Test Document

Project: LIBERTY

Task: Test Capturing subsystem

Document Version Number: **2.0**
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Edit History: https://github.com/Gabetn/DPM_01_Project_Documentation

McGill

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1.0 TESTS

Test 1: Capturing with 2 blocks test

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1) This test will validate the functionality of capturing, in that it can successfully find the flag in a zone of two tiles.
2) This test should make the robot sweep the end zone containing 2 coloured blocks, and find the correct one.
3) Two blocks are placed in the end zone which is two tiles large, in different positions according to these divided sections:

2	3	6	7
1	4	5	8

Each tile is divided in 4, and the blocks are placed in random combinations, which the robot will have to work though. The robot is placed at the corner of position 8, facing upward. That is the position it will arrive before performing capturing. The robot then enters capturing mode, turns -90 degrees, and starts searching for the flag. It sweeps the area until it finds the blocks, where it travels the length of two tiles, turns 90 degrees, drives up, turns 90 degrees again, and sweeps the other direction.

4) The robot is expected to find the flag according to the hardcoded colour, in this case red flag, and produce a sound when it finds it. It is also expected to remove the wrong blocks out of the way using the funnel.
5)

Test run #	**Starting Position (lower right corner)**	**Block found**	**Wrong block position**	**Flag position**
1	(0,0)	Success	1	8
2	(0,0)	Success	2	5

3	(0,0)	Fail	3	6
4	(0,0)	Fail	4	7
5	(0,0)	Success	5	4
6	(0,0)	Fail	6	3
7	(0,0)	Fail	7	2
8	(0,0)	Success	8	1
9	(0,0)	Fail	3	5
10	(0,0)	Fail	5	3

6) The brick mostly fails to capture the correct flag, due to the distance sweeped being too small. When the robot drives up and turns 90 to sweep the opposite direction, it does not drive far enough, therefore it pushes the flag out of the zone instead of capturing it during the failed test runs,
7) Navigation starting from corner 0 is satisfactory and can be used in the final demo.

Test 2: Tweaked distance Capturing with 2 blocks test

Date: 11/11/2017
Tester: Edward Son
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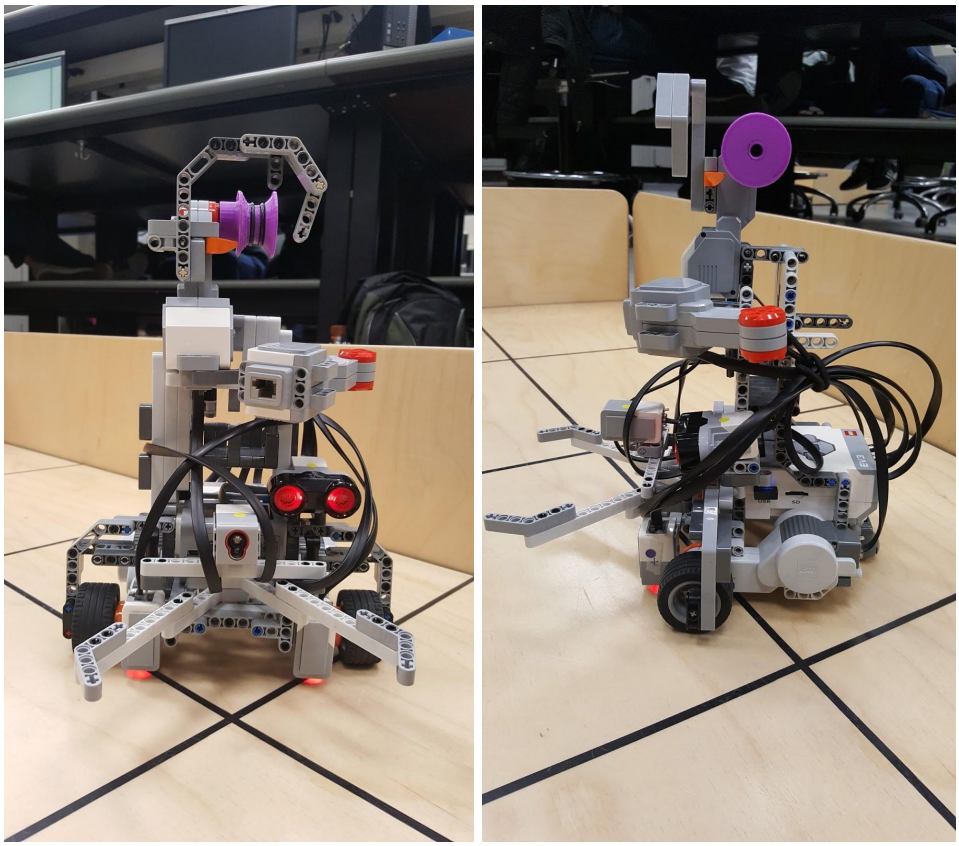
1) Refer to test 1.
2) Refer to test 1.
3) Refer to test 1.
4) Refer to test 1.
5)

Test run #	**Starting Position (lower right corner)**	**Block found**	**Wrong block position**	**Flag position**
1	(0,0)	Success	1	8
2	(0,0)	Success	2	5

3	(0,0)	Success	3	6
4	(0,0)	Success	4	7
5	(0,0)	Success	5	4
6	(0,0)	Success	6	3
7	(0,0)	Fail	7	2
8	(0,0)	Success	8	1
9	(0,0)	Success	3	5
10	(0,0)	Success	5	3

6) The brick successfully finds the right flag 90% of the time. It also successfully moves the wrong flag out of the way and continues its sweep for the right flag.
7) Capturing can be used in the final demo so long as it reaches the same starting point as in this test.

2. HARDWARE



See ***HARDWARE - 2.0.***

3. Source Code used

See github group repository at commit: ea9de2b83623a7fcf09c3ef21fde19182e21ce02