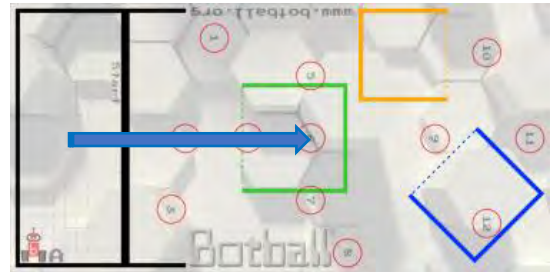




- Challenge 1: Reconnaissance**-Your team needs information about our monster before we can capture it. Drive your robot forward to investigate by just touching the monster. Don't awaken the monster by moving it!!  
In order to complete this project, you and your partner/s must:



- Demonstrate that you know how to plug your motors into the correct **MOTOR PORT**'s
- Demonstrate that you know how to turn your robot on and download a simple C program.
- Write, **COMPILE** and test a C program that makes your robot move in any direction
- Demonstrate that you know how to change the **POLARITY** of a motor.
- Write a program to drive the robot from the starting box to the "monster" located at spot #6. The robot must just touch monster without moving it noticeably.

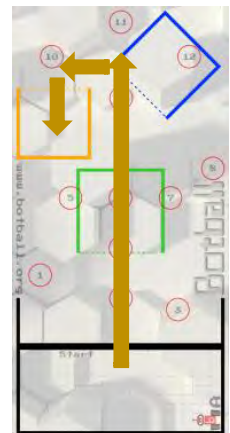
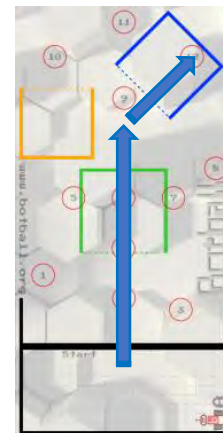
Motor Ports  
#0 & #1



Motor Ports  
#2 & #3

- Challenge 2: Piloting our robot** We need to learn to pilot our giant robot safely through the streets of the city. Learn to **VEER**, **PIVOT** and **SPIN** in order to safely park the robots in their repair hangers. \*\*\* Driving over any part of the hanger walls is considered crashing and does not count as safely parking \*\*\*  
In order to complete this project, you and your partner/s must:

- Define **VEER**: \_\_\_\_\_
- Define **PIVOT**: \_\_\_\_\_
- Define **SPIN**: \_\_\_\_\_
- Write a program that makes the robot drive relatively straight.
- Write a program to park in the Blue Hanger:
  - i. Drive straight past #6,
  - ii. **Pivot** CW 45 degrees
  - iii. Drive straight into the blue repair hanger.
- Write a program to park in the golden hanger:
  - i. Drive straight past #9
  - ii. **Pivot** CCW 90 degrees
  - iii. Drive straight to #10
  - iv. **Spin** CCW 90 degrees
  - v. Drive straight into the golden repair hanger.



- Challenge 3: 360 Photo Shoot**- We need images of the monster from all sides! Travel 360 around the monster located at spot #6 and return to

## JBC Level 1 Challenge Tree: Teaching your robot how to move

base as fast as you can with your pictures! **Flying Colors:** Complete your round trip with the fastest time to earn the **Speed Racer** award! As with most of our challenges, your robot must stay on the playing surface for the entire program.

In order to complete this project, you and your partner/s must:

- Write a program to travel towards the monster and then travel completely around it going either a **CW** or **CCW** rotation.
- Change your initial program to show that you can improve your completion time by at least 0.5 seconds.

### **Speed Racer:**

- Completing the 360 Photo Shoot challenge in a time of \_\_\_\_\_



4. **Challenge 4: Cloak and Dagger** – Your research team has developed a new cloaking technology so that you can get a closer look at the monster! Using your new technology navigate around the monster located at **spot #9** and our spy tower at **spot #4** in a figure 8 pattern. Return to base with information about its weaknesses. **Flying Colors:** Complete your round trip with the fastest time to earn the **Master Spy** award.

In order to complete this project, you and your partner/s must:

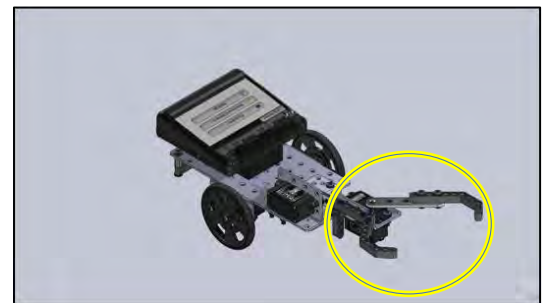
- Write a program to travel towards the monster and then travels passed it looping around the monster and finally back to the starting box in a figure 8 pattern.
- Change your initial program to show that you can improve your completion time by at least 0.5 seconds.

### **Master Spy:**

- Completing the Cloak and Dagger challenge in a time of \_\_\_\_\_

5. **Challenge 5: Collect Resources** - Learn to create and manipulate an **effector (arm or claw)** to collect at least 20 robotic resources throughout the city. Your effector must move from a raised position and touch the resource circle in order to collect it.

In order to complete this project, you and your partner/s must:



- Write a program to travel towards a numbered circle and manipulate an effector to touch the circle once.
- Write a program to touch as many circles necessary to total 20 points or more in one run.

