Team 6: Self-Leveling Stow-Away Pool Table

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Abstract

The purpose of this project is to improve the 2013-2014 stowable pool table to level itself automatically at the push of a button, and stow away elegantly such that its footprint is greatly reduced. The design must have the look and feel of a tournament pool table, be leveled to tournament standards, as well as completely hide away into a compact stand-alone housing. This project is part of the effort of the FAMU-FSU College of Engineering to encourage new entrepreneurial senior design projects.

Constraints

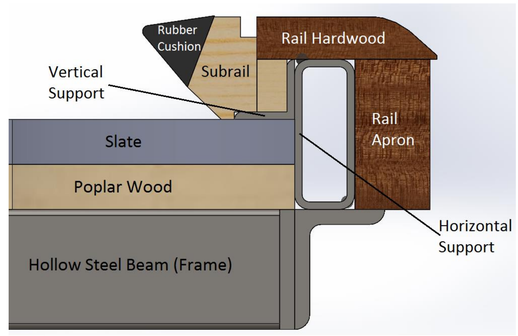
Satisfying the following constraints will allow leveling and stowing of the table to be quick and easy, while maintaining good playability:

- Easily movable.
- Stow away to reduce footprint by 75%.
- Fully self-level in under 5 minutes.
- Regulation size table ($86\text{ in} \times 48\text{ in}$).
- Easy to operate by one person.

Design Concept

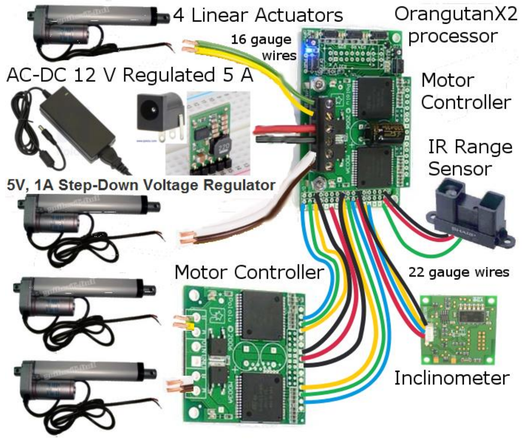
Each leg will be adjustable for the purpose of self-leveling and obtaining the correct height for the stowing process. From there the mechanism rotates the table into its vertical position, which allows it to be pushed into the housing.

Rail & Frame Design

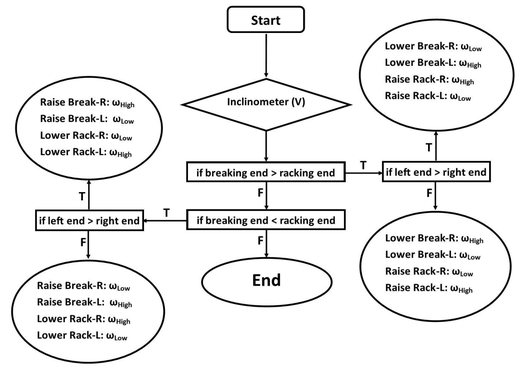


Our frame will be constructed out of steel tubing. The frame supports and secures the slate in both the playing and stowed positions.

Self-Leveling Mechanism



The mechatronic system consists of four 12V linear actuators, a two-axis inclinometer, an infrared range finder, an Orangutan X2 with two Dual motor drivers, an AC to DC converter and a 5V 1A step down voltage regulator.



Program logic for the leveling function after the user sets the desired height