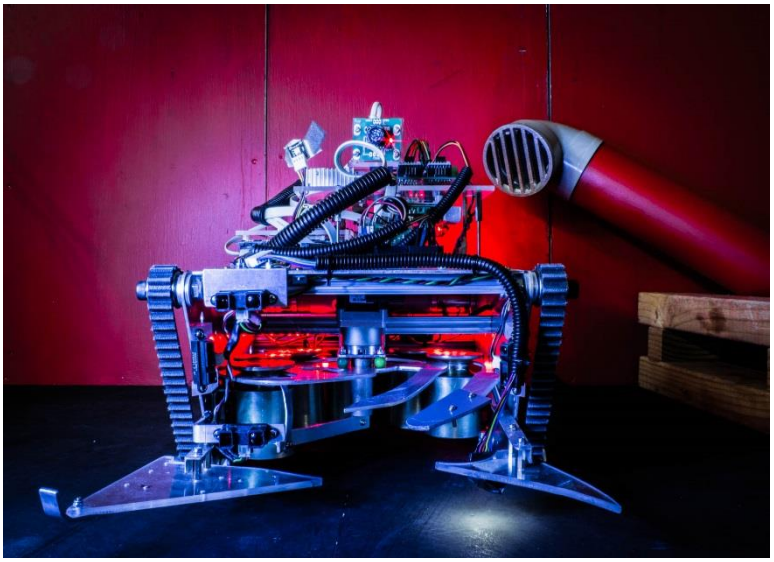
2015 Robocup Functional Assessment Details:

Date: Friday 07/08/2015

Location: Mechatronics Design Lab (C212)

Timetable:

Order	Group #	Time
1	6	9:12
2	1	9:24
3	11	9:36
4	4	9:48
5	8	10:00
6	7	10:12
7	13	10:24
8	12	10:36
9	3	10:48
10	9	11:00
11	10	11:12
12	2	11:24
13	5	11:36



The group ordering was chosen randomly. The listed time is approximate only. I imagine that each group should take 8-10mins to demonstrate the functionality. You cannot exceed the 12mins time limit for your demonstration (unless due to some technical fault that was outside your control). At 12mins, you will be asked to stop and will only be awarded points for the tasks you have completed up to that point.

Functional assessment requirements:

There are 12 tasks we will be assessing you on for the first functional assessment. They are not weighted equally – For example, task 10 is quite advanced for this stage of the project and is something to aspire towards, so will not be worth a lot of marks in this assessment.

Many of the tasks are designed to be progressive – e.g. Task 5 builds on tasks 3 and 4, which build on earlier tasks. Thus, if you can demonstrate task 5, we assume you can do tasks 1-3, so don't need to explicitly show those (you can if you want) – in this example, you may need to demonstrate an extra sensor to satisfy task 4, if your autonomous manoeuvring only uses a single sensor modality.

Task	Description
1	Robot can move forwards with variable speed. When placed in the arena it can be made to drive forwards and the speed can be varied (doesn't have to be autonomous – can be via wired connection, buttons etc)
2	Robot can manoeuvre. Can turn left + right, move forwards + backwards (doesn't have to be autonomous – can be via wired connection, buttons etc)
3	Robot can manoeuvre autonomously (not necessarily with intelligence, ie a pre-programmed path/algorithm of your choice – eg. 2s forward, turn left 90 deg, 2s forward…)
4	Two or more different sensors (different modalities, e.g. IR and ultrasonic) connected to the Arduino with some detectable output that is a function of the sensor output, e.g. LED flashing at a rate dependent on distance to an object.
5	Robot can manoeuvre autonomously with some intelligence – reacts to environment based on sensors. Eg. avoids obstacles, can follow walls
6	Control of non-drive motors, e.g. servos for collection mechanism (doesn't have to be intelligent control, so can be when you press a button)
7	Robot can specifically detect/identify pre-defined targets such as coloured HQ or weights and reject others. Some detectable output that demonstrates that it has identified a specific target (you must specify the target to the assessors). For example, your robot can differentiate between an HQ and the rest of the arena, or between a weight and a cylindrical obstacle.
8	Robot can collect a weight – bring it onboard in a 'permanent' way. The weight is able to be placed in a specific position relative to the robot for this test , i.e. the robot doesn't have to manoeuvre to pick up the weight.
9	Confirmation of successful weight collection - Your robot knows when a weight has been collected and is onboard. For this task, you will need to have some way of demonstrating the successful collection (e.g. an LED, sound, dance)
10	While under autonomous control, the robot can recognise/identify a weight in the arena that was not placed directly in front of it and steer towards it. For example, identify a weight from a distance and home-in on it.
11	Random special ability (or superpower) e.g. Music, wheelie, invisibility cloak…
12	Tasks 1-11 are completed with a single piece of software. You may have different modes that are selected by buttons or switches, but you are not required to load different code onto the Arduino to complete the tasks.