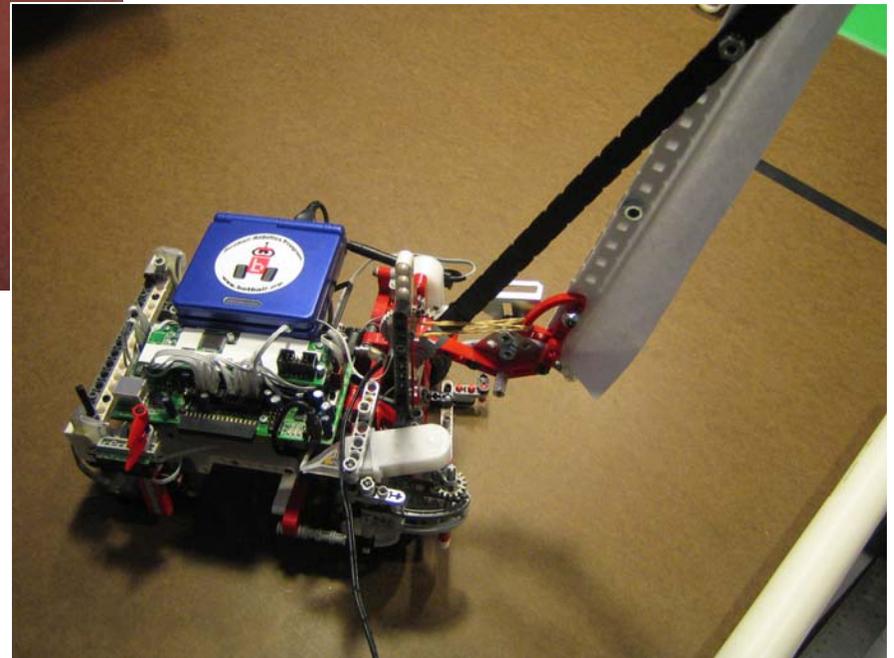
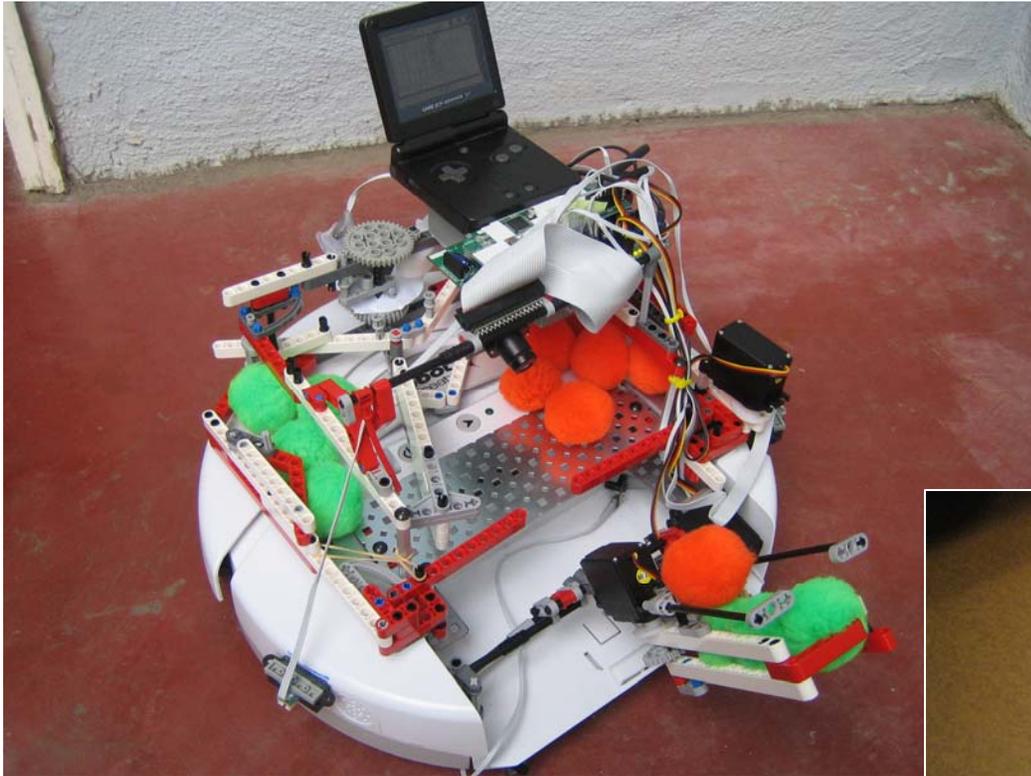


Los Altos Community Botball Team



Our Team

- Our team was run under the directions of Travis, our team captain.
- At the beginning of the meeting, Travis would ask us what we were going to do that day, and would help us decide what tasks to work on.
- We handled conflicts in an organized fashion. Travis would moderate team discussion. If we could not make a decision, our team captain, Travis, would decide for us.

4 Goals For the Season

1. Win fairly.
2. Everyone learns more about robotics and how to program in C.
3. Be the best team that we can possibly be.
4. Have fun!

Rejected Strategies

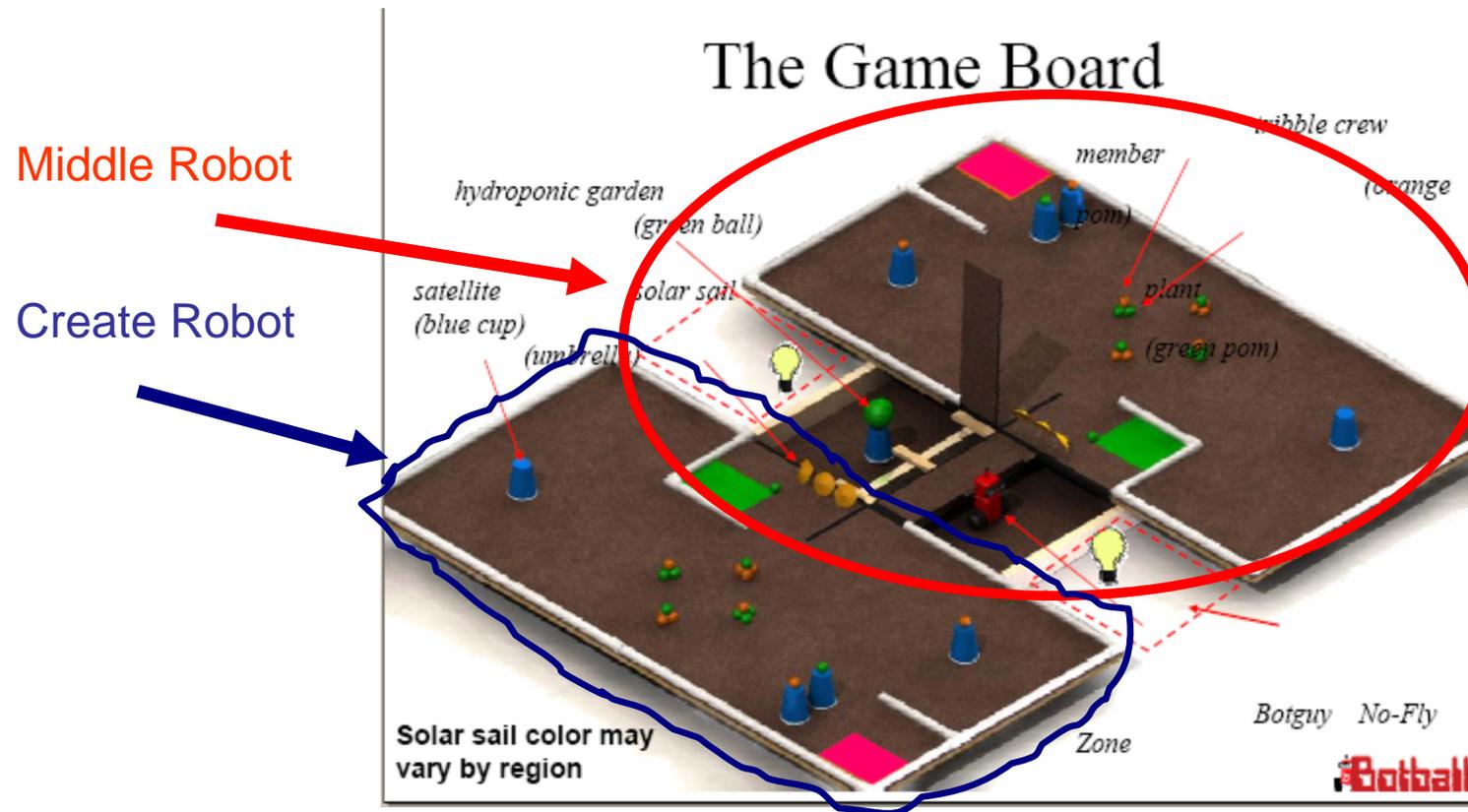
- A fast robot that would drive over the bridges and block the opponents from getting out of the starting box.
It is practically impossible to get a robot to go that fast
- Falling into the pit to knock out the garden or botguy
Might break the robot.
- Robot that waits for opponent to cross bridge and then shakes the bridge.
Hard to lift bridges, easier ways to block them
- Catapulting our cups on to the opponent's side.
Hard to launch cups that far
- Flying on to the other side and stealing their tribbles
Flying is impossible with standard botball parts

Points Analysis

	Your Module	Solarium	Shelter	Space	Other Module
Satellite (blue cup)	-4	-6	-6	0	
Solar sail (umbrella)	-3	-3	-3	0	
Plant (green pom)	1	6	0	0	
Crew (orange pom)	1	0	6	0	
Garden (green ball)	5	15	3	0	
Botguy	5	3	15	0	
Robot (XBC)	0	0	0	0	15 or 30 if in their shelter

- Two kinds of points, **points on your side**, or **middle and their side**
- It became apparent that the key to this years game in double elimination was **playing your side of the board perfectly** and **controlling (not necessarily scoring) the bridges, botguy, and the garden.**

Designing Robots For Our Strategy



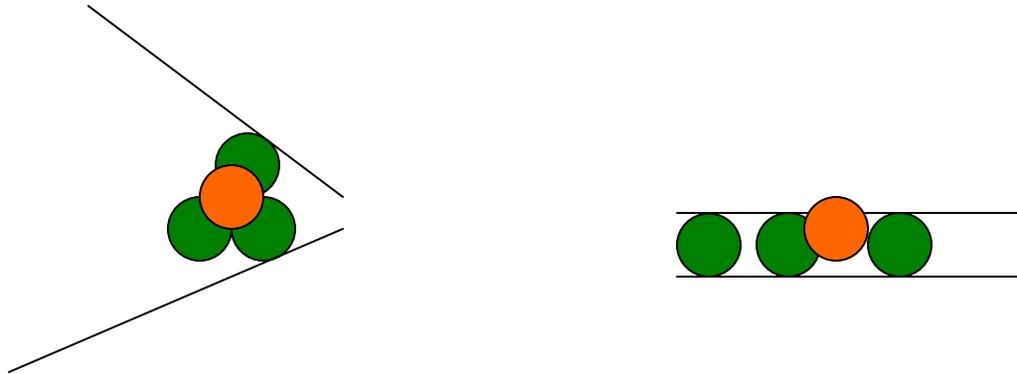
- We decided to build one robot to control the middle, and another to play our side.
- We decided to use the create for the robot to play our side because it is faster and would need to do more navigation. The XBC was left for the other.

Rejected Designs

- A wheel to suck up the tribbles.
Wasn't fast enough.
- An extendable arm to grab botguy and the garden.
Heavy and hard to manipulate
- Passive bridge blocker,
Too complicated. It never deployed correctly.

The Create Robot(1)

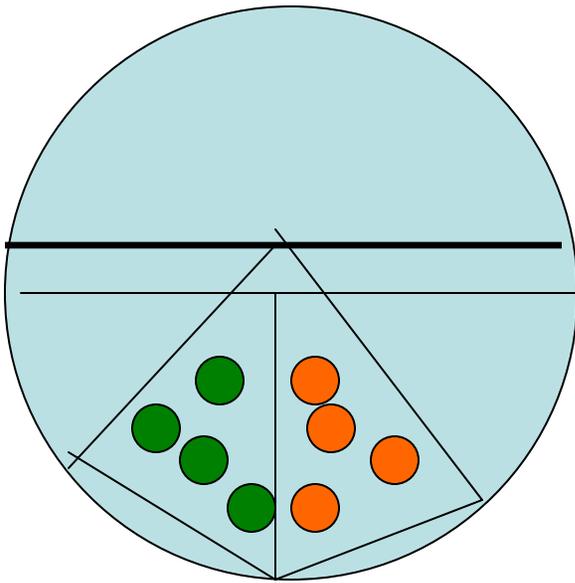
Picking up and Sorting the Tribbles



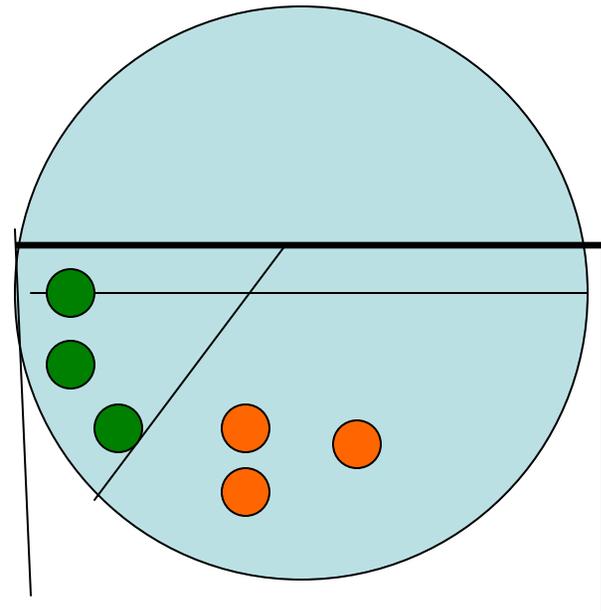
- The first step in building the Create robot was building some kind of mechanism for sorting the crew and plants.
- We found that a claw would work the best. It would pinch the bottom tribbles, while not clamping the top one. When the claw was tilted backwards, the top tribble was released. When the claw is opened, the bottom tribbles were released

Designing the Create Robot(2)

Storing the Sorted Tribbles

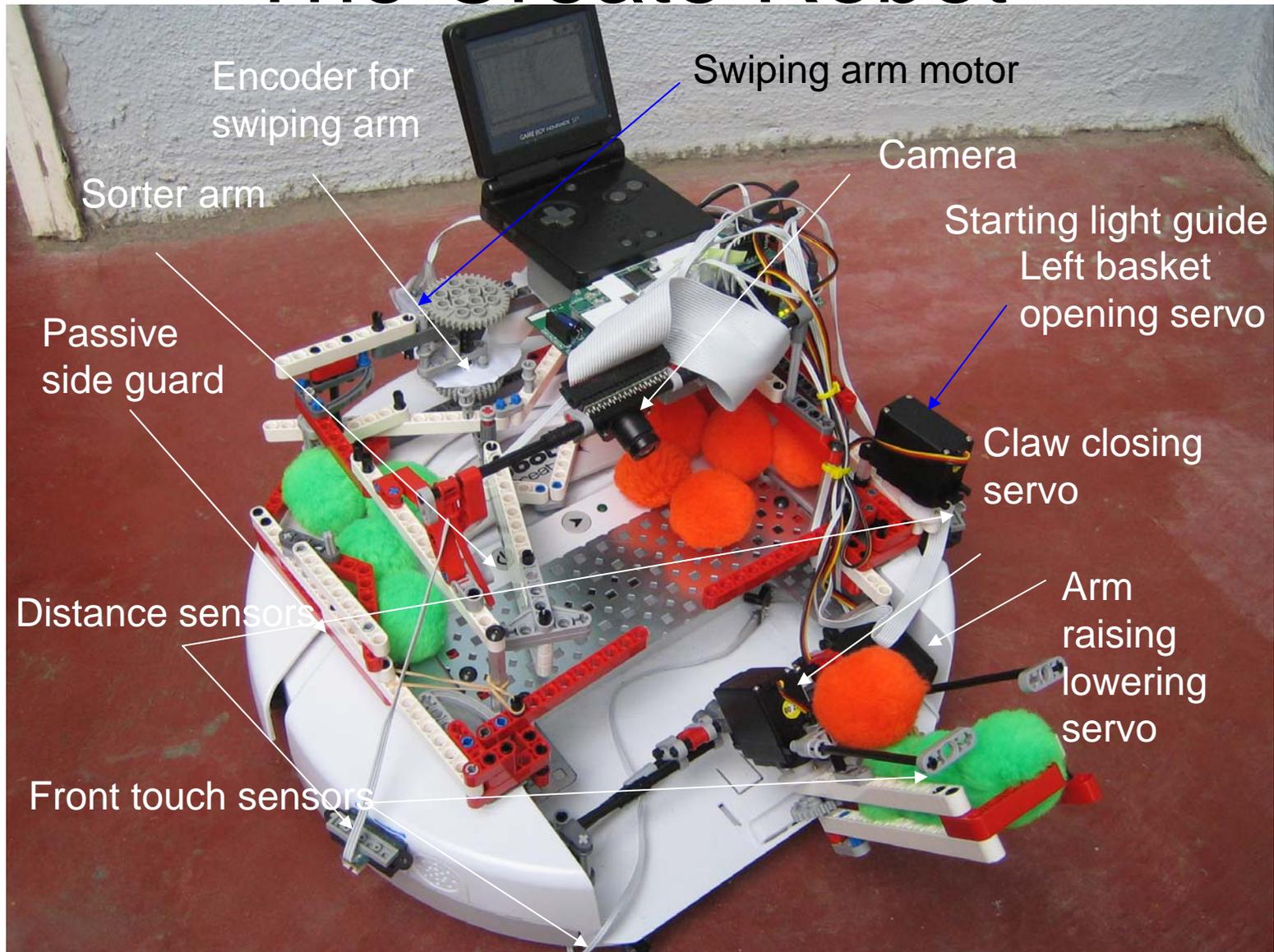


Old sorter design using a basket with two sections



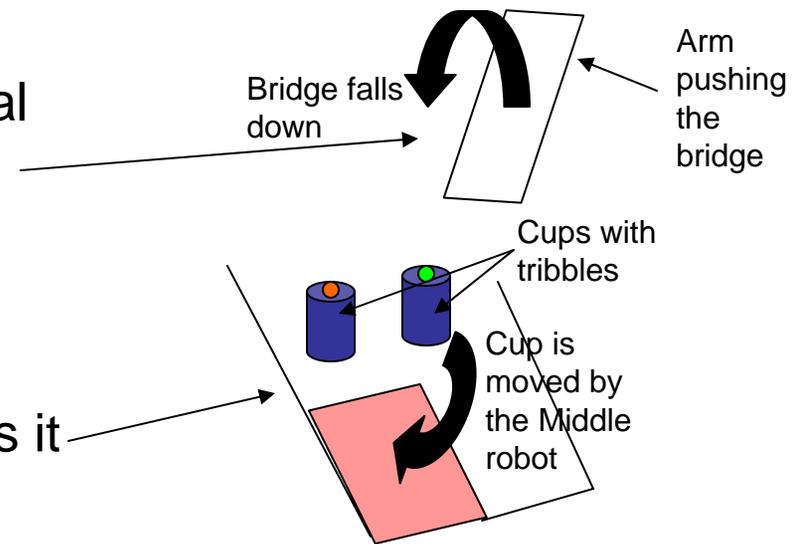
New design with swiping arm. This makes more room for the tribbles and is easier to sort.

The Create Robot

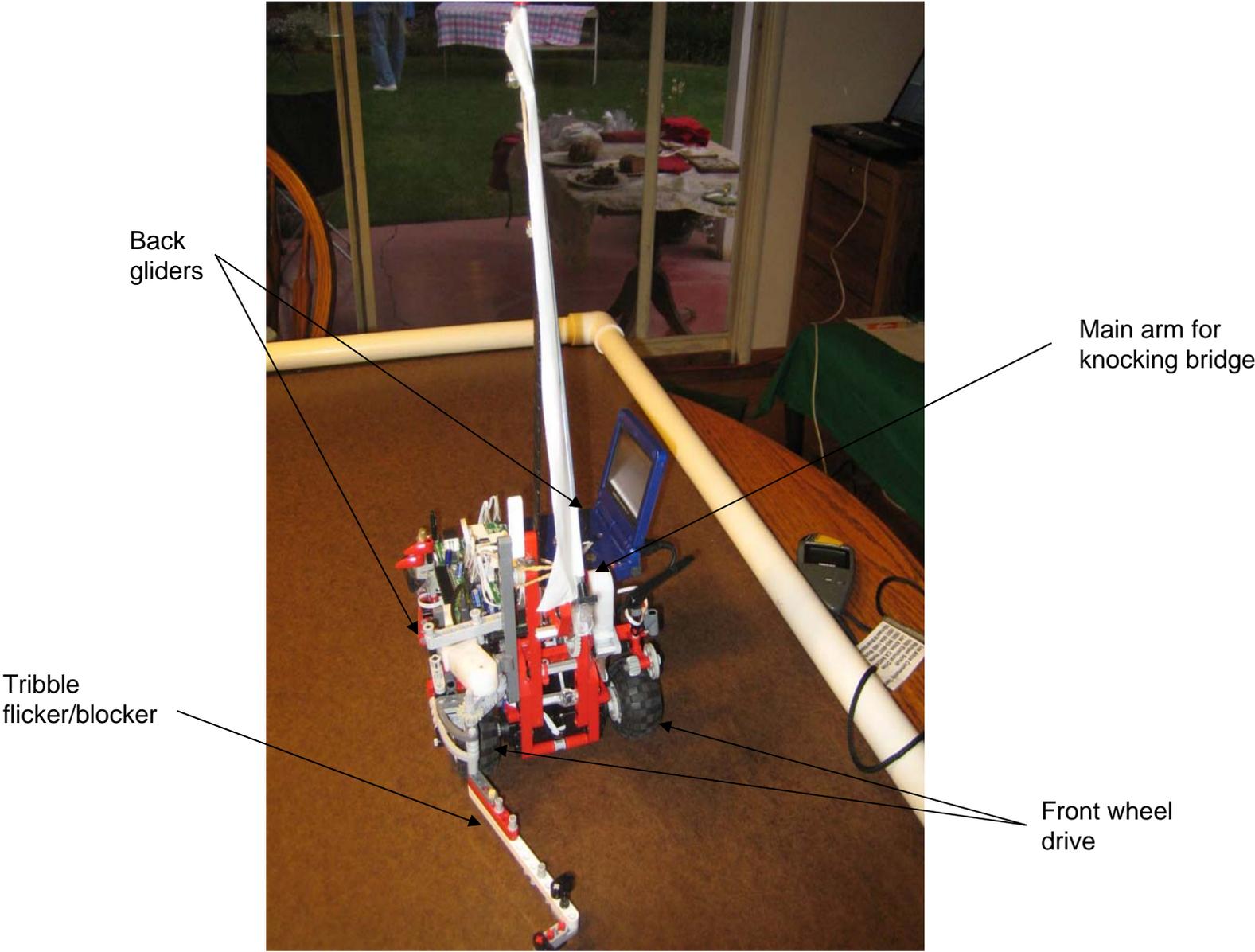


Middle Robot

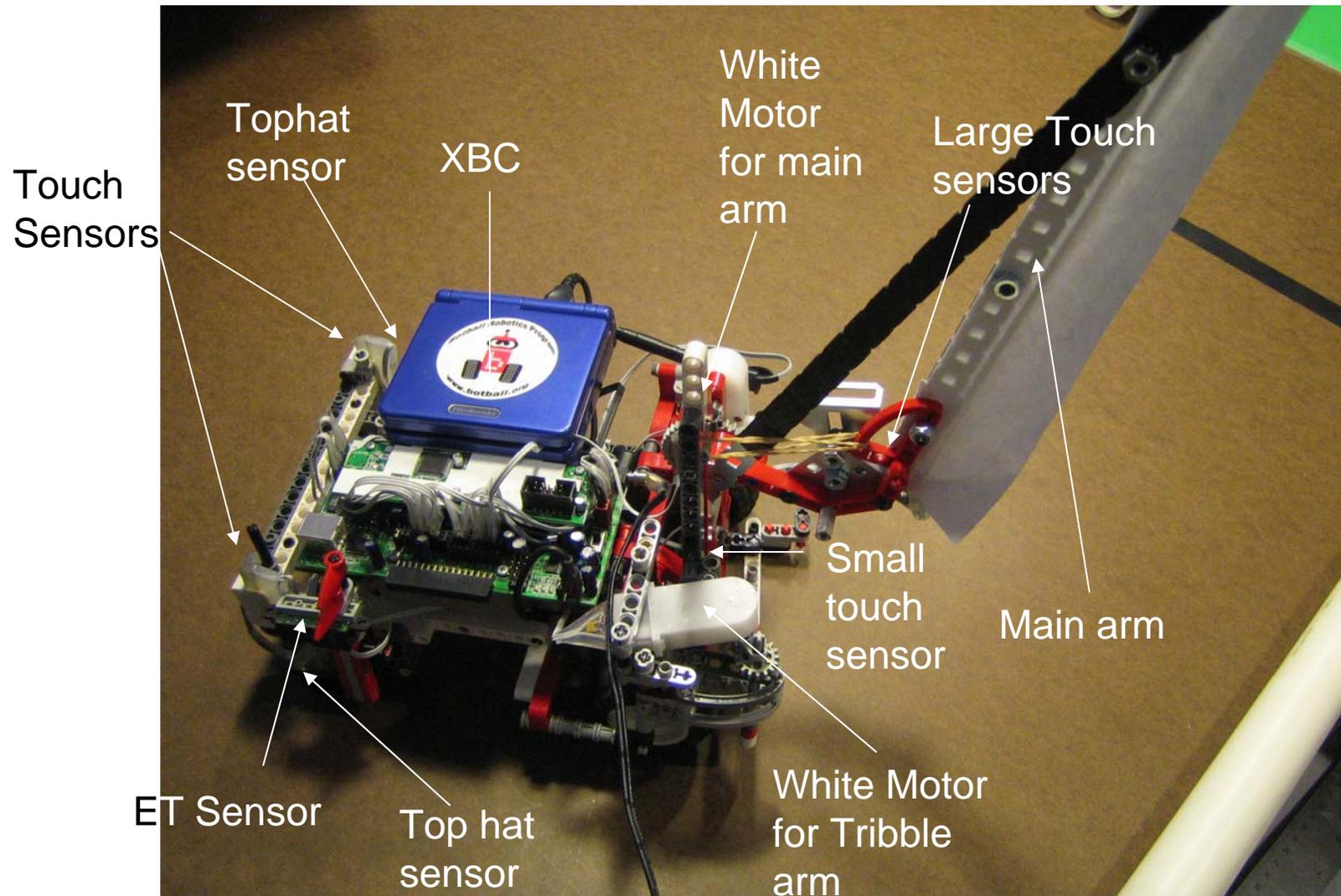
- The Middle robot's main goal is to control the middle (the bridge, botguy, and the garden).
- It also travels onto the opponent's field and messes it up.



Middle Robot arms and wheels



The Middle Robot



How Our Strategy Changed

- At first, we thought that c we were going to mess up botguy and the ball. This proved too complicated. Right now, we can only mess up the object on the right side.
- At first we thought that the tribble robot would only do our side, but when we realized that the create could quickly and accurately drive around the field and the claw was versatile we optimized it. The tribble robot now can cross the bridges and grab the garden.

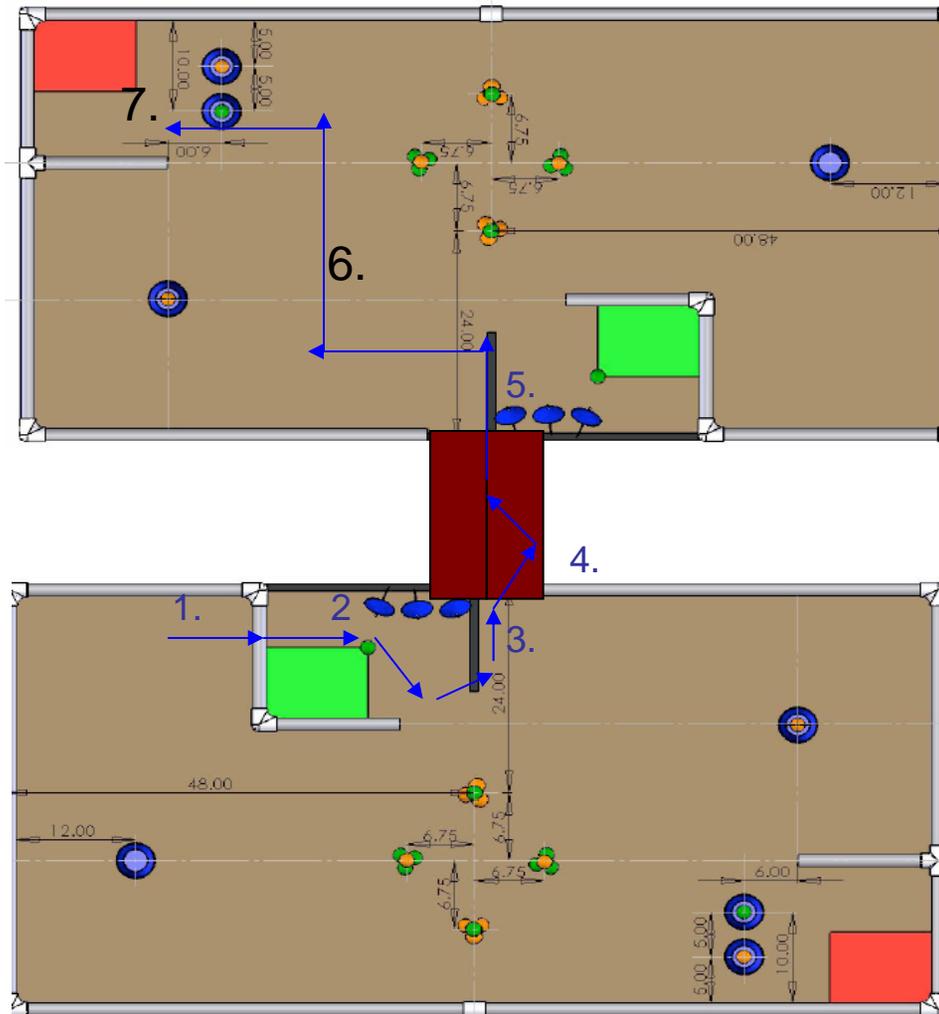
State Programming

- It is a way to organize the code. It allows you to easily change the order you do things, and lets you test code without having to go through everything before it.
- Example:

```
if (state == STATE_INIT)
{
//code here
}
```

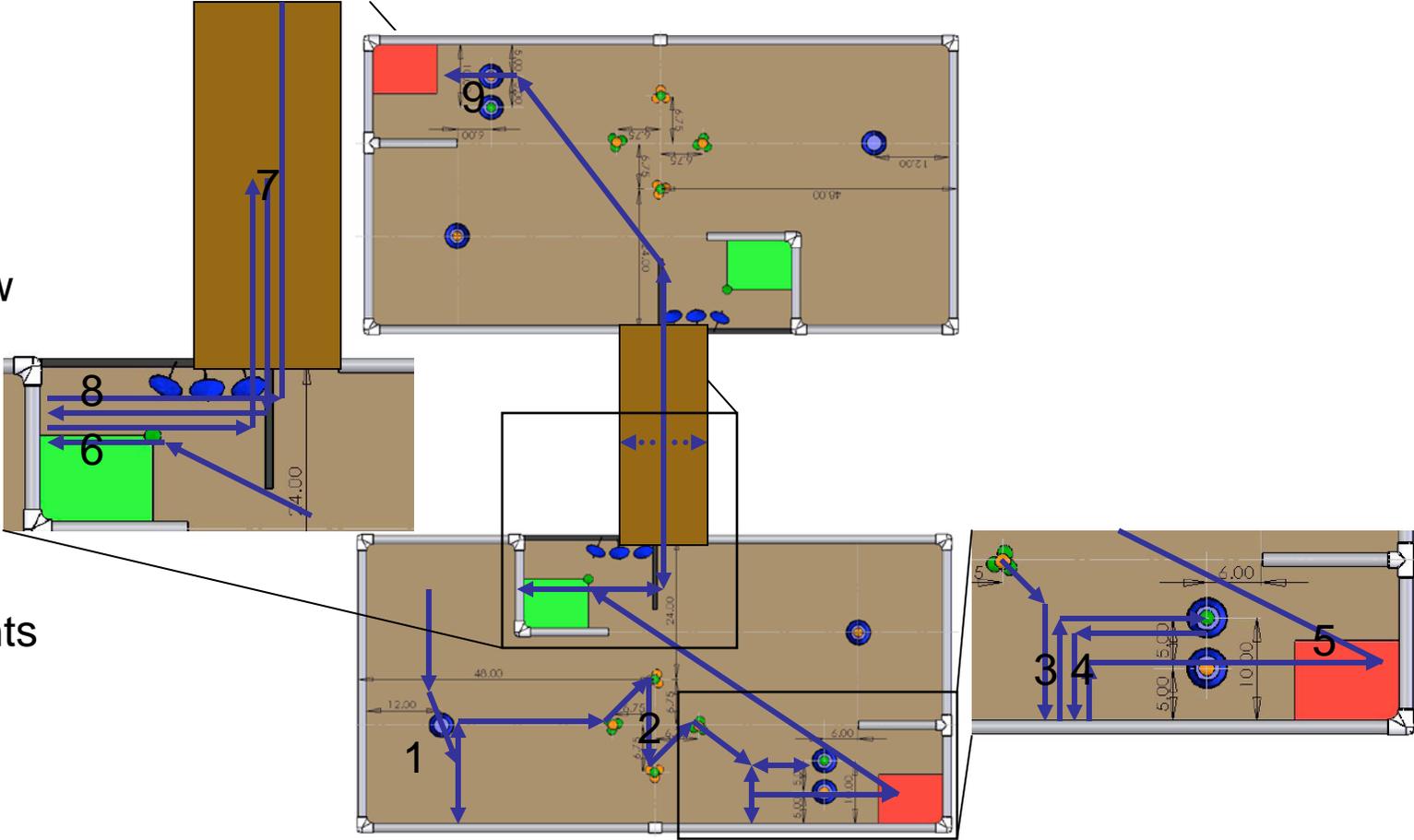
Middle Robot Seeding

1. Drive up ramp
2. Knock umbrellas
3. Knock bridge
4. Drive up bridge.
5. Go onto other team's side
6. Navigate over to the other team's shelter
7. Push in cup and drive into shelter

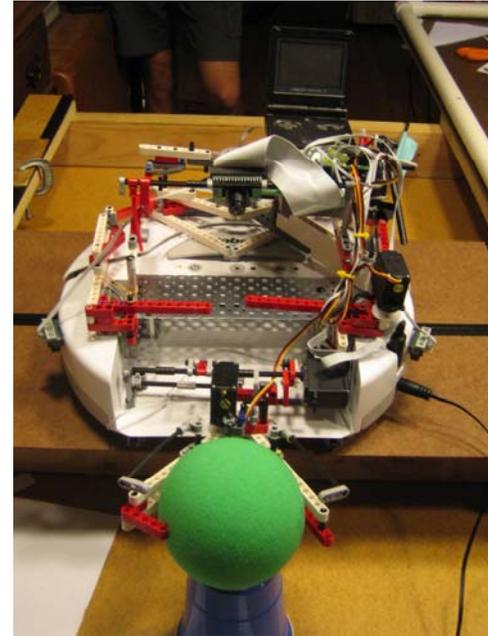
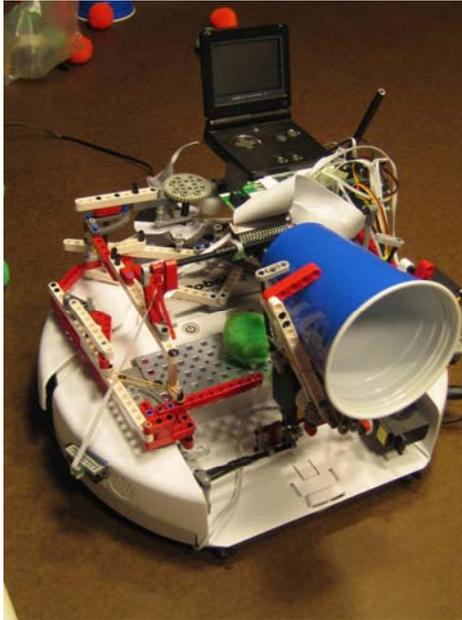
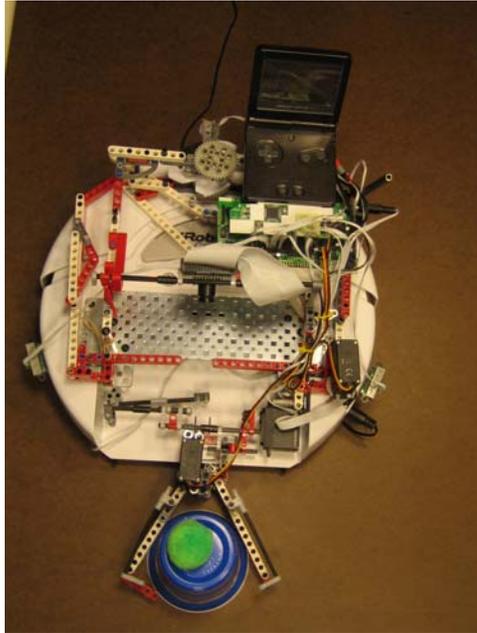


Create Robot Path

- 1. Drops first cup
- 2. Picks up and sorts crew and plants
- 3. Lines up
- 4. Drops cup
- 5. Empties crew
- 6. Lines up
- 7. Looks for and grabs garden
- 8. Empties plants
- 9. Ends in their shelter



Designing the Create Robot(3) Manipulating the Satellites and Garden



- After we finished the claw and sorter we realized that it would also work for the cups with tribbles on top. When a cup was clamped and lifted the tribble would fall back like the top tribble on a tribble stack. The claw can grab the garden.