

Supplementary Files

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Supplementary Files

The supplementary materials include three ROS2 bag files collected during early Model Predictive Control (MPC) trials. Each file contains time-synchronized data from the depth camera, IMU, wheel encoders, odometry, and controller output topics.

- **Trial 1:** `MPC_1.bag` — baseline experiment with the initial MPC parameters.
- **Trial 2:** `MPC_2.bag` — repeated run with modified cost weights and prediction horizon.
- **Trial 3:** `MPC_3.bag` — experiment under external disturbance and dynamic conditions.

These datasets are available in the supplementary Google Drive folder at the following link: [Google Drive \(MPC Trials Dataset\)](#).

The folder also contains a brief `plot.py` file that can help is plotting the robot position over time.

All topic list, and nodes can be accessed by replaying the bags using `ros2 bag play`. All files are provided to support reproducibility and further analysis.