Evaluation of Gesture-Based Robotic Control Systems
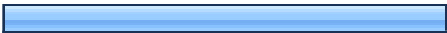
SurveyMonkey

1. What is your subject number?

	Response Average	Response Total	Response Count
Subject Number	**46.73**	**701**	15
	answered question		15
	skipped question		0
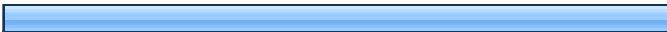
2. Are you male or female?

		Response Percent	Response Count
Male		**60.0%**	**9**
Female		40.0%	6
	answered question		15
	skipped question		0

3. Which category below includes your age?

		Response Percent	Response Count
17 or younger		0.0%	0
18-20		20.0%	3
21-29		**66.7%**	**10**
30-39		13.3%	2
40-49		0.0%	0
50-59		0.0%	0
60 or older		0.0%	0
		answered question	15
		skipped question	0

4. How would you rate your level of fluency in English?

		Response Percent	Response Count
Basic		0.0%	0
Proficient		0.0%	0
Fluent		**100.0%**	**15**
		answered question	15
		skipped question	0

5. What is your year in school? Please specify if you are an undergraduate or graduate student. If you are not a student, please write "N/A".

	Response Count
	15
answered question	15
skipped question	0

6. What is your main field of study? If you are not a student, please state your occupation.

	Response Count
	15
answered question	15
skipped question	0

7. In what order did you try the controllers?

	1st	2nd	3rd	4th	N/A	Rating Average	Response Count
D-Pad (Phone)	13.3% (2)	33.3% (5)	**40.0% (6)**	13.3% (2)	0.0% (0)	2.53	15
Tilt (Phone)	26.7% (4)	**40.0% (6)**	13.3% (2)	20.0% (3)	0.0% (0)	2.27	15
Hand Gestures (Phone)	**33.3% (5)**	20.0% (3)	**33.3% (5)**	13.3% (2)	0.0% (0)	2.27	15
XBOX Controller	26.7% (4)	6.7% (1)	13.3% (2)	**46.7% (7)**	6.7% (1)	2.86	15
				answered question			15
				skipped question			0

8. What is your level of computer literacy? (1 is novice, 7 is expert)

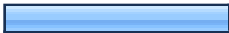|	1	2	3	4	5	6	7	Rating Average	Response Count
Novice -> Expert	6.7% (1)	0.0% (0)	6.7% (1)	20.0% (3)	13.3% (2)	13.3% (2)	**40.0% (6)**	5.33	15
							answered question		15
							skipped question		0

9. What is your level of experience with computer programming? (1 is novice, 7 is expert)

	1	2	3	4	5	6	7	Rating Average	Response Count
Novice -> Expert	**40.0% (6)**	6.7% (1)	0.0% (0)	20.0% (3)	13.3% (2)	0.0% (0)	20.0% (3)	3.40	15
							answered question		15
							skipped question		0

10. Have you ever used a robotic control system before (e.g., RC toys)?

	1	2	3	4	5	6	7	Rating Average	Response Count
No experience -> extensive experience	6.7% (1)	26.7% (4)	13.3% (2)	20.0% (3)	**33.3% (5)**	0.0% (0)	0.0% (0)	3.47	15
							answered question		15
							skipped question		0
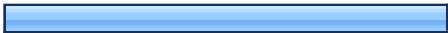
11. How many hours per week do you spend playing console games (XBOX / XBOX 360, PlayStation/ PS2/ PS3, Wii, GameCube, Nintendo 64, Dreamcast, SNES, NES)?

		Response Percent	Response Count
0		33.3%	5
< 1		**40.0%**	**6**
1-3		20.0%	3
4-9		6.7%	1
10+		0.0%	0
		answered question	15
		skipped question	0

12. Which types of game controllers have you used (choose all that apply)?

		Response Percent	Response Count
Gamepad, D-Pad only (e.g. NES, Super Nintendo)		84.6%	11
Gamepad with analog sticks (e.g. XBOX 360, Playstation)		92.3%	12
Tilt or gesture based (e.g. Wii, Playstation Move)		76.9%	10
Touchscreen (e.g. iPhone, Android)		**100.0%**	**13**
Full Body (e.g. Kinect, DDR, Guitar Hero/Rock Band)		69.2%	9
		answered question	13
		skipped question	2

13. Do you feel that your level of video game experience helped or hindered your performance in the experiment?

		Response Percent	Response Count
Helped		**66.7%**	10
Neither		26.7%	4
Hindered		6.7%	1
		answered question	15
		skipped question	0

14. How aware were you of the controls while you were using them? (1 is Not aware, 5 is Very aware)

	1	2	3	4	5	Rating Average	Response Count
Not aware -> Very aware	0.0% (0)	13.3% (2)	26.7% (4)	**33.3% (5)**	26.7% (4)	3.73	15
					answered question		15
					skipped question		0

15. How awkward was holding the controller in your hand? (1 is Not at all awkward, 5 is Very awkward)

	1	2	3	4	5	Rating Average	Response Count
Not at all awkward -> Very Awkward	**40.0% (6)**	**40.0% (6)**	20.0% (3)	0.0% (0)	0.0% (0)	1.80	15
					answered question		15
					skipped question		0

16. Did you feel that you were fully in control of the robot at all times?

		Response Percent	Response Count
Yes		80.0%	12
No		20.0%	3
	answered question		15
	skipped question		0

17. How difficult was it to maintain control while driving in a straight line? (1 is Easy, 5 is Difficult)

	1	2	3	4	5	Rating Average	Response Count
Easy -> Difficult	80.0% (12)	13.3% (2)	6.7% (1)	0.0% (0)	0.0% (0)	1.27	15
					answered question		15
					skipped question		0

18. How difficult was it to maintain control while turning? (1 is Easy, 5 is Difficult)

	1	2	3	4	5	Rating Average	Response Count
Easy -> Difficult	26.7% (4)	46.7% (7)	20.0% (3)	6.7% (1)	0.0% (0)	2.07	15
					answered question		15
					skipped question		0

19. How difficult was it to learn the controls? (1 is Easy, 5 is Difficult)

	1	2	3	4	5	Rating Average	Response Count
Easy -> Difficult	**86.7% (13)**	13.3% (2)	0.0% (0)	0.0% (0)	0.0% (0)	1.13	15
						answered question	15
						skipped question	0

20. Did you perform as well as you wanted to in the obstacle course?

		Response Percent	Response Count
Yes		**80.0%**	**12**
No		20.0%	3
		answered question	15
		skipped question	0

21. What was your favorite part about this control scheme?

	Response Count
	15
answered question	15
skipped question	0

22. What was your least favorite part about this control scheme?

	Response Count
	15
answered question	15
skipped question	0

23. How aware were you of the controls while you were using them? (1 is Not aware, 5 is Very aware)

	1	2	3	4	5	Rating Average	Response Count
Not aware -> Very aware	6.7% (1)	20.0% (3)	6.7% (1)	**40.0% (6)**	26.7% (4)	3.60	15
answered question							15
skipped question							0

24. How awkward was holding the controller in your hand? (1 is Not at all awkward, 5 is Very awkward)

	1	2	3	4	5	Rating Average	Response Count
Not at all awkward -> Very Awkward	20.0% (3)	**33.3% (5)**	26.7% (4)	13.3% (2)	6.7% (1)	2.53	15
answered question							15
skipped question							0

25. Did you feel that you were fully in control of the robot at all times?

		Response Percent	Response Count
Yes		60.0%	9
No		40.0%	6
		answered question	15
		skipped question	0

26. How difficult was it to maintain control while driving in a straight line? (1 is Easy, 5 is Difficult)

	1	2	3	4	5	Rating Average	Response Count
Easy -> Difficult	40.0% (6)	20.0% (3)	13.3% (2)	26.7% (4)	0.0% (0)	2.27	15
						answered question	15
						skipped question	0
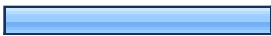
27. How difficult was it to maintain control while turning? (1 is Easy, 5 is Difficult)

	1	2	3	4	5	Rating Average	Response Count
Easy -> Difficult	33.3% (5)	13.3% (2)	13.3% (2)	26.7% (4)	13.3% (2)	2.73	15
						answered question	15
						skipped question	0

28. How difficult was it to learn the controls? (1 is Easy, 5 is Difficult)

	1	2	3	4	5	Rating Average	Response Count
Easy -> Difficult	40.0% (6)	**46.7% (7)**	13.3% (2)	0.0% (0)	0.0% (0)	1.73	15
						answered question	15
						skipped question	0

29. Did you perform as well as you wanted to in the obstacle course?

		Response Percent	Response Count
Yes		40.0%	6
No		**60.0%**	9
	answered question		15
	skipped question		0

30. What was your favorite part about this control scheme?

	Response Count
	15
answered question	15
skipped question	0

31. What was your least favorite part about this control scheme?

	Response Count
	15
answered question	15
skipped question	0

32. How aware were you of the controls while you were using them? (1 is Not aware, 5 is Very aware)

	1	2	3	4	5	Rating Average	Response Count
Not aware -> Very aware	6.7% (1)	0.0% (0)	13.3% (2)	13.3% (2)	**66.7% (10)**	4.33	15
					answered question		15
					skipped question		0

33. How awkward was holding the controller in your hand? (1 is Not at all awkward, 5 is Very awkward)

	1	2	3	4	5	Rating Average	Response Count
Not at all awkward -> Very Awkward	6.7% (1)	6.7% (1)	20.0% (3)	20.0% (3)	**46.7% (7)**	3.93	15
					answered question		15
					skipped question		0

34. Did you feel that you were fully in control of the robot at all times?

		Response Percent	Response Count
Yes		13.3%	2
No		**86.7%**	**13**
		answered question	15
		skipped question	0

35. How difficult was it to maintain control while driving in a straight line? (1 is Easy, 5 is Difficult)

	1	2	3	4	5	Rating Average	Response Count
Easy -> Difficult	13.3% (2)	26.7% (4)	13.3% (2)	**33.3% (5)**	13.3% (2)	3.07	15
						answered question	15
						skipped question	0
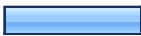
36. How difficult was it to maintain control while turning? (1 is Easy, 5 is Difficult)

	1	2	3	4	5	Rating Average	Response Count
Easy -> Difficult	0.0% (0)	13.3% (2)	0.0% (0)	**53.3% (8)**	33.3% (5)	4.07	15
						answered question	15
						skipped question	0

37. How difficult was it to learn the controls? (1 is Easy, 5 is Difficult)

	1	2	3	4	5	Rating Average	Response Count
Easy -> Difficult	20.0% (3)	6.7% (1)	**46.7% (7)**	6.7% (1)	20.0% (3)	3.00	15
						answered question	15
						skipped question	0

38. Did you perform as well as you wanted to in the obstacle course?

		Response Percent	Response Count
Yes		20.0%	3
No		**80.0%**	12
		answered question	15
		skipped question	0

39. What was your favorite part about this control scheme?

	Response Count
	15
answered question	15
skipped question	0

40. What was your least favorite part about this control scheme?

	Response Count
	15
answered question	15
skipped question	0

41. How aware were you of the controls while you were using them? (1 is Not aware, 5 is Very aware)

	1	2	3	4	5	Rating Average	Response Count
Not aware -> Very aware	13.3% (2)	20.0% (3)	20.0% (3)	13.3% (2)	**33.3% (5)**	3.33	15
answered question							15
skipped question							0

42. How awkward was holding the controller in your hand? (1 is Not at all awkward, 5 is Very awkward)

	1	2	3	4	5	Rating Average	Response Count
Not at all awkward -> Very Awkward	**73.3% (11)**	13.3% (2)	6.7% (1)	6.7% (1)	0.0% (0)	1.47	15
answered question							15
skipped question							0

43. Did you feel that you were fully in control of the robot at all times?

		Response Percent	Response Count
Yes		86.7%	13
No		13.3%	2
	answered question		15
	skipped question		0

44. How difficult was it to maintain control while driving in a straight line? (1 is Easy, 5 is Difficult)

	1	2	3	4	5	Rating Average	Response Count
Easy -> Difficult	93.3% (14)	6.7% (1)	0.0% (0)	0.0% (0)	0.0% (0)	1.07	15
				answered question			15
				skipped question			0

45. How difficult was it to maintain control while turning? (1 is Easy, 5 is Difficult)

	1	2	3	4	5	Rating Average	Response Count
Easy -> Difficult	40.0% (6)	53.3% (8)	0.0% (0)	6.7% (1)	0.0% (0)	1.73	15
				answered question			15
				skipped question			0

46. How difficult was it to learn the controls? (1 is Easy, 5 is Difficult)

	1	2	3	4	5	Rating Average	Response Count
Easy -> Difficult	**73.3% (11)**	26.7% (4)	0.0% (0)	0.0% (0)	0.0% (0)	1.27	15
						answered question	15
						skipped question	0

47. Did you perform as well as you wanted to in the obstacle course?

		Response Percent	Response Count
Yes		**86.7%**	**13**
No		13.3%	2
		answered question	15
		skipped question	0

48. What was your favorite part about this control scheme?

	Response Count
	15
answered question	15
skipped question	0

49. What was your least favorite part about this control scheme?

	Response Count
	15
answered question	15
skipped question	0

50. I would use this control scheme to accomplish a critical task.

	1	2	3	4	Response Count
D-Pad	20.0% (3)	26.7% (4)	**46.7% (7)**	6.7% (1)	15
Tilt	26.7% (4)	**33.3% (5)**	26.7% (4)	13.3% (2)	15
Hand Gestures	0.0% (0)	6.7% (1)	13.3% (2)	**80.0% (12)**	15
XBOX Controller	**53.3% (8)**	33.3% (5)	13.3% (2)	0.0% (0)	15
			answered question		15
			skipped question		0

51. I would use this control scheme continuously for two hours.

	1	2	3	4	Response Count
D-Pad	6.7% (1)	40.0% (6)	**46.7% (7)**	6.7% (1)	15
Tilt	6.7% (1)	**53.3% (8)**	33.3% (5)	6.7% (1)	15
Hand Gestures	13.3% (2)	0.0% (0)	6.7% (1)	**80.0% (12)**	15
XBOX Controller	**73.3% (11)**	6.7% (1)	13.3% (2)	6.7% (1)	15
			answered question		15
			skipped question		0

52. Which control scheme was the most intuitive?

		Response Percent	Response Count
D-Pad		33.3%	5
Tilt		**40.0%**	**6**
Hand Gesture		0.0%	0
XBOX Controller		26.7%	4
		answered question	15
		skipped question	0

53. Which control scheme was the most fun to use?

		Response Percent	Response Count
D-Pad		13.3%	2
Tilt		**46.7%**	**7**
Hand Gesture		13.3%	2
XBOX Controller		26.7%	4
		answered question	15
		skipped question	0

	Page 1, Q1. What is your subject number?	
1	83	Apr 30, 2012 2:02 PM
2	95	Apr 30, 2012 1:18 PM
3	23	Apr 30, 2012 12:19 PM
4	81	Apr 30, 2012 10:42 AM
5	55	Apr 30, 2012 9:54 AM
6	24	Apr 30, 2012 8:48 AM
7	54	Apr 29, 2012 1:56 PM
8	18	Apr 28, 2012 5:15 PM
9	45	Apr 28, 2012 11:50 AM
10	17	Apr 28, 2012 9:51 AM
11	37	Apr 27, 2012 8:27 PM
12	85	Apr 27, 2012 12:44 PM
13	46	Apr 27, 2012 11:45 AM
14	26	Apr 26, 2012 1:29 PM
15	12	Apr 25, 2012 10:02 PM

Page 1, Q5. What is your year in school?

Please specify if you are an undergraduate or graduate student. If you are not a student, please write "N/A".

1	Undergraduate (3rd Year - Junior)	Apr 30, 2012 2:02 PM
2	Graduate	Apr 30, 2012 1:18 PM
3	N/A	Apr 30, 2012 12:19 PM
4	NA	Apr 30, 2012 10:42 AM
5	Undergraduate (3rd Year - Junior)	Apr 30, 2012 9:54 AM
6	Undergraduate (submatric)	Apr 30, 2012 8:48 AM
7	n/a	Apr 29, 2012 1:56 PM
8	undergraduate	Apr 28, 2012 5:15 PM
9	Graduate	Apr 28, 2012 11:50 AM
10	Undergraduate (3rd Year - Junior)	Apr 28, 2012 9:51 AM
11	N/A	Apr 27, 2012 8:27 PM
12	Graduate	Apr 27, 2012 12:44 PM
13	Undergraduate (3rd Year - Junior)	Apr 27, 2012 11:45 AM
14	graduate	Apr 26, 2012 1:29 PM
15	Undergraduate (2nd year - sophomore)	Apr 25, 2012 10:02 PM

	Page 1, Q6. What is your main field of study? If you are not a student, please state your occupation.	
1	Visual Studies	Apr 30, 2012 2:02 PM
2	Computer and Information Science	Apr 30, 2012 1:18 PM
3	Business	Apr 30, 2012 12:19 PM
4	Playwright	Apr 30, 2012 10:42 AM
5	Theatre	Apr 30, 2012 9:54 AM
6	Math	Apr 30, 2012 8:48 AM
7	artist/musician	Apr 29, 2012 1:56 PM
8	Theater	Apr 28, 2012 5:15 PM
9	Computer Science	Apr 28, 2012 11:50 AM
10	Digital Media Design	Apr 28, 2012 9:51 AM
11	Administrative Assistant	Apr 27, 2012 8:27 PM
12	Robotics	Apr 27, 2012 12:44 PM
13	Business	Apr 27, 2012 11:45 AM
14	Computer Graphics and Game Technology	Apr 26, 2012 1:29 PM
15	English Literature/Cinema Studies	Apr 25, 2012 10:02 PM

Page 2, Q21. What was your favorite part about this control scheme?			
1	Never got unexpected results		Apr 30, 2012 2:04 PM
2	Simplicity		Apr 30, 2012 1:20 PM
3	It was one that I was very familiar with.		Apr 30, 2012 12:22 PM
4	Simplicity, familiar control scheme		Apr 30, 2012 10:43 AM
5	simple to use		Apr 30, 2012 9:55 AM
6	Familiarity with controls from video game experiences (mostly GameBoy)		Apr 30, 2012 8:50 AM
7	easier than gesture		Apr 29, 2012 2:00 PM
8	simple, but not ambiguous		Apr 28, 2012 5:17 PM
9	Granular turning		Apr 28, 2012 11:51 AM
10	simple interface		Apr 28, 2012 9:53 AM
11	Since you simply had to stop holding the directorial arrow to stop, I found it easier to control it. I also liked how easy it was to make the robot turn.		Apr 27, 2012 8:29 PM
12	Seeing the directional arrows made it easy to use the controller		Apr 27, 2012 12:50 PM
13	I didn't need to be careful of my hand position the way I did for the tilt.		Apr 27, 2012 11:47 AM
14	how easy it was to control degree of turn		Apr 26, 2012 1:30 PM
15	The clean-cut, easy nature of the controls made driving the robot very a secure, steady experience.		Apr 25, 2012 10:10 PM

Page 2, Q22. What was your least favorite part about this control scheme?		
1	turning and moving not well integrated	Apr 30, 2012 2:04 PM
2	The need to stop touching the screen entirely to change control	Apr 30, 2012 1:20 PM
3	The fact that it would only respond to one command at a time.	Apr 30, 2012 12:22 PM
4	Could not turn and move at same time	Apr 30, 2012 10:43 AM
5	not very fast	Apr 30, 2012 9:55 AM
6	Discretized directional choices	Apr 30, 2012 8:50 AM
7	less fun than gesture and tilt	Apr 29, 2012 2:00 PM
8	a little mundane	Apr 28, 2012 5:17 PM
9	Not pressing the right button because I was looking at the robot instead	Apr 28, 2012 11:51 AM
10	only takes one command at a time.	Apr 28, 2012 9:53 AM
11	Nothing. This was my favorite one!	Apr 27, 2012 8:29 PM
12	Turning, I had to stop and turn	Apr 27, 2012 12:50 PM
13	The controls were not sensitive at all.	Apr 27, 2012 11:47 AM
14	Could not turn and move at same time	Apr 26, 2012 1:30 PM
15	The robot was slower because the control options weren't seamless	Apr 25, 2012 10:10 PM

	Page 3, Q30. What was your favorite part about this control scheme?	
1	smooth motion control	Apr 30, 2012 2:05 PM
2	Intuitive and smooth, continuous variance to actions	Apr 30, 2012 1:22 PM
3	The sensitivity of the controller based on you motion	Apr 30, 2012 12:24 PM
4	Smooth, responsive controls. Akin to using a Wii-mote. Could make very subtle motions.	Apr 30, 2012 10:44 AM
5	vibration alerting to when not moving straight	Apr 30, 2012 9:56 AM
6	Full control	Apr 30, 2012 8:52 AM
7	fun	Apr 29, 2012 2:03 PM
8	fun, logical	Apr 28, 2012 5:20 PM
9	Being able to turn while moving forwards	Apr 28, 2012 11:52 AM
10	can perform multiple directions at the same time	Apr 28, 2012 9:54 AM
11	Moving in a straight line gave me a sense of accomplishment as I was pitiful at turning.	Apr 27, 2012 8:32 PM
12	The sensitivity of the controller - didn't have to necessarily stop to make turns	Apr 27, 2012 12:52 PM
13	It was very natural.	Apr 27, 2012 11:48 AM
14	Easy to move forward	Apr 26, 2012 1:32 PM
15	The quick speed	Apr 25, 2012 10:10 PM

Page 3, Q31. What was your least favorite part about this control scheme?

1	easy to lose control of the direction	Apr 30, 2012 2:05 PM
2	Speed not always correct (slower than should've been)	Apr 30, 2012 1:22 PM
3	The responsiveness and accuracy of the controls	Apr 30, 2012 12:24 PM
4	Sometimes hard to stop. Had to reset the controls a few times, breaking fluid run of course.	Apr 30, 2012 10:44 AM
5	hard to turn	Apr 30, 2012 9:56 AM
6	Had to tilt far forward to get full speed	Apr 30, 2012 8:52 AM
7	difficult moving forward while turning	Apr 29, 2012 2:03 PM
8	the fluidity of the controls tended to hinder precision	Apr 28, 2012 5:20 PM
9	It was very easy to accidentally turn left or right while moving straight	Apr 28, 2012 11:52 AM
10	The hand has to be held at an odd angle at all times	Apr 28, 2012 9:54 AM
11	Turning. I felt that the robot was overly sensitive to my movements, and I could never quite get it pointed in the optimal direction to move swiftly through the course.	Apr 27, 2012 8:32 PM
12	Tilting to control the robot sometimes was difficult	Apr 27, 2012 12:52 PM
13	I had to expend a lot of energy to keep the robot going the way I wanted it to.	Apr 27, 2012 11:48 AM
14	awkward to turn and move	Apr 26, 2012 1:32 PM
15	The "tilt" nature of the device made steering slightly difficult because it was difficult to gauge how subtle the movements should be	Apr 25, 2012 10:10 PM

	Page 4, Q39. What was your favorite part about this control scheme?	
1	no buttons that needed to be pressed	Apr 30, 2012 2:06 PM
2	Continuous action until stop or another action is given	Apr 30, 2012 1:24 PM
3	The controls became very intuitive and natural quickly	Apr 30, 2012 12:25 PM
4	Novelty.	Apr 30, 2012 10:46 AM
5	nothing	Apr 30, 2012 9:57 AM
6	Empowerment from making big gestures	Apr 30, 2012 8:54 AM
7	Most Fun	Apr 29, 2012 2:04 PM
8	N/A	Apr 28, 2012 5:24 PM
9	Pretending the controller was a magic wand	Apr 28, 2012 11:53 AM
10	the concept was interesting	Apr 28, 2012 9:55 AM
11	Similarly to the Tilt, I felt best when approaching a smooth part of the course so that I can move it in a straight line; however, I still had trouble stopping and starting the robot.	Apr 27, 2012 8:34 PM
12	Using hand gestures instead of buttons on a phone or gamepad	Apr 27, 2012 12:54 PM
13	It was easy to maintain control in a straight line.	Apr 27, 2012 11:49 AM
14	did not have to hold down any buttons or continuously do a motion	Apr 26, 2012 1:32 PM
15	The quick speed	Apr 25, 2012 10:10 PM

	Page 4, Q40. What was your least favorite part about this control scheme?	
1	did not always respond to what seems to be the appropriate gestures	Apr 30, 2012 2:06 PM
2	Right-turn and left-turn are not symmetric: arm doesn't rotate as well in one direction so signaling is harder	Apr 30, 2012 1:24 PM
3	The turning wasn't as responsive and accurate	Apr 30, 2012 12:25 PM
4	Difficult to have total control of robot slave. Gestures were tiring. Gesture did not always yield the desired action from my robot slave.	Apr 30, 2012 10:46 AM
5	hard to turn, I felt that I had to gesture very strongly to make it move	Apr 30, 2012 9:57 AM
6	Relatively very difficult to maintain control	Apr 30, 2012 8:54 AM
7	Hardest to learn	Apr 29, 2012 2:04 PM
8	it was frustratingly disconnected and touchy	Apr 28, 2012 5:24 PM
9	The gestures took too long to affect the robot's movement	Apr 28, 2012 11:53 AM
10	the lag between each command and the action	Apr 28, 2012 9:55 AM
11	Stopping!! This was the most difficult robot to stop because you actually had to press a button or make a motion rather than release control of a different movement. I found it incredibly difficult and frustrating while journeying through the course.	Apr 27, 2012 8:34 PM
12	Sometimes the controller wasn't very sensitive when switching between directions	Apr 27, 2012 12:54 PM
13	The presence of the stop button did not mesh well with the gesturing aspect.	Apr 27, 2012 11:49 AM
14	Controls were unresponsive	Apr 26, 2012 1:32 PM
15	The unfamiliar gestures made it difficult to control the robot, in general	Apr 25, 2012 10:10 PM

	Page 5, Q48. What was your favorite part about this control scheme?	
1	most intuitive	Apr 30, 2012 2:07 PM
2	Continuous forward motion possible with direction override	Apr 30, 2012 1:26 PM
3	It was a controller that I was familiar with and found easy to pickup quickly	Apr 30, 2012 12:27 PM
4	Familiar control scheme, like playing a video game or controlling an RC car. Very easy to turn while moving forward, easy to get precise turns	Apr 30, 2012 10:47 AM
5	triggers for gas and brake	Apr 30, 2012 9:58 AM
6	familiarity with control (from video games)	Apr 30, 2012 8:56 AM
7	easiest to learn	Apr 29, 2012 2:05 PM
8	the distinct difference between forward/backward controls and side to side controls	Apr 28, 2012 5:27 PM
9	It was easy to look at the robot and not worry about the controller because of the physical relationship with the buttons and sticks	Apr 28, 2012 11:54 AM
10	easy to understand	Apr 28, 2012 9:56 AM
11	I felt very in control of the robot with this scheme. I felt that the movements, much like with the D-Pad controller, were intuitive and easy to remember and utilize during the race.	Apr 27, 2012 8:37 PM
12	It was very similar to playing video games - easy to control and familiar	Apr 27, 2012 12:56 PM
13	The use of a game controller felt very natural to me.	Apr 27, 2012 11:50 AM
14	Easy to turn and move at same time	Apr 26, 2012 1:33 PM
15	The familiarity and stability of the controls. Also, using both hands was helpful in controlling the robot.	Apr 25, 2012 10:11 PM

Page 5, Q49. What was your least favorite part about this control scheme?

1	less than ideal integration of turning / moving	Apr 30, 2012 2:07 PM
2	All-or-nothing joystick detection range	Apr 30, 2012 1:26 PM
3	The fact that the controls were not sensitive to touch or pressure and that you could only give one command at a time.	Apr 30, 2012 12:27 PM
4	Controller malfunctioned at start of third lap, ending test run.	Apr 30, 2012 10:47 AM
5	it was hard to turn while moving	Apr 30, 2012 9:58 AM
6	it went out of control at the end (anomaly?)	Apr 30, 2012 8:56 AM
7	least fun	Apr 29, 2012 2:05 PM
8	i would have preferred to be able to make progressive movement while also turning.	Apr 28, 2012 5:27 PM
9	Not being able to turn while moving forward	Apr 28, 2012 11:54 AM
10	so many buttons	Apr 28, 2012 9:56 AM
11	The robot turned more sharply/forcefully when I commanded it than it did with the D-Pad, so I couldn't make my turns as subtly as I would have preferred. Moreover, in order to complete the turning motion, one very much has to fully push the joystick. It will not respond to light movement.	Apr 27, 2012 8:37 PM
12	Gas and Backward controls were separate from the turn control/button - They could've all been on the same joystick button	Apr 27, 2012 12:56 PM
13	The controls were not sensitive at all; the robot was incapable of making small turns at the level I needed.	Apr 27, 2012 11:50 AM
14	Hard to control degree of turn	Apr 26, 2012 1:33 PM
15	It was somewhat slower.	Apr 25, 2012 10:11 PM