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Lecture 4

Video 4 : Tutorial on Publishers in ROS2 | Webots ROS2 Tutorials |[Tutorial 4]

Video ini membahas integrasi antara ROS 2 dan simulasi robot menggunakan Webots. Di video ini memperlihatkan bagaimana mengintegrasikan ROS 2 ke dalam lingkungan simulasi Webots, serta bagaimana mengendalikan robot dalam simulasi tersebut menggunakan ROS 2 Publisher. Pada contoh kita menggunakan robot e-puck, yang Dimana e-puck memiliki nilai x,y dan z sebagai motor penggeraksnya
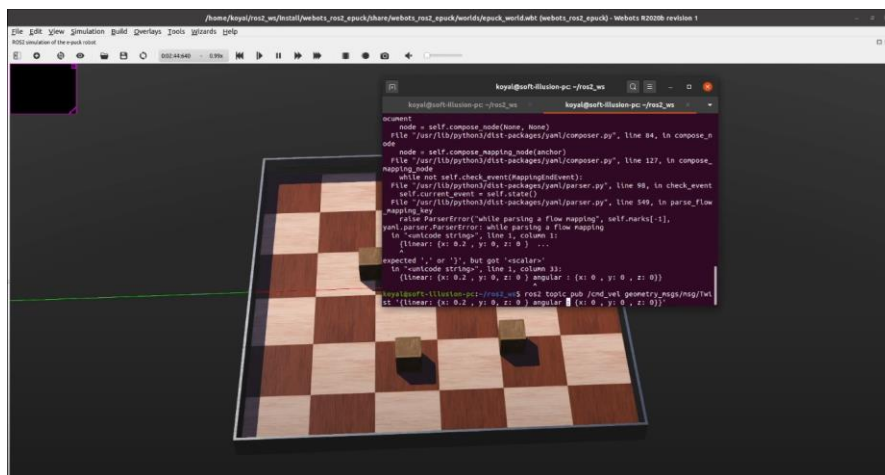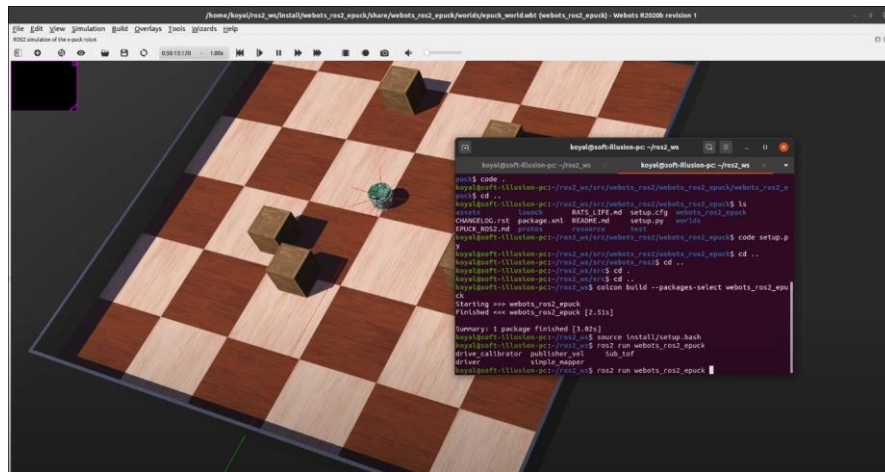

Disini dijelakan pula perbedaan antara publisher pada ROS2 dan Publisher pada ROS

ROS Publisher	VS	ROS 2 Publisher
The duration and time types are defined in the client libraries, they are in C++ and Python.		In ROS2 these types are defined as messages and therefore are consistent across languages.
Nodes cannot survive without roscore.		Nodes can survive without roscore. As it is end to end connection.
ROS uses a centralised discovery.(Single point of failure)		ROS 2 is fully distributed including discovery.
ROS uses message definition and serialization.(DSS-RPC)		ROS2 is DDS vendor independent. (e.g default FastRTPS can be changed)
ROS can not fulfill real-time requirements so ROS is not mostly used in production scenario.		We can get Real-time system because of we can tweak DDS system configurations (QoS) according to the application.
ROS can only use old user-facing APIs (eg 0.4 "Mango Tango") which was released in 2009		ROS2 is build by considering latest API's.

Video 5 : Tutorial on Subscribers in ROS2 | Webots ROS2 Tutorials | [Tutorial 5]

Video ini masih membahas tentang integrrasi ROS 2 dengan simulasi robot menggunakan Webots. Di video ini menjelaskan bagaimana mengambil feedback dari robot dengan menggunakan ROS 2 Subscriber. Sebuah "subscriber" dalam ROS 2 adalah node (simpul) yang menerima pesan dari topik tertentu di dalam sistem ROS 2. Node atau simpul adalah entitas pemrosesan yang dapat mengirim dan menerima pesan antara satu sama lain. Subscriber digunakan untuk menerima pesan yang dipublikasikan oleh "publisher" (penerbit) ke topik yang sama di dalam jaringan ROS 2.

Disini dijelakan pula perbedaan antara subscriber pada ROS2 dan Subscriber pada ROS

ROS Subscriber	ROS 2 Subscriber
ROS 1 uses TCP as the underlying transport, which is unsuitable for lossy networks such as wireless links.	With ROS 2 relying on DDS which uses UDP as its transport, we can give control over the level of reliability a node can expect and act accordingly.
No option of setting QoS policy.	We can set policy like history : [keep last , keep all]
It does not allow nodes to be restarted online.	It will also allow nodes to be restarted or replaced on-line.
ROS offers a message passing interface that provides inter-process communication and is commonly referred to as a middleware.	ROS2 uses a DDS (Data Distribution Service). The main advantage is transmission performances will be improved.