Paddle Controller Requirements

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# Introduction and Definitions

* Coordinate system
* Acronyms
* I/O list and/or diagram

# Global Stakeholder Requirements

* Capable of defending against pucks moving at a top speed of 9 metres per second on a table with dimensions AxB metres in size
* Capable of tracking paddle position and speed in X & Y directions and reporting to external controller
  + Define acceptable error?
* Capable of moving paddle to specified position based on external command
  + Manual – via buttons or switches
  + Or – command from external controller
* Capable of limiting top speed of the paddle through command from external controller
* Safety features:
  + Stop paddle through hardware if hard limit (edge of table) is reached
  + Stop paddle through software if soft limit is reached (edge of playing area)
  + Stop paddle through software if motor overload is detected
  + Stop paddle through software if any intrusion sensors tripped
    - Location, type, and number of sensors TBD
  + Mechanical shielding for rotating components
* Capable of detecting when a puck enters either net and reporting goal to external controller
* Capable of performing “homing” routine on command
  + To eliminate accumulated position error
* Capable of performing “dance” routine on command
  + To demonstrate system speed & cool factor
* Shall include Emergency stop which disables DC motors

# System Requirements

* Capable of controlling paddle in two dimensions
* Capable of moving paddle to specified coordinates when commanded over CAN
* Capable of moving paddle manually with push-button inputs
  + Slider to select between manual and CAN operation
* Capable of

# 2.0 Hardware Requirements

# 3.0 Software Requirements