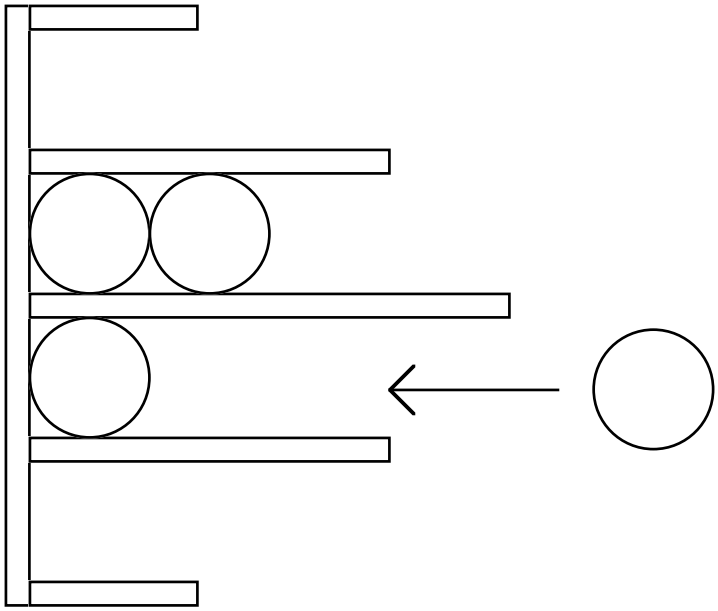
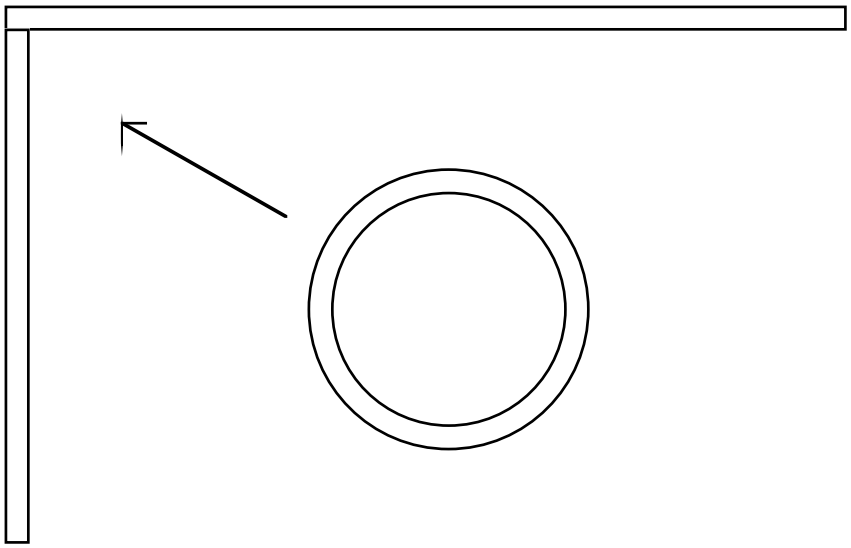
Note: We cannot login to our site to answer the questions on there. Whenever we type in our password and login name, it will return an invalid login. We have contacted out teacher about this and he has contacted the Botball group.

Preliminary Knowledge

- We noted that this year's game contains many pieces that were used from last year's competition, like the pineapples (tribbles) and inner tube (houses). From last year we have built a tribble fork collector that consists of lego axles spaced out evenly across a lego beam. The tribbles are collected by pushing this fork and letting the tribbles role in between each axle.



- Last year, we pushed the inner tube into the starting area by building a L-shaped wall attached to the robot.



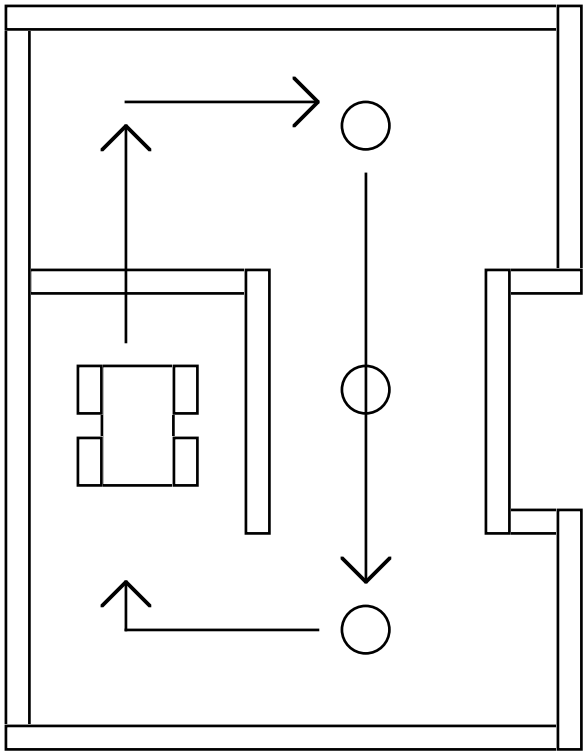
- To keep things simple, we should built upon what we know that works. We would also want to explore new ideas and designs as well, thus we decided that one robot will be built upon ideas

that we know will work, while our other robot will be an attempt to implement a new concept. Jonathan will be building and doing some programming with the robot that will use old ideas because he has two years of Botball experience, while Blake will build the other robot. Dan will be programming both.
- Initial Designs:

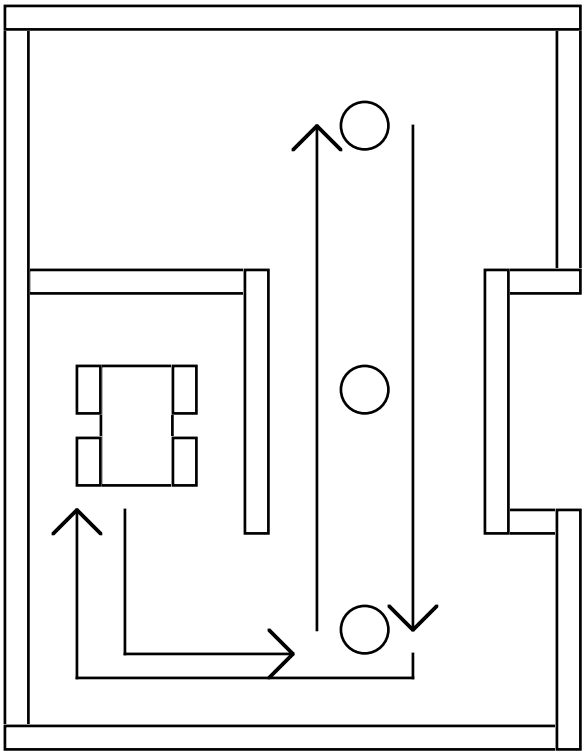
Note: We know that we are allowed to build as many robot as we want as long as during the competition the robot(s) we used on the board can be made from the pieces of one kit. By building robots from the kit and our own Legos, we can modify our plans or change robots in response to our opponents design.

1. A robot that will collect the houses and lower the umbrellas into them. We do not need to worry about accidentally collecting the pineapples, which will interfere with the position of lowering the umbrellas. We believe that if we build a beam tall enough to collect the houses, but not low enough to hit the pineapples, the pineapples we simply be pushed away to the side.

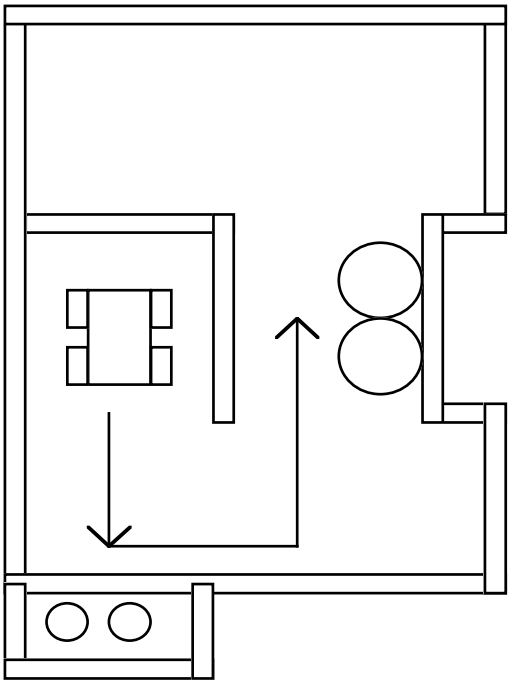
A. The robot will cross the starting area PVC pipe and follow the wall and the houses will be mechanically pushed into the starting area.



B. The robot will leave the starting area's only opening following the wall and collect the three houses. Than it will block the houses from moving back out as it backs up and reverses back into the starting area. It may not be possible for the robot to simply back up into the starting area, so it may need to make a 180 degree turn back into the starting area with the three houses collected first.

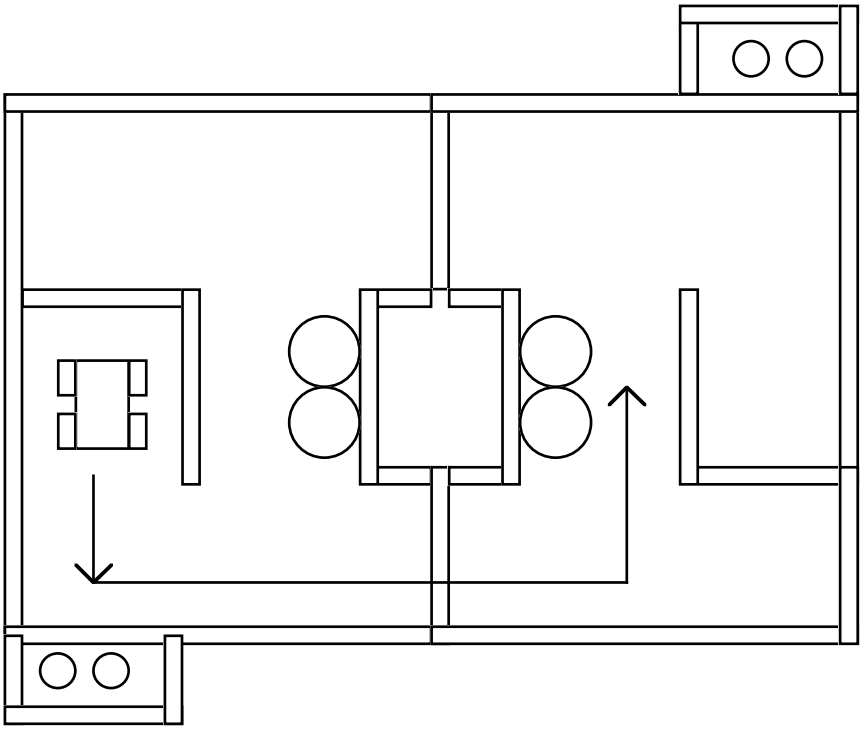


2. A robot will come out of the starting area and head straight for the blue foam balls and dump them into the yellow and/or green bucket depending on how well the claw can pick up the foam balls. The claw will be mounted on the robot's side instead of the front so that the robot will not to rotate 90 degrees to face the buckets and lower the foam balls.



3. A good design for the second robot that's nice and simple is to have it cross over into the

opponent side when the time is right. The robot will enter the opponent's side and sit in front of the buckets in an attempt to interfere with the opponent of obtaining and possible points.



4. Using the tribble fork, collect all the pineapples and just dump all the collected tribbles into the yellow bin. Some of the balls may end up in the wrong bin, but at least it's dumped into them.

Rejected ideas:
- We decided to reject 1. a. because of how after doing a simple test where we attached two servos that will lift the robot across a PVC, we saw that if we were to add additional components onto the robot, this will shift the weight of the robot, resulting in the robot to be unable to cross over the PVC.
- We rejected 4. as well because of how it depends on the camera and from past experience, we found that the camera was quite hard to use and not really KIS. Also, the opponent may try to throw our camera off by using the decals from the kit. There are too many variable that will affect the success of this plan compared to others.
- We concluded with plans 1. b., 2, and 3. We will be building these three robots and will decided which one to use depending on the opponent.