

A quick survey on coordinate system used in gnss_poser #3759

kminoda started this conversation in **General**



kminoda on Aug 22, 2023

Collaborator

edited ▾

Backgrounds

Some packages in Autoware convert between local coordinates and georeferenced coordinates (e.g. `gnss_poser`, `lanelet2_map_loader`, `default_ad_api`). I am now in charge of unifying this projection types definition into a single file -- `map_projector_info.yaml` loaded in `map_projection_loader`.

One issue I am facing in executing this refactoring is that, `gnss_poser` supports too many coordinate system types, increasing the cost of system modification. Currently, as of 2023/08/22, [supported projection types](#) are

- plane (which is a specific projection type defined within Japan)
- UTM (Universal Transverse Mercator)
- MGRS (Mainly supported by TIER IV Web.Auto products)
- local cartesian UTM
- local cartesian WGS84

Among these, we confirmed that MGRS and local cartesian UTM are used frequently in Autoware Foundation members, but haven't confirmed yet for the plane, UTM, and local cartesian WGS84.

Proposal

That being said, **we are now considering removing these three projection types (plane, UTM, and local cartesian WGS84) from `gnss_poser`**. Not only will it increase the efficiency of the transitioning cost for a better system, it should also enhance the usability of Autoware with minimal API. (Also, UTM may be harmful for Autoware, since it could potentially provide the system with a large position value that may exceed the limit of float. Some part of Autoware currently handles positions in float, and thus this may cause serious issues)

Survey

Does anyone use any of the following coordinate system in `gnss_poser`?

- UTM (`coordinate_sytem=0`)

Category



General

Labels

component:localiza...

component:sensing

component:map

2 participants



- plane (coordinate_system=2)
- local cartesian WGS84 (coordinate_system=3)

If so, please let us know

- which coordinate system you are using
- which projector type you are using for `lanelet2_map_loader`

We will wait for several days - a week or so for your answer. If no concerns are raised, we will proceed in executing the above proposal.

We are also glad if you could put some reactions to this post if you are OK with this proposed modification. Thank you in advance.

↑ 4

👍 4

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kminoda on Aug 22, 2023

Collaborator

Author

I also posted this link in Discord channel:

<https://discord.com/channels/953808765935816715/953875979347046450/1143691581614993468>

↑ 1

0 replies



kminoda on Aug 27, 2023

Collaborator

Author

Since we haven't received any comment regarding the above topic, we are going to stop supporting the above coordinate system in gnss_poser. Thank you for your understanding.

↑ 1

0 replies



TUMGEKA on Aug 30, 2023

Unfortunately, we saw the survey too late. For us it would be good if the option local cartesian WGS84 remains, this projection is also used for example by the CARLA simulator.

↑ 5

👁 1

6 replies



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TUMGEKA on Aug 30, 2023

Thanks you [@kminoda](#) !

- I work at the Institute of Automotive Engineering at the Technical University of Munich.
- We are using WGS84
- For the lanelet2_map_loader we are using `local` as projector type.

Basically we are running CARLA with the newest Autoware. Here you can find an example map: <https://bitbucket.org/carla-simulator/carla-content/src/master/Maps/OpenDrive/Town01.xodr>



kminoda on Aug 30, 2023

Collaborator

Author

edited ▼

@TUMGEKA Thank you for the clarification. Understood!

How did you create the lanelet2 map? Is it from Vector Map Builder from TIER IV, or something else? (Seems like the map you've shared is in the different format, but did you convert that into osm somehow?) Also, if possible, could you provide the exact lanelet2 map file that you are using right now? (If multiple exist, just one of them should suffice) I would like to investigate in depth whether you can load it with any other projector type



TUMGEKA on Sep 7, 2023

Hello @kminoda I have texted you on discord



kminoda on Sep 7, 2023

Collaborator

Author

@TUMGEKA Sorry I couldn't recognize any messages. Could you double check? My ID is kojiminodatieriv.



TUMGEKA on Sep 9, 2023

@kminoda I have texted you again. Did you receive anything?