THE STRIKER Automated Target System

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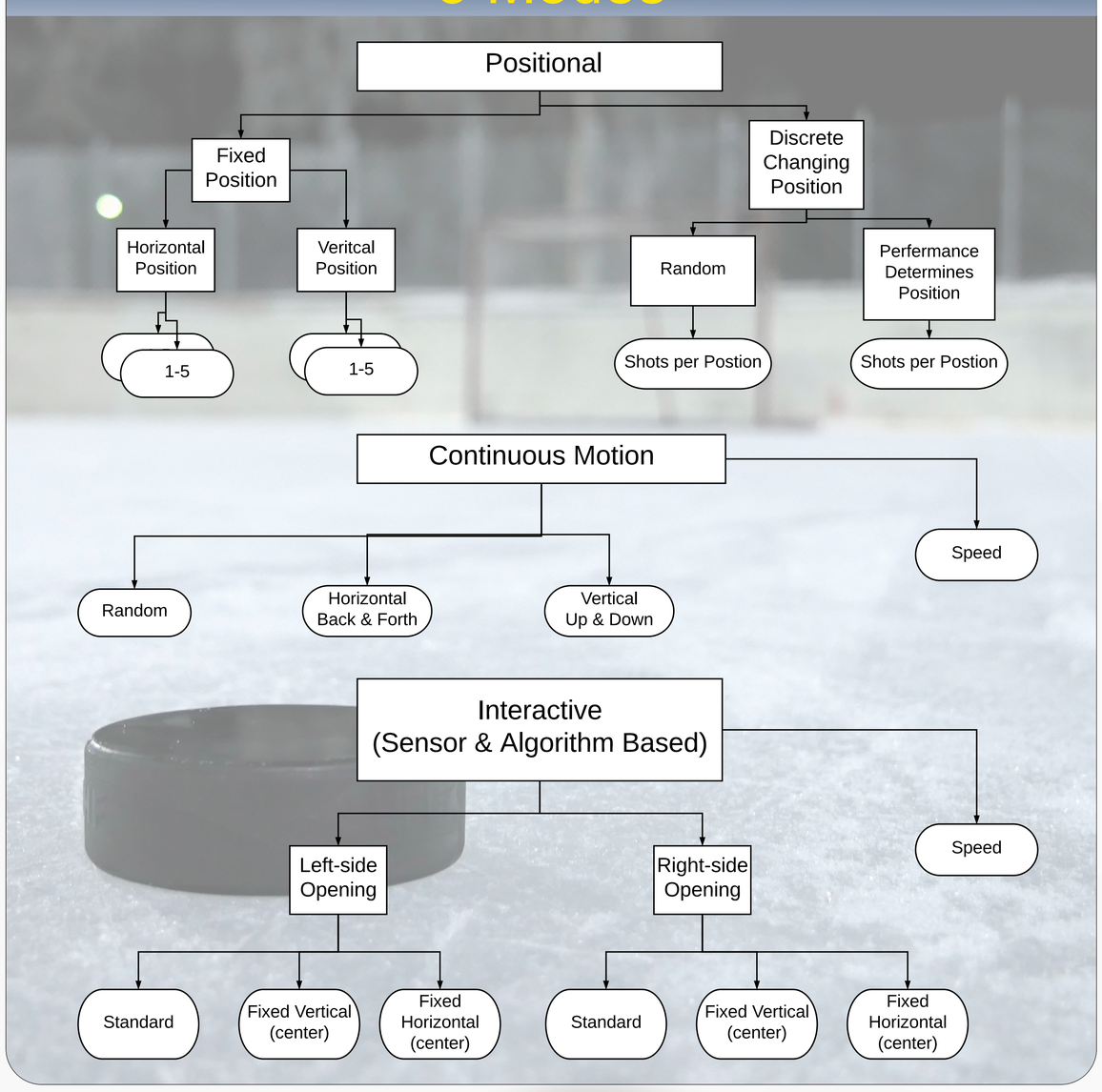
Background

The goal of this project is to design a moving target that athletes can aim at for target practice. This will provide the athlete with higher level training and more flexibility in their training schedule, since they won't require a partner to train at a high level. The primary focus was hockey, but it may also be used for other sports such as football or baseball.

Objectives

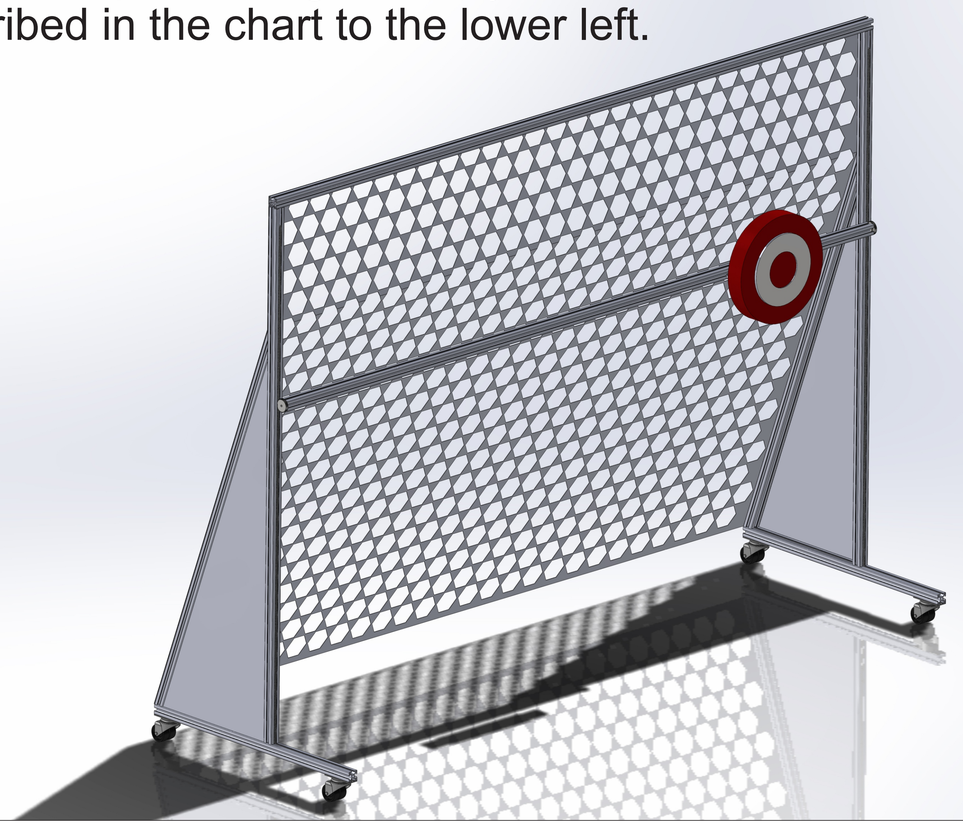
- Operable by one person
- Able to withstand the impact of a hockey puck
- Able to operate at the temperature and conditions of a hockey environment
- Minimize cost
- Maximize adjustability, including application to different sports
- As easy to set up as possible
- As easily transported as possible

3 Modes



Description

The design will consist of a standalone gantry system powered by two motors which will raise and lower a horizontal crossbar using a rack and pinion system and move the target horizontally along the crossbar using a pulley system. The design will use a G-force sensor to detect a hit. A light will turn on indicating the player to shoot, and the target must be hit within the time limit or the shot is registered as a miss.The programming is capable of performing a variety of functions which are described in the chart to the lower left.



Specifications

- Frame: aluminium alloy 6061
- Target Acceleration: 22 m/s^2
- Weight: 20 kg
- Number of Fixed Positions: 25
- Net Area: 2.16 m x 1.52 m
- Target Diameter: 30 cm
- Power Supply: 120 V

Future Recommendations

- Specialized designs for different sports: modified net area, target size, motor speed, etc.
- Improved programming functionality/customization
- Optimized sensor layout and quaity