**Ultimate Training Robot**

1. Who are you designing for?
   1. Current Ultimate Frisbee Players
      1. College-level
      2. Club-level
      3. Youth
   2. Contacts
      1. Pitt Ultimate
      2. Local and national programs
2. Vision for Success
   1. Throwing Component
      1. Able to launch discs far (75-100 yds)
      2. Throw at different speeds
   2. Catching Component
      1. Receives Discs in a large area and stores many discs (20-30)
      2. Can receive discs from any orientation and feed them back into throwing component
   3. Release Point Adjustment
      1. Change angle and height of release point
      2. Change delay between releases
      3. Control positions remotely through a controller
3. Prior Art
   1. Throwing:
      1. Fling the frisbee with a wooden bar and rubber bands
      2. Usually uses a bike tire/wheel and a drill
      3. Spins Frisbee around a semicircle path
   2. Catching:
      1. Not a lot of previous examples
      2. Mobile/sensing net to locate and catch frisbee?
      3. Funnel into which you can throw a Frisbee (doesn’t deal with upside down reception)
   3. Release Point Adjustment
      1. Dial to change speed
      2. Leaning to change the angle
      3. Using wooden supports like in a piano to change the angle
4. Scope and Feasibility
   1. Resources
      1. Motor to throw Frisbee (power drill)
      2. Wood and metal for the shooter
      3. Wheel to spin the Frisbee
      4. Net and Hoop to catch the Frisbees
      5. 20-30 discs
      6. Tripod-like structure
      7. Adjustable housing (sliding, raising and lowering, tilting)
      8. Small wheels for portability
      9. Arduino for programming
      10. Definitely Within Budget
   2. Feasibility
      1. Requires lots of work over 6-8 weeks
      2. Can be easily separated into 3 main functions and divided among group
      3. Similar projects have been done before on a smaller scale, so templates exist to work from
      4. Catching mechanism will be the hardest part
      5. Probably feasible

User responses to project idea:

Carl Morgenstern:

Mike,

I think its a great idea but I can’t envision you finishing the whole thing in 6 weeks. I see there being 4 major components to this project and I think you should focus on one of them. The components being.

1. Throwing Component

2. Catching Component

3. Organizing the Frisbee’s once caught (which could honestly be very difficult)

4. Loading the Frisbee’s onto the Throwing Component

But catching the frisbee’s in some sort of net/bucket and then getting the disc into the proper orientation and then loading it into the machine on top of being able to throw the frisbee 15-25 yards (or whatever distance you calibrate the machine at) seems to me like it would take a lot longer than six weeks.

The flashiest of the components would be throwing the disc so I would probably focus on that. I think I saw on reddit or somewhere someone had made something like that and I’m pretty sure theres a video if you want to reference it.

Let me know how this ends up and good luck!

Carl

Jimmy Towle:

Hey Mike,

I'm clearing out my inbox right now and wanted to respond to this. It's a cool idea.

I think this could be useful. I feel like there are so many ways you could implement it into practice for drills or fundamentals work. I think the best way to use it would be to practice catching. Having to react to a throw based on random variables is great practice for people just getting into the sport. It's hard to see someone with well-developed fundamentals using it. The robot's ability to catch worries me because of how terrible some throws can be, especially in wind. I do like the idea of having the robot create a target that you have to hit for throwing practice. If it could move and you need to throw to space, that would be an awesome upgrade.

I don't have any other comments for now, but I do wish you luck with this project.