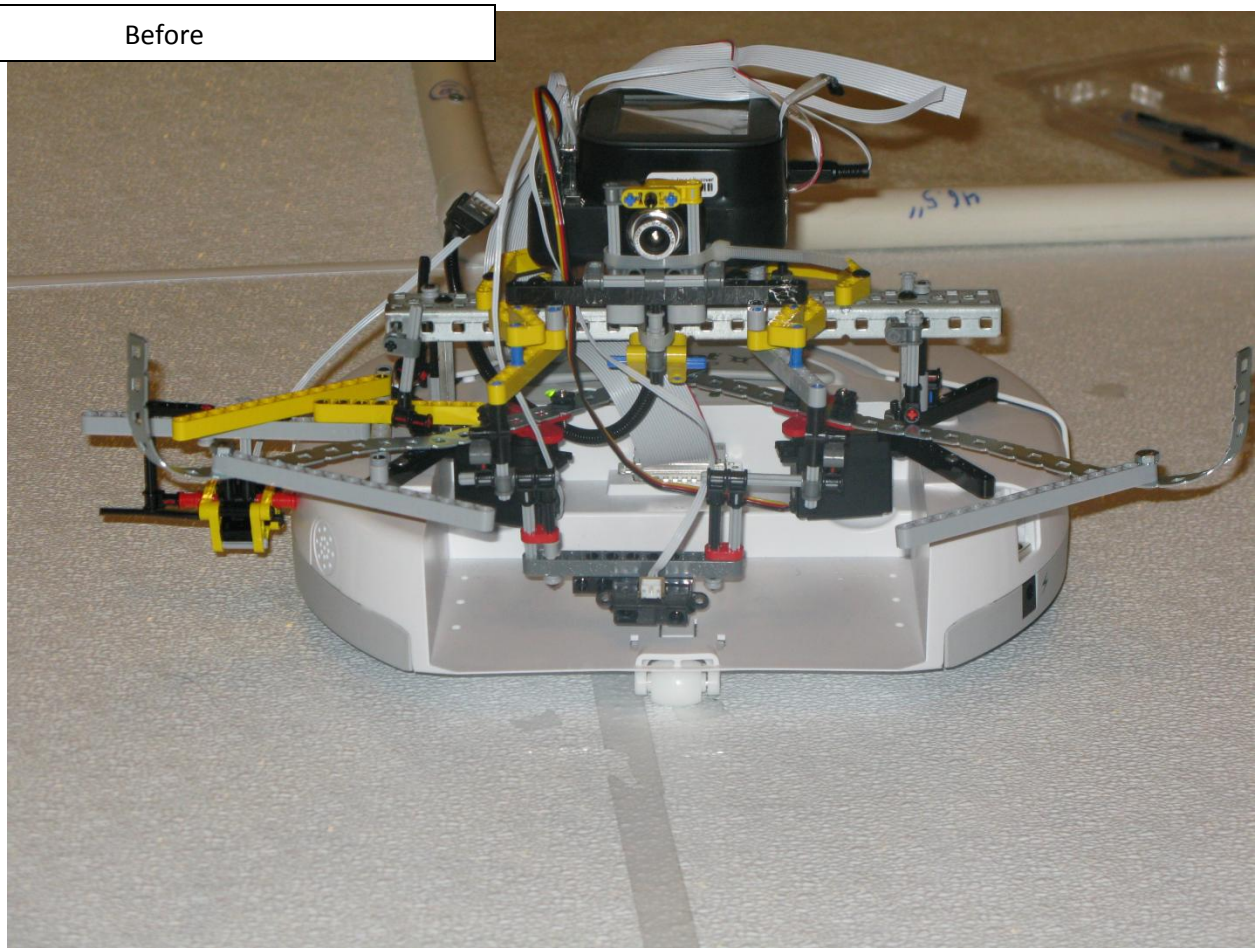
Upload Pictures or CAD models of the Evolution of your System Design: Create

Before



Compared to our original feature, the first and foremost change that we made was the bulldozer.

A big change of the bulldozer was the length. The Legobot, along with its incline, and the bulldozer had to fit in the starting box, so the bulldozer was shortened enough to fit inside.

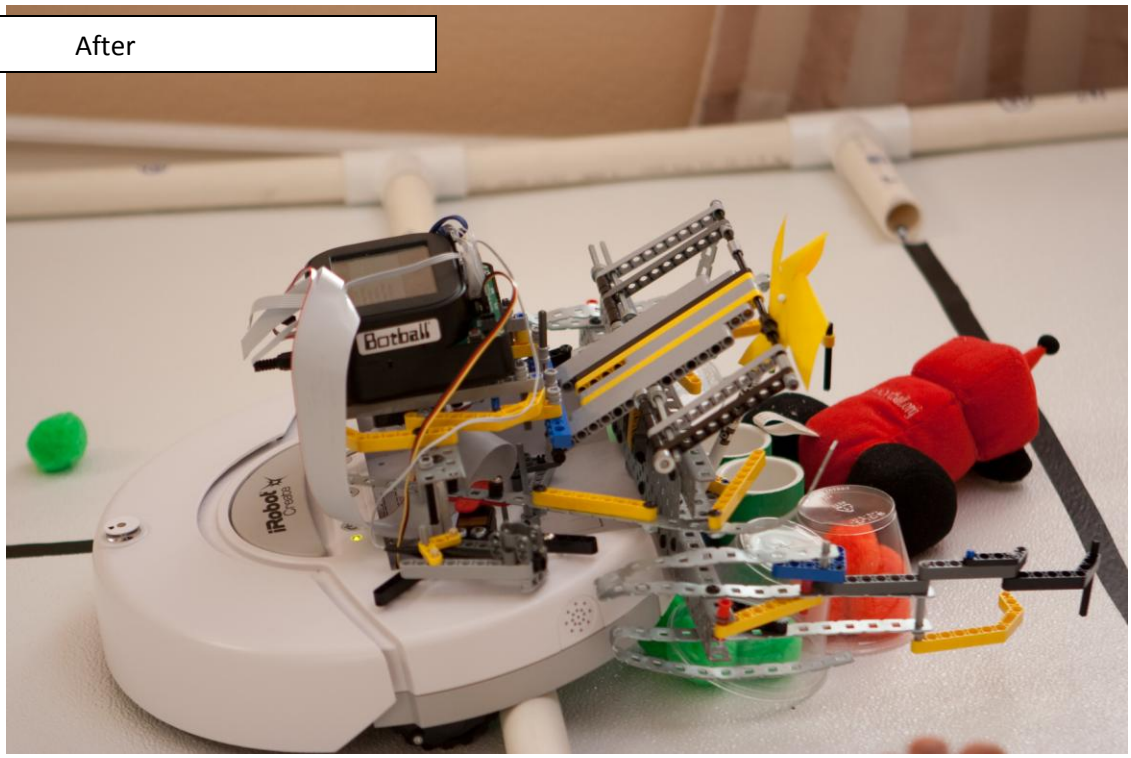
Another major change to the bulldozer was the scoop. The scoop was recently added to the Create, which enables the Create to scoop out all of the items in the opponent's starting box after it is done with dropping off its bulldozer. The scoop lies on the top of the bulldozer and falls down, after the bulldozer is detached and released.

One last change that was made to the Create was the addition of hooks at the end. There are two different types of hooks; one for the seeding rounds, and the other for the double elimination rounds. For the seeding rounds, the hook is longer at the end because there will be no Legobot in the starting box, allowing more room for the Create, and the hook. This extra room for the hook allows extra room for more items to fit in, such as more tribbles and cups, as well as even Botguy. However, for the double-elimination

rounds, there will be Legobot, with his incline, in the starting box, not allowing enough room for the end of the hooks to fit in.

Also, a minor change that was made was the removal of the side bars because the Create seemed more stable without them.

After



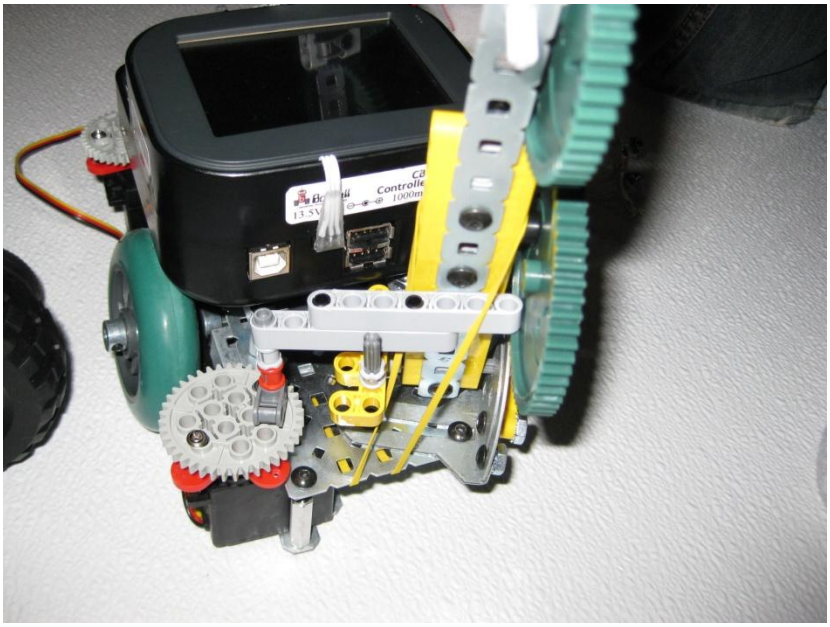
Upload Pictures or CAD models of the Evolution of your System Design: Legobot

The sole purpose of the Legobot was to interfere with opponent's movement. Subsequent designs were used to optimize the ability of the Legobot to interfere with the opponent. The basis of the all the blocking strategies was that the Legobot's chassis would be used to create interference in opponent movement.

The prominent strategy was to develop "arms" that deployed from the Legobot to essentially create a barricade that forbad the opponent from passing through. Ideally, the location of deployment should be in a crucial location as well as a location with a small entrance. Locations with a small entrance proved benefit, as arms will not have to be too long. The passage below the slope was chosen for this as it yielded the required criterion.

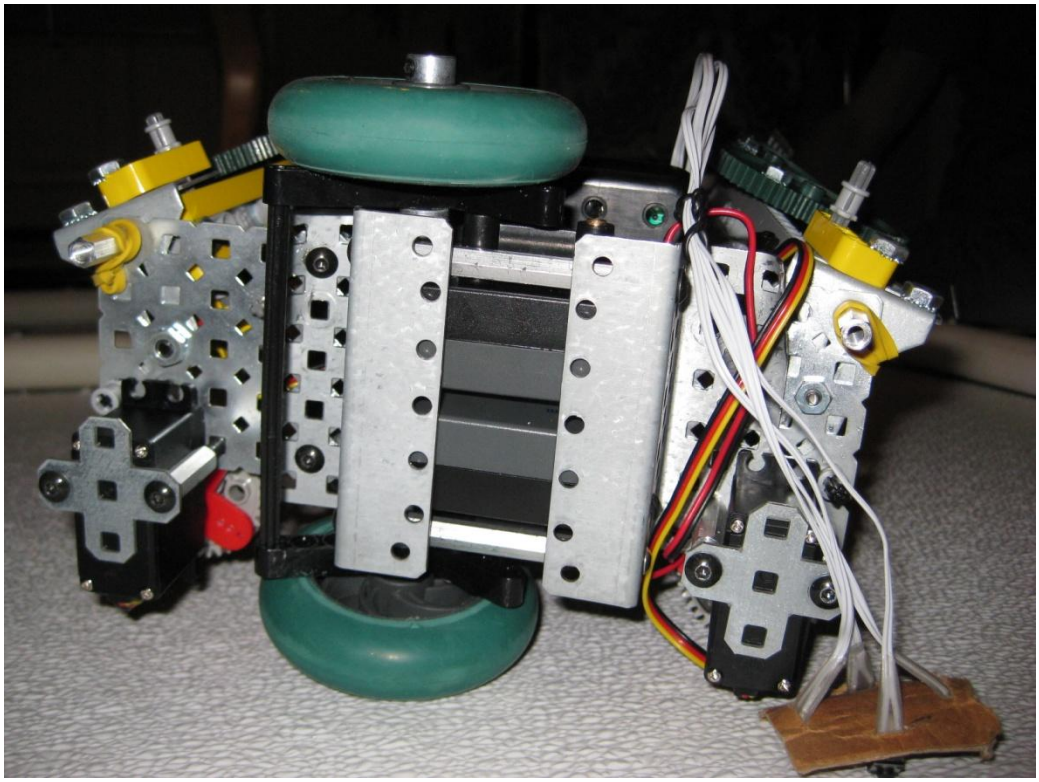
The first prototype was a simple model where arms were directly connected to the servo. The arms were placed on the sides of the Legobot. When tests were conducted testing the reliability of the apparatus, the arms attached to the servo easily broke off, when minimal amounts of stress were applied. It was additionally observed that placing the arms on the front and back of the Legobot would provide an advantage. If the arms were placed in the front and back, then before the robot attempts to deploy arms, the robot would have the turn sideways. The arms will deploy and they can be moved back and forth as the robot movement would not be inhibited as the previous model. The locations of the arms were changed to fix this problem.

After the weakness of the arm structure was realized, the method used to deploy and mount the arms was changed. Instead of directly controlling the arms via a servo, the servo was redirected to control a small "switch" that held the arm in place. The arm was positioned so that free rotation could occur. When the servo was activated, the "switch" would move out of the way allowing the arm to fall down. The free rotation arm was able to be mounted more securely than in the initial servo attachment method. Rubber bands were attached to the arms so that the arms would fall and stay down with more force.



The initial Legobot base was extremely instable. Bending of the motor base would occur due to a poor engineering structure. The engineering base was completely reworked, and instead of using continuous servo, IFI motors were used. The IFI motors were much easier to mount than continuous servos. This led to a much more stabile motor base, without much "sagging" present.

In order to make sure that the Legobot reached the opponent's area at a maximum, a



particularly elegant solution was crafted. An incline was built so that the PVC pipes could be crossed at a maximum speed. The incline allowed for the robot to reach the opponent's area without waiting for the create robot to leave. During the first prototype test, the robot would often topple over after crossing the incline. This was fixed by adding another smaller foldable incline that was attached to the larger incline. The Legobot would push the smaller incline onto the other side of the PVC, so that a smooth landing could be achieved. The smaller incline was also a fine invention of the sort. The incline along with the blocking mechanism provides many advantages for us.

Period 3 - Upload Pictures or CAD models of the Evolution of your System Design