Distributed Model Predictive Control

Peter Paul peter.paul@tuhh.de

Hamburg University of Technology Institute of Control Systems

Bachelorarbeit January 26, 2021





Motivation 1

- 7 agents (double integrators)
- Potential functions
- local controllers
- input constraints
- two ellipsoidal obstacles
- Same initial and final position
- Safety distance between agents

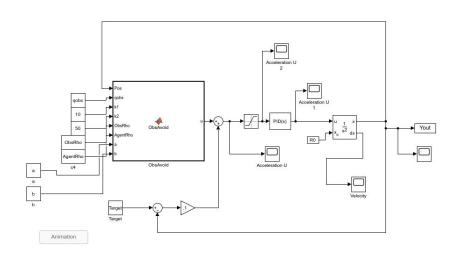
Contents

- Nonpredictive Scenario
- What I want to do
- Conclusion and Outlook

Nonpredictive Scenario

- 7 agents (double integrators)
- Potential functions
- local controllers
- input constraints
- two ellipsoidal obstacles
- Same initial and final position
- Safety distance between agents

Nonpredictive Scenario (by AT) - Simulink



What I want to do

- Continue reading and filling the table
- Think about how to include consensus? (Flocking, or other ideas?!) EiHoWe13d, EIAh07
- if using a "global" costfunction, how to cope with iterations, are they avoidable to some extent?

Conclusion

- Continue reading and filling the table
- Think about how to include consensus? (Flocking, or other ideas?!)
- if using a "global" costfunction, how to cope with iterations, are they avoidable to some extent?

Outlook

- Continue reading and filling the table
- Think about how to include consensus? (Flocking, or other ideas?!)
- if using a "global" costfunction, how to cope with iterations, are they avoidable to some extent?

The End

Thank you very much for your attention!

Appendix

Here is space for further frames