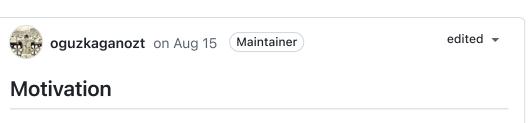# Integrating rosbridge and WebRTC for Optimal Teleoperation and Data Streaming #5099

oguzkaganozt started this conversation in **Design**

oguzkaganozt   on Aug 15   Maintainer   edited ⌄

Motivation

There is currently no efficient or optimal solution within the Autoware project for integrating remote teleoperation and real-time data streaming using web technologies. By combining **rosbridge** with **WebRTC**, we aim to fill this gap, enabling real-time monitoring, control, and data visualization from a web interface. This integration will enhance the user experience and operational capabilities of the Autoware system

Related Discussions

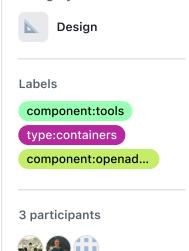- https://github.com/orgs/autowarefoundation/discussions/2742
- https://github.com/orgs/autowarefoundation/discussions/2545
- ⅄ **feat(tier4_autoware_api_launch): add rosbridge** autoware.universe#779
- https://github.com/orgs/autowarefoundation/discussions/2664

Possible Approach

- Utilize Robot WEB Tools for integrating websockets support
- Use websockets for control and signaling support for data streaming
- Use WebRTC for real-time streaming
- Utilize rosbridge server as server
- Provide a complete docker image solution

Sources and Reference projects

- https://github.com/RobotWebTools/rosbridge_suite
- https://github.com/foxglove/ros-foxglove-bridge
- https://github.com/pgaston/teleopros2
- https://github.com/abizovnuralem/go2_ros2_sdk
- https://github.com/jdgalviss/jetbot-ros2/tree/main
- https://github.com/introlab/opentera-webrtc &
  https://github.com/introlab/opentera-webrtc-ros
- https://github.com/v-kiniv/rws

Category

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Labels

component:tools
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component:openad...

3 participants

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mitsudome-r on Aug 15 Maintainer

FYI: there were similar discussion made in the past.
https://github.com/orgs/autowarefoundation/discussions/2742

↑ 1   **1 reply**

mitsudome-r on Aug 15 Maintainer

Here's the link to the techblog by TIER IV
https://tech.tier4.jp/entry/2019/01/22/170032. It's a bit old and it's in Japanese though.

evshary on Aug 15 Collaborator

For what it is worth, perhaps I can share how we use Zenoh to achieve similar results.
We created a Fleet Management System prototype for Autoware before with the help of Zenoh.
https://github.com/orgs/autowarefoundation/discussions/4780
In short, we use zenoh-bridge-ros2dds to forward data to another side and then receive the data with a webserver. The server can manage multiple Autoware at the same time.

Let me know if you have any question or want to know more detail.

↑ 1   **0 replies**