Automatic volleyball pass and retrieval machine

**Catcher**
- Easy to set up/take down
- Catches balls and funnels them into retrieval system
- Must fit through a door when transporting

**Retrieval**
- Move ball from A-B without falling out
- A-B should be adjustable
- Ball travel should never get stuck and should be fairly fast

**Passing Machine**
- Launch/hit ball with ample backspin
- Accurate repeatable pass
- Adjustable

**Objectives**
- Set up/Take down in <1 minute by one person.
- Catch area HxWxD ≥ 4.5x10x6
- Disperse balls ≥40" from ground
- Fold/Disassemble to fit through 8’x3’ door

**Requirements**
- Travel without falling out on its own
- Adjustable between 10-40 feet
- Ball travel in <40 seconds

- About 2rev/sec
- Land within 5 feet of target >10 times for all distances/heights
- Adjustability range ≥
  - 10-30 ft distance
  - 10-20 ft height for any distance
Coefficient of restitution $V_f - V_i$