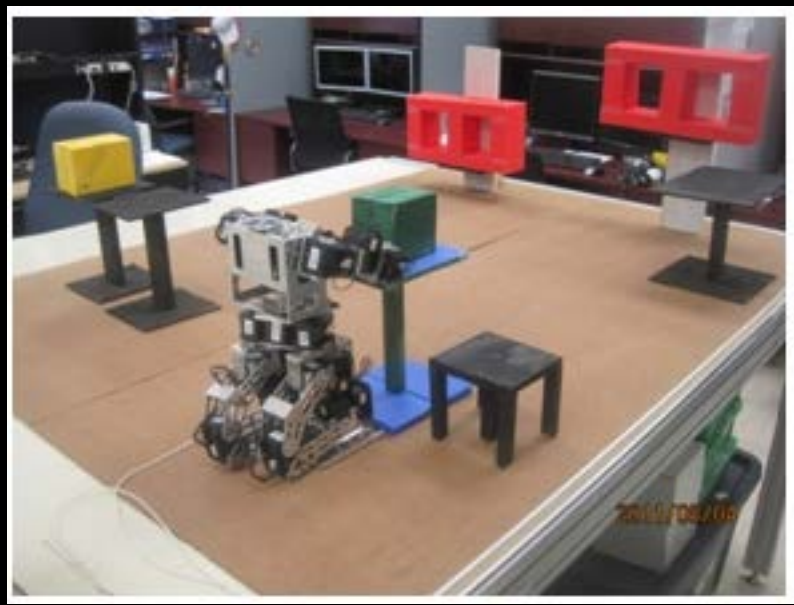
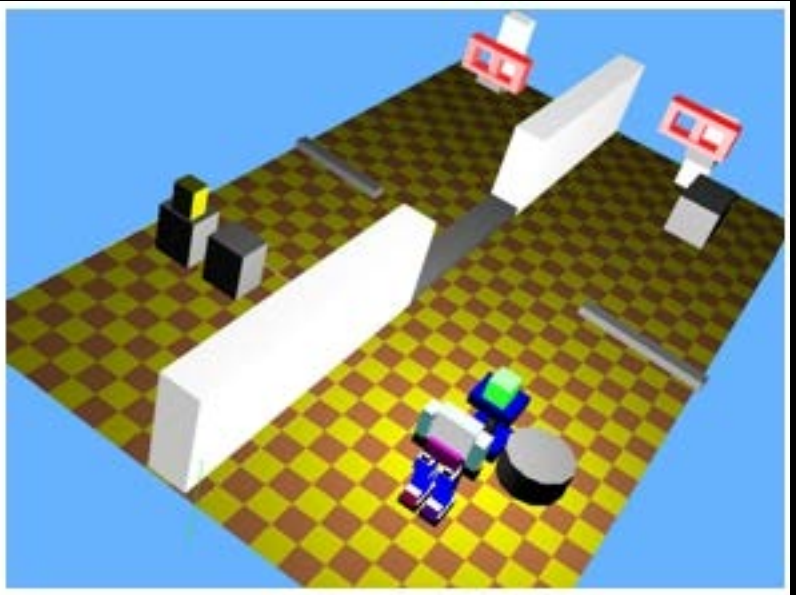
Humanoid Manipulation Challenge

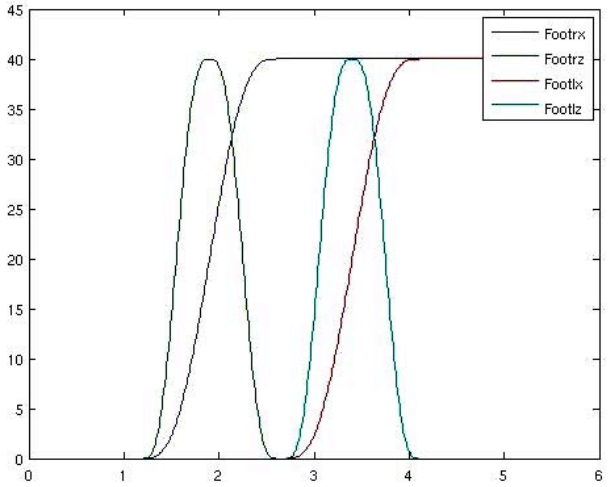


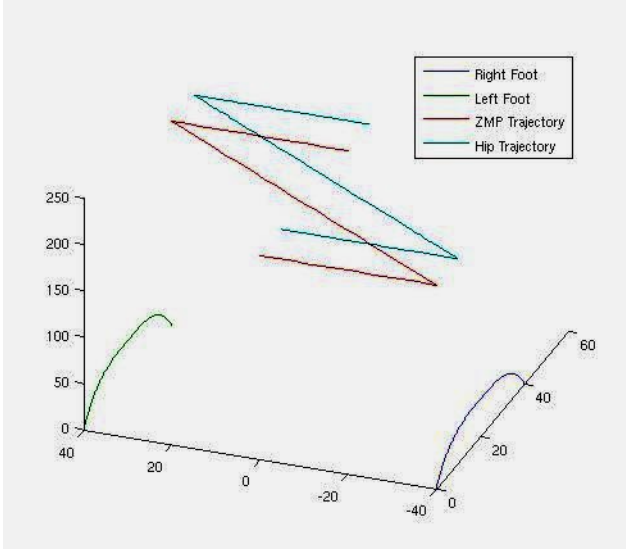


Team DASL: Sean Mason, Duc Nguyen, and Alex Alspach

Create A Stable Walking Trajectory

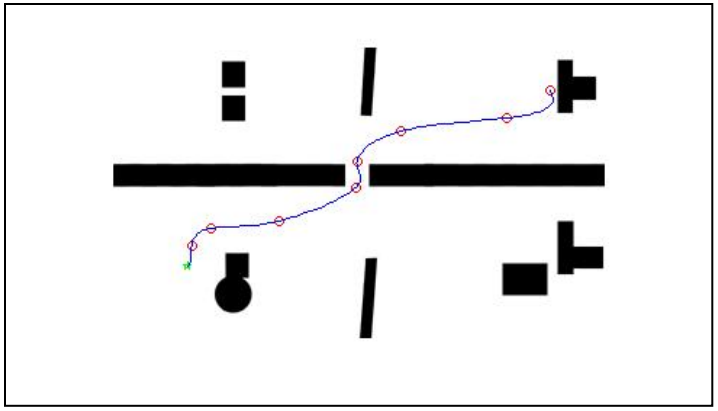
- Define Foot Trajectory
- Define ZMP (SSP timing and DSP)
- Define Hip Trajectory (ZMP Preview)
- Calculate Joint Angles Using IK Solver

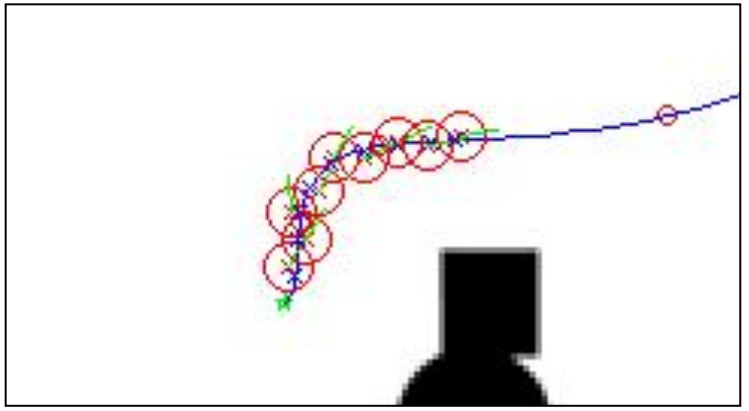




Path Generation and Walking

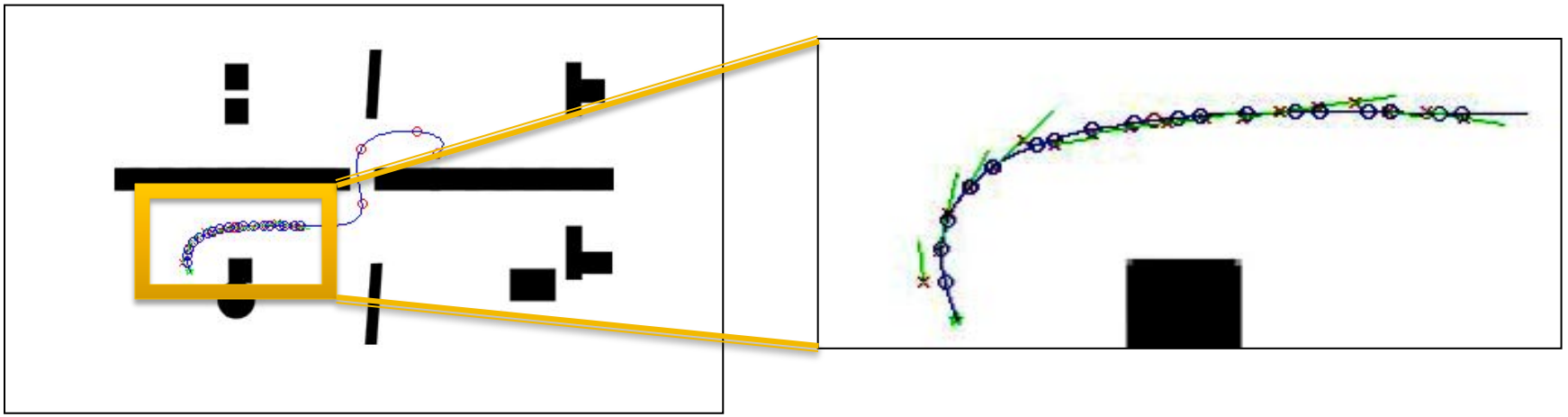
- Create a Dense / Smooth Path
  - Spline Interpolation of Way-Points
- "Search" for Step Position
- Calculate Change in Orientation





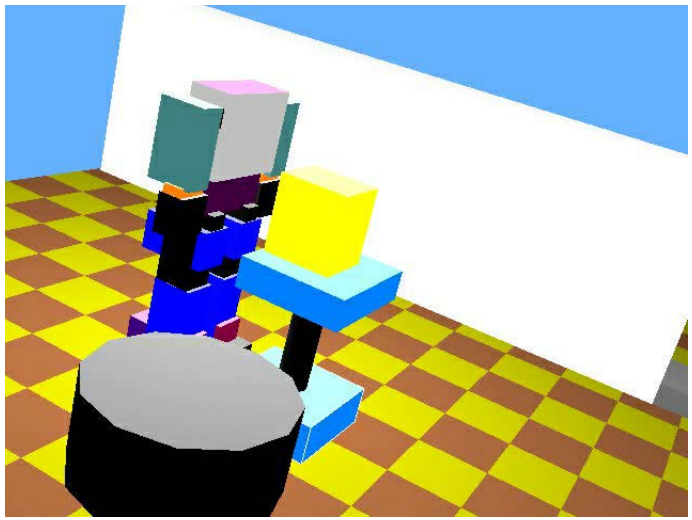
Sensor Feedback

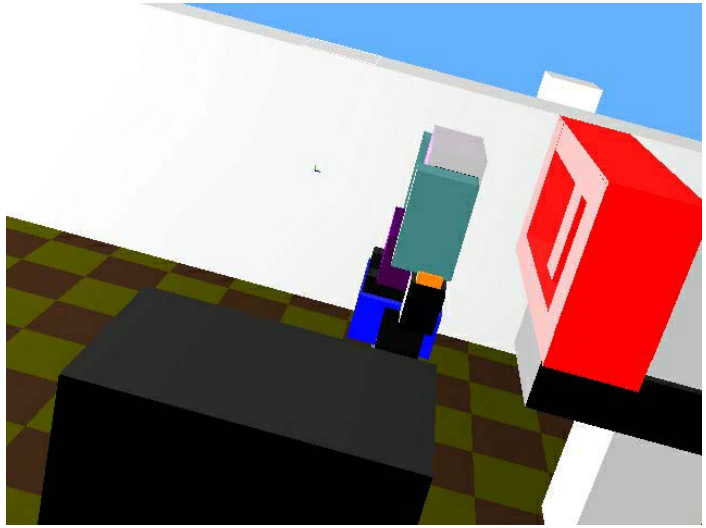
- Position Feedback Using GPS sensor
- Orientation Feedback Using Gyro sensor
- Information Passed to a General Step Trajectory
- Walking Controller Mimics that of a UGV



Manipulation Tasks

- Goal Reached
- Know Position and Orientation
- Open-loop playback of Manipulation Task Choreography





Thank you!