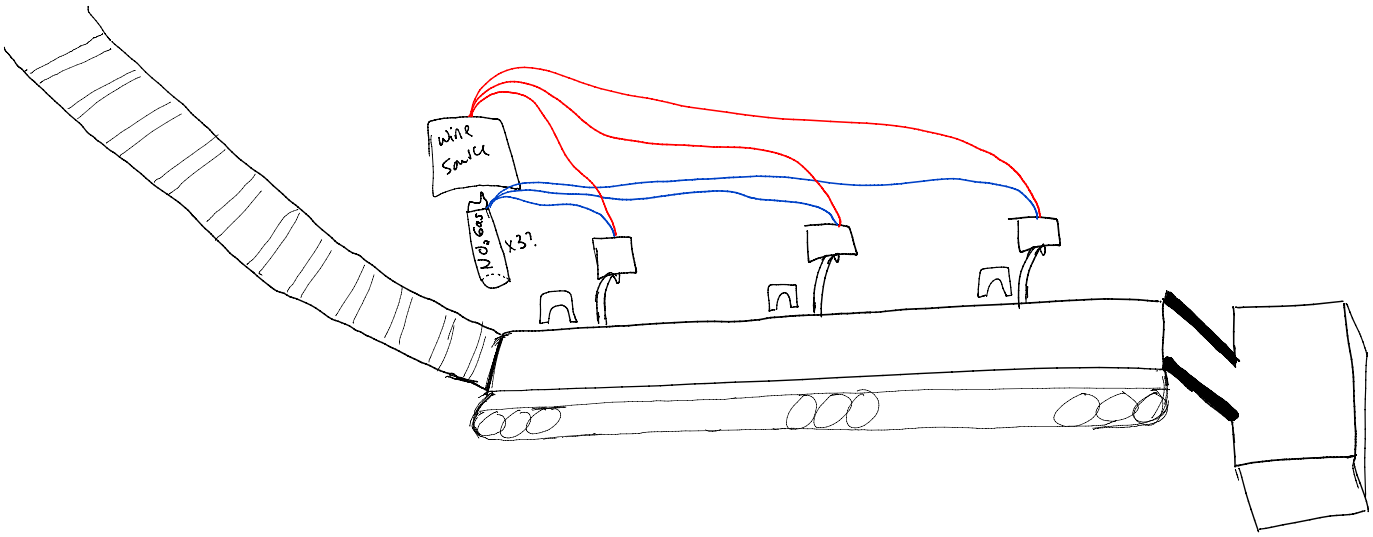
Design concepts

Sunday, November 20, 2022 11:10 AM

Design Idea # 1

Contains a slanted portion for loading pouches with a 3 station setup for filling them. Each station has the mechanism to remove and replace the cap, fill it with N_2 and fill it with wine.



This design could work a couple of ways, but what I would imagine to work the with higher efficiency would be to have three separate stations on the same conveyor belt. The pouches would be loaded in from the left hand side from either a flat, second conveyor belt, a vertical stack of pouches, or a slanted ramp type of loading area. They would go onto the conveyor belt one by one and be spaced out far perfectly between the different stations. Each station would then pull off the cap, then the belt would move the pouches to the nozzle to be puffed with air and filled with wine in the same step, the pouches would then be moved back to the cap pulling part to have the cap reattached to the pouch. All of the pouches would then move to the end of the belt where they would be ready to be picked up for storage. An additional portion could be added at the end of the setup to wipe down each pouch as they moved past it. A good thing about this design is that it would be able to simultaneously fill three separate pouches at the same exact time and realistically would only need one volunteer to

Design Idea #2

turret type of design

Another design idea would implement the use of a turret mechanism. This one is a little harder to try and draw so I have included an image of a indexing turret to kinda show what I am thinking for this one. The pouches would all be loaded into a vertical chamber of the turret that drops one pouch into the system at a time. The turret would then index to the first portion that removes the caps (or maybe the pouches could have the caps removed beforehand and the last step would have all of the caps lined up?) , then it would index again to the puff of nitrogen, then index again to the filling portion, then index again to have the cap placed back onto the pouch and then the next index would offload the pouch. The nice part about this design is that it could be filling four pouches at once and would be limited to how quickly the wine fills the pouch. The downside to a design like this is the slightly complex component of the caps and also the safety of a turret type of mechanism