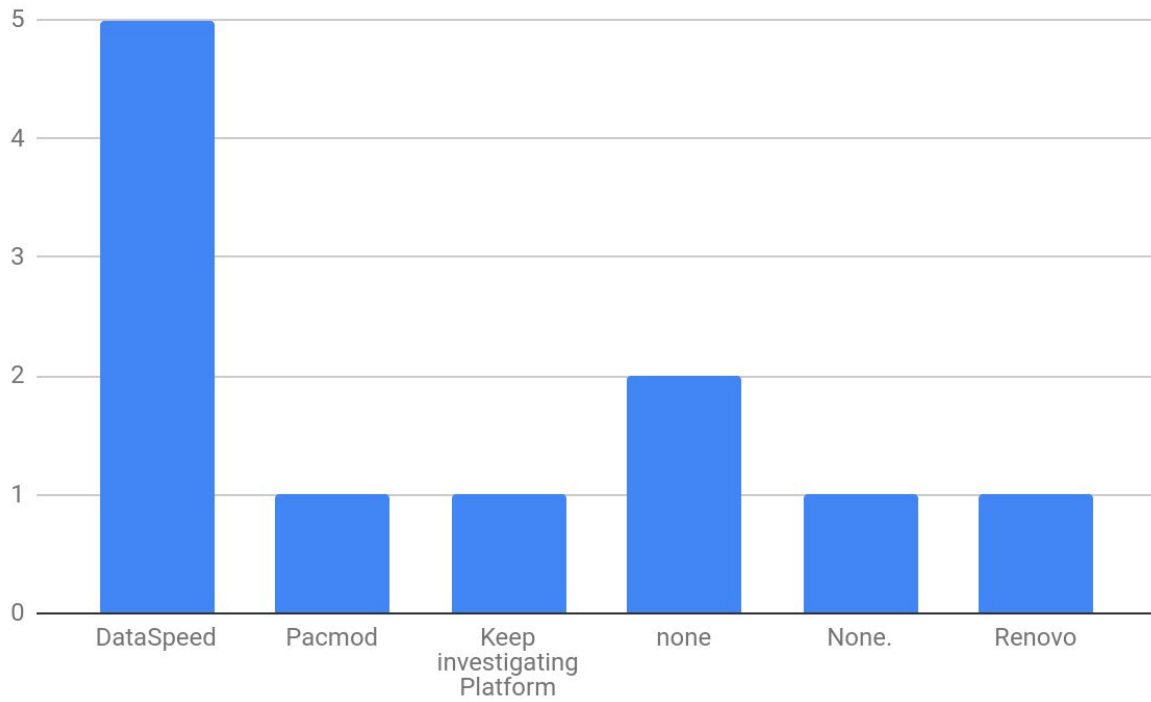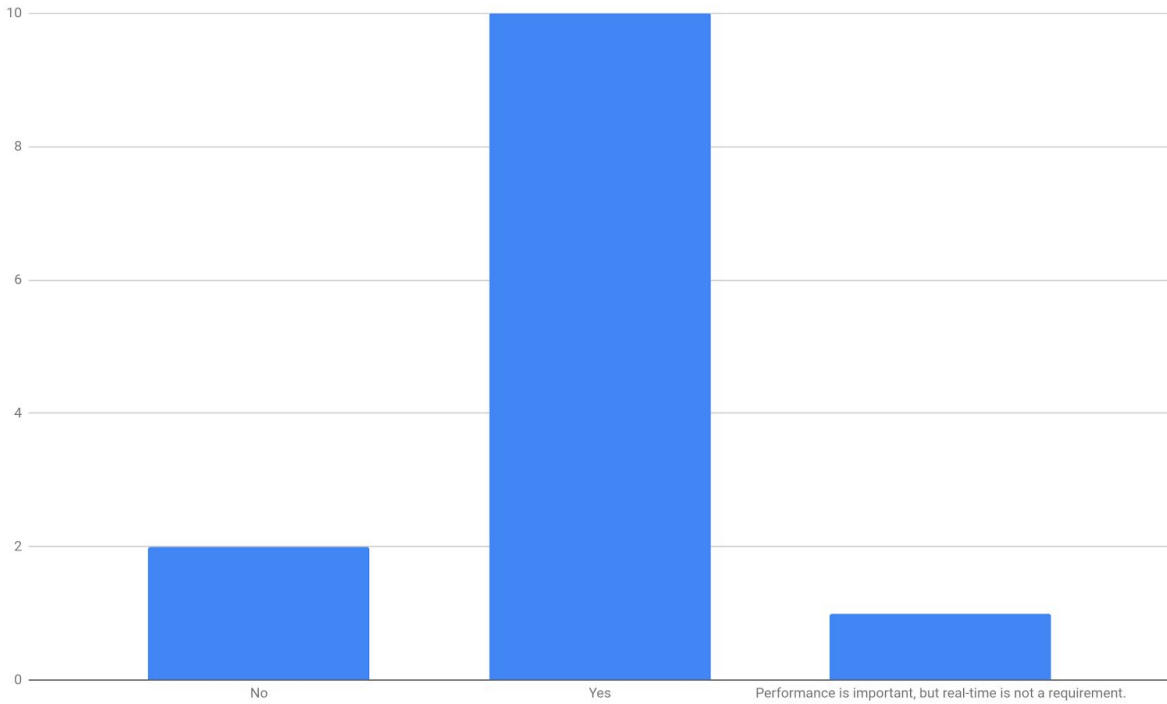
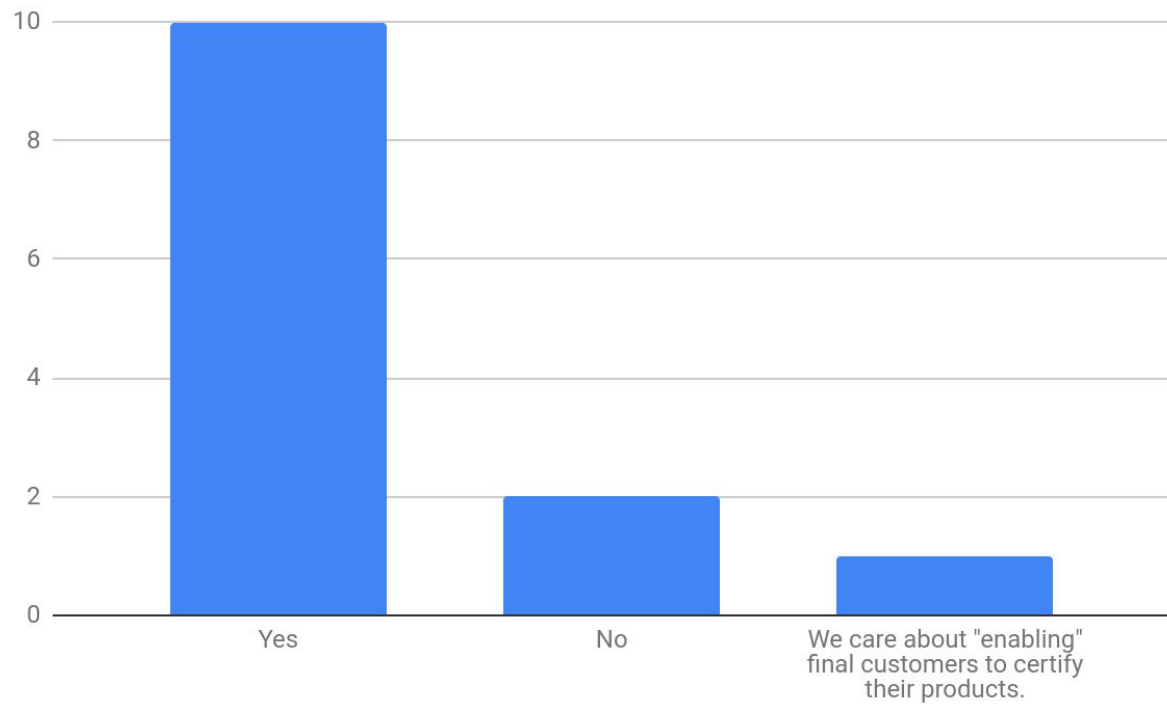**Which Linux distro (or other OS) do you use for development?**

Which Linux distro (or other OS) do you use for production (in the car)?

Do you care about real-time (static memory, pre-emptive constructs, logging to memory)?

| | No | Yes | Performance is important, but real-time is not a requirement. |

Do you care about safety certification (e.g. ISO 26262)?

| | Yes | No | We care about "enabling" final customers to certify their products. |

Do you have any other message for us?

have a nice day
Autoware on the whole has good collection of algorithms, but the code quality and the API interface should be improved
None this time.
Autoware is a great platform and moving in the right direction, but clearer development plans are needed and improved creation of and access to documentation.
this is a good platform, keep improving it
PLEASE DO A BETTER COMMENTING AND DOCUMENTATION, THX FOR ALL YOUR HARD WORK
None this time.
Would be good to repeat this survey in few months when we (and I assume many others) will have more experience on Autoware more mature. thanks, great survey !
Thanks for all your hard work and I hope everyone can get the most out of this amazing project through better organization, communication, strict and well-defined coding standards and practices... As a researcher and Autoware developer I want to do more and I want to do better!
none
None.
Its better to have benchmarking with other open source autonomous driving SDK to see Autoware's pros and cons.
How will rapid prototyping with python fit into new Autoware