

Node Test: DatabasePublisher

Node test set up and prerequisites:

Rclcpp, geometry_msgs, colcon, gtest

Test1 : MecanumPositionCallback
Tester : Rik van Velzen
Date : 03/12/2025

Short description test:

Verifies that publish_mecanum_pos correctly handles incoming PositionData messages and logs the received position.

Input test:

- PositionData message: x=1.0, y=2.0, yaw_z=0.5

Expected result :

- Callback executes without crash
- Log contains “Position Data Received: x=1.00 m, y=2.00 m, yaw_z=0.50 rad”
- Database entry is added to mecanum positions

Result test:

- Test didn't crash and data is stored in the database

Test2 : MecanumPositionCallback
Tester : Rik van Velzen
Date : 03/12/2025

Short description test:

Verifies that publish_mecanum_pos correctly handles incoming PositionData messages and logs the received position.

Input test:

- PositionData message: x=1.0, y=2.0, yaw_z=0.5

Expected result :

- Callback executes without crash
- Log contains “Position Data Received: x=1.00 m, y=2.00 m, yaw_z=0.50 rad”
- Database entry is added to mecanum positions

Result test:

- Test didn't crash and data is stored in the database

Test3 : MecanumPositionCallback
Tester : Rik van Velzen
Date : 03/12/2025

Short description test:

Verifies that publish_mecanum_pos correctly handles incoming PositionData messages and logs the received position.

Input test:

- PositionData message: x=1.0, y=2.0, yaw_z=0.5

Expected result :

- Callback executes without crash
- Log contains "Position Data Received: x=1.00 m, y=2.00 m, yaw_z=0.50 rad"
- Database entry is added to mecanum positions

Result test:

- Test didn't crash and data is stored in the database

Test4 : MecanumPositionCallback

Tester : Rik van Velzen

Date : 03/12/2025

Short description test:

Verifies that publish_mecanum_pos correctly handles incoming PositionData messages and logs the received position.

Input test:

- PositionData message: x=1.0, y=2.0, yaw_z=0.5

Expected result :

- Callback executes without crash
- Log contains "Position Data Received: x=1.00 m, y=2.00 m, yaw_z=0.50 rad"
- Database entry is added to mecanum positions

Result test:

- Test didn't crash and data is stored in the database

Test5 : MecanumPositionCallback

Tester : Rik van Velzen

Date : 03/12/2025

Short description test:

Verifies that publish_mecanum_pos correctly handles incoming PositionData messages and logs the received position.

Input test:

- PositionData message: x=1.0, y=2.0, yaw_z=0.5

Expected result :

- Callback executes without crash
- Log contains "Position Data Received: x=1.00 m, y=2.00 m, yaw_z=0.50 rad"
- Database entry is added to mecanum positions

Result test:

- Test didn't crash and data is stored in the database

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rik@IdeaPad-5-Pro:~/rmb_ws$ ./build/g425_assign4_pkg/utest_database_publisher
[=====] Running 6 tests from 1 test suite.
[-----] Global test environment set-up.
[-----] 6 tests from DatabasePublisherTest
[RUN    ] DatabasePublisherTest.MecanumPositionCallback
Connecting to MariaDB at: localhost
connection succesful!
[INFO] [1764779353.035269532] [DatabasePublisher_node]: DatabasePublisher_node active.
[     OK ] DatabasePublisherTest.MecanumPositionCallback (19 ms)
[RUN    ] DatabasePublisherTest.MecanumVelocityCallback
Connecting to MariaDB at: localhost
connection succesful!
[INFO] [1764779353.044969487] [DatabasePublisher_node]: DatabasePublisher_node active.
[     OK ] DatabasePublisherTest.MecanumVelocityCallback (8 ms)
[RUN    ] DatabasePublisherTest.ImuSimPositionCallback
Connecting to MariaDB at: localhost
connection succesful!
[INFO] [1764779353.053905517] [DatabasePublisher_node]: DatabasePublisher_node active.
[     OK ] DatabasePublisherTest.ImusimPositionCallback (9 ms)
[RUN    ] DatabasePublisherTest.ImusimVelocityCallback
Connecting to MariaDB at: localhost
connection succesful!
[INFO] [1764779353.062497601] [DatabasePublisher_node]: DatabasePublisher_node active.
[     OK ] DatabasePublisherTest.ImusimVelocityCallback (8 ms)
[RUN    ] DatabasePublisherTest.ImusimAccelerationCallback
Connecting to MariaDB at: localhost
connection succesful!
[INFO] [1764779353.071174997] [DatabasePublisher_node]: DatabasePublisher_node active.
[     OK ] DatabasePublisherTest.ImusimAccelerationCallback (8 ms)
[RUN    ] DatabasePublisherTest.DatabaseIntegration
Connecting to MariaDB at: localhost
connection succesful!
[INFO] [1764779353.079395152] [DatabasePublisher_node]: DatabasePublisher_node active.
[INFO] [1764779354.085097279] [DatabasePublisher_node]: Position Data Received: x=1.00 m, y=2.00 m, yaw_z=0.10 rad
[INFO] [1764779354.088258834] [DatabasePublisher_node]: Velocity Data Received: wfl=1.00, wfr=1.00, wrl=1.00, wrs=1.00
[INFO] [1764779354.091022451] [DatabasePublisher_node]: Position Data Received: x=1.00 m, y=2.00 m, yaw_z=0.10 rad
[INFO] [1764779354.094117138] [DatabasePublisher_node]: Velocity Data Received: x=0.50 m, y=0.50 m, yaw_z=0.05 rad
[INFO] [1764779354.096908608] [DatabasePublisher_node]: Acceleration Data Received: x=0.50 m, y=0.50 m, yaw_z=0.05 rad
[     OK ] DatabasePublisherTest.DatabaseIntegration (1024 ms)
[-----] 6 tests from DatabasePublisherTest (1078 ms total)

[-----] Global test environment tear-down
[=====] 6 tests from 1 test suite ran. (1078 ms total)
[PASSED ] 6 tests.
```