

Transplanting a Robotic Hockey Competition between Universities

Trinity's Engineering Science Degree

Trinity University is a small (~2400) private liberal arts & science university with a design-oriented multidisciplinary engineering degree

- ENGR Core (4)
- EE, ME, ChemE Fund (1-2 ea)
- ENGR Electives (4-5 classes) in one area
- Supporting Math/SCI (11)
- Eight required design courses
- Healthy dose (10) of liberal arts to support design

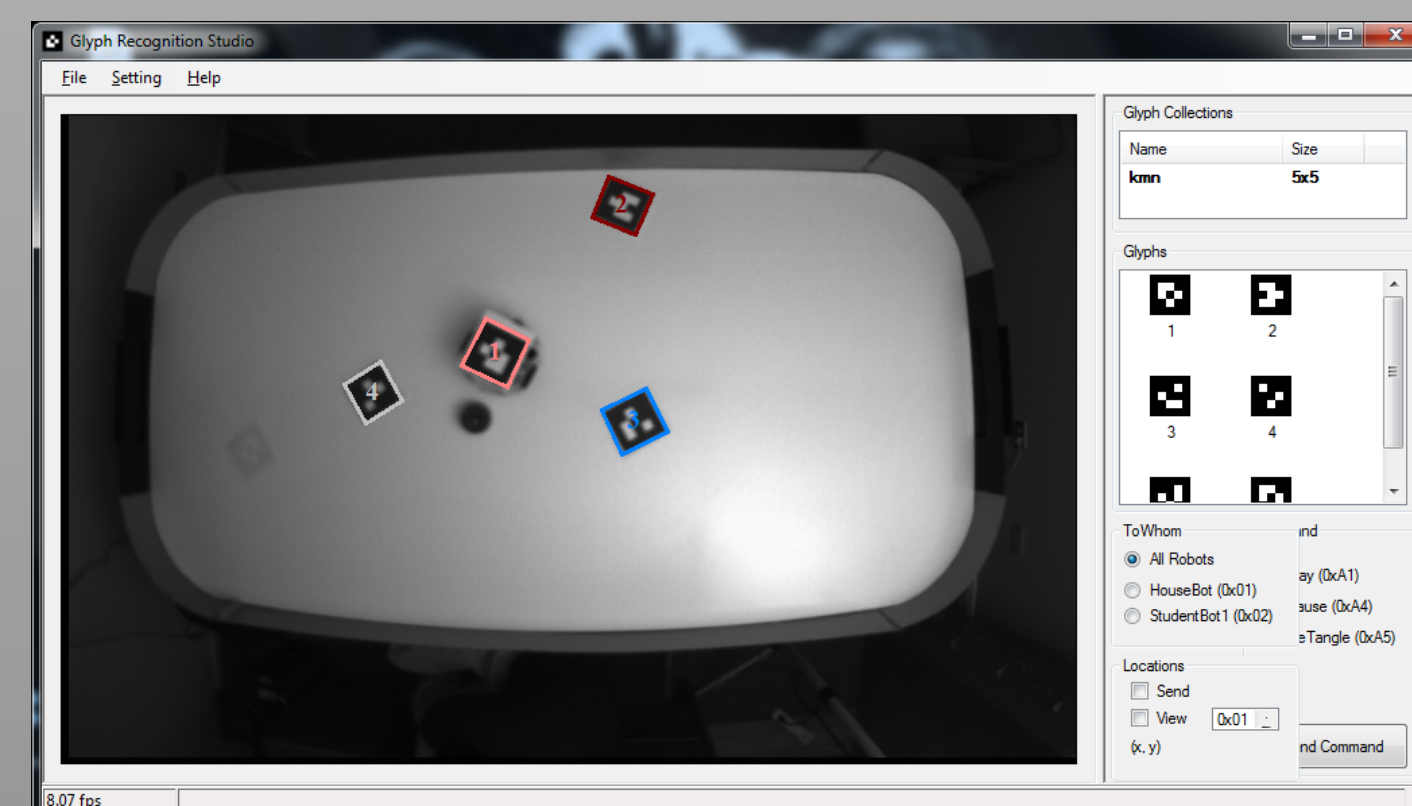
Translating the Competition

Infrastructure

- Rink and pucks were re-engineered from uPenn specs
- Overhead camera/tracking system proved to be not fast/reliable enough

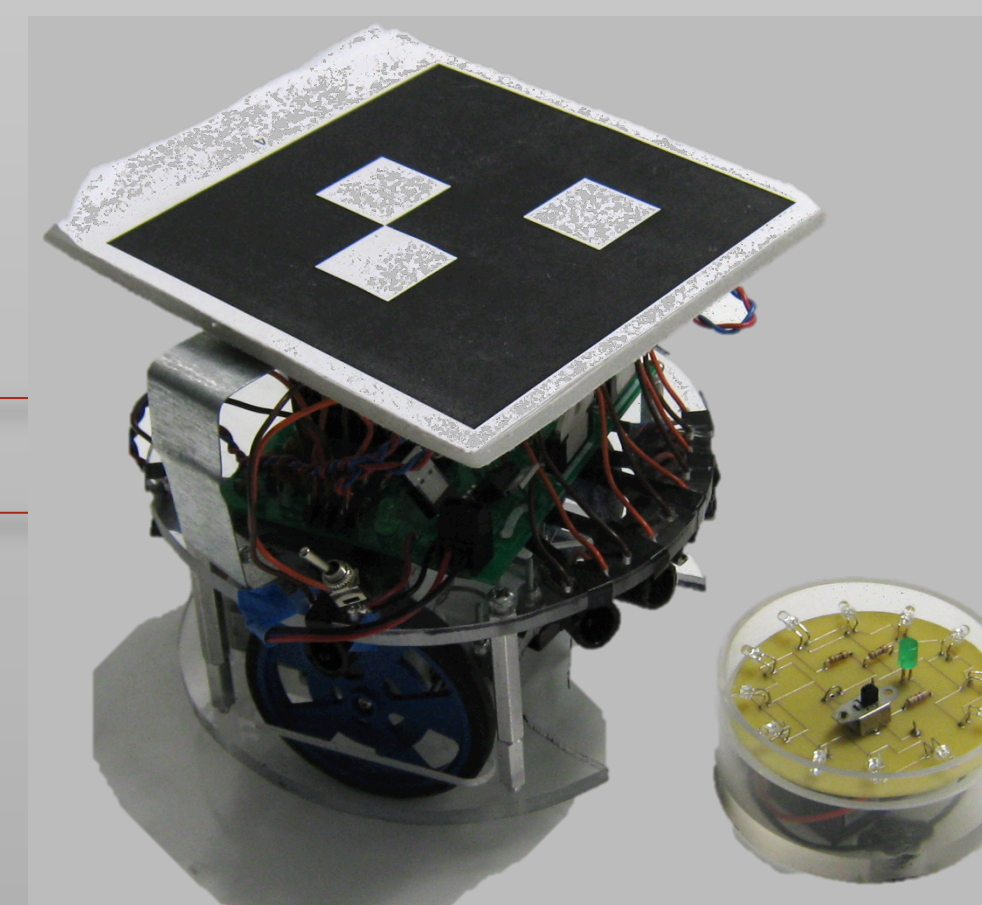
Rules

- Scaled down for 1-2 teams
- Removed 'qualification' steps
- Added detanglement rules



Competitions as Design Projects

- "Simulated" vs "Authentic" Design Experiences
- Are competitions in the middle?
 - Scope & scale are easily controllable
 - Project Selection is constrained
 - Open-ended challenging problems
 - Local vs National vs "design-for" Natl



Manufacturability

- New experiences at PCB design/ordering (twice!)
- No laser cutting available – all hand-machined
- Solenoid was too difficult to manufacture

uPenn's Robockey

- Department of Mechanical Engineering and Applied Mechanics, University of Pennsylvania
- MEAM 410/510 – Design of Mechatronic Systems
- 26 teams in 2011



Trinity's Robockey

- Dept Engr Science
- ENGR-4367 Mechatronics

- 2.5 functional robots implemented
- "first push" hardcoded against single opponent
- Won against faculty "robot"
- Tracking needs work(!)

