Learning SyRoTek

A collaboration between Czech Tech and Drexel

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Why are we here?

- Online HUBO
  - Our lab, Drexel Autonomous Systems Lab
  - Regli’s Lab, Applied Comm. And Info. Networking

- We are developing a system that will allow universities without a HUBO to test their ideas in a safe and secure environment.

- You have done this already!
What will we do?

- Learn about SyRoTek by using it
  - Implement SND Navigation algorithm using ROS
  - Document code, procedures and ideas for improvement

- For Online HUBO
  - Record great ideas from SyRoTek
  - Understand high-level system structure
  - Learn about the problems faced when developing SyRoTek
Smooth Nearness-Diagram (SND)
J.W. Durham, F. Bullo

- Provides a smooth trajectory through obstacle laden environments
- Simplified version of other Nearness-Diagram methods

Navigation
- Gap-based
- Uses laser range data to detect traversable path
- Global planner points robot towards goal
- Local planner deflects from obstacles

Implementation
- MATLAB and Webots Simulator
Smooth Nearness-Diagram (SND)

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## Schedule

### Week 1 - Completed
- SND simulation
- SyRoTek Online Courses
- ROS communication with SyRoTek established

### Week 2
- Adapt SND code for ROS/SyRoTek [3/26 - 27]

### Week 3
- Presentation – Status Update [4/02 – 05]
- Document SyRoTek structure and work done [4/02 – 05]

### Final Presentation [4/5]