Robot Challenge Journal

Challenge No.: 1

Team Name: 12 Members' Names: Lorenzo and Leah

Date	Seq. #	Name(s)	Hypothesis/Behavior	Description/Results
3-27	1		Find a design for our robot	We found Stricker, about half way through the build we noticed that most of the pieces were missing.
3-27	2		Looked through the build booklet that came with the kit.	Decided to go with the build that came with the kit because.
3-27	3			Read Challenge document
3-27	4		Maybe find a new design	Found a few other options on the lego website but in the time we have we decided to just stick with the robot design we have constructed already.
3-27	5		Availability	Available monday before 115 and wed before 1215
3-29	6		Make whiskers for the sensors similar to "shakey"	Tried nemours bars until we settled on the white "L" shaped piece.
3-29	7			Upgraded EV3s firmware
3-29	8		Move forward 2 sec to test the motors and wheels	worked! it moved forward and turned off, both motors work
3-29	9		Test left and right sensor with blinking red led light.	Left sensor worked, right sensor did not. Tried different ports and different wires, still did not work. Tested a new sensor, not working. Tested the sensor with the current working port and wire, worked. Found the problem, it was with the code only testing one sensor. Fixed code to reflect which port the sensor was plugged into, both sensors worked!
4-3	10		Write sensor code:when the left bar is pressed, backup and turn right. when right bar is pressed, backup and turn left. both are pressed back up and stop for 2 sec	Method that detects these collisions worked the first time, have to mess with the turn radius a bit more

4-3	11	leah	Added a horizontal bar to the left and right front sensor	
4-3	12	lorenzo	Added protruding sticks to each sensor	The sensor did not detect all hits. It would only detect head on collisions, have to come up with a better design
4-3	13		Added a longer horizontal bar that curves around the corners of the robot for better detection	This was a much better design and more sturdy than the previous set up that was not detection most angled hits.
4-3	14		Implement move forward, left, right, and backward movements for wander	The motor speed was too high for the turning radius
4-3	14.5		Pulled backward code out and put it in its own function so collision function can use also with motor speed at -50	works as thought, by backing up and sleeping for the 2secs except when we have two collisions, must add a flag
4-3	15		Fix collision code to reflect if either bumper has been pressed. Added a flag and stop task function	Now we have correctly identified why our robot was not resetting the collision detection, after adding the flag the robot will continue to go about the task after a collision.
4-5	16		demo 1	We have nice smooth curves in our wander, but the robot does not have a strait bias. Table went ok, the two stabilizing wheels were getting stuck on turns
4-5	17		Changed the two tiny wheels on the back to one caster wheel	Wheels don't drag on the table anymore, much smoother
4-5	18		We have added a extra random probability to go straight more often	It wanders more straight now that we added a higher probability for going straight twice as more as left of right. It is working.
4-9	19		demo 2	Table went great! Got out of the small space at the foot of the table with ease! Wander is a mess, Still don't have a straight bias. We had wander all wrong...it really needs to try and get to the other end, not turn around. Our robot was wandering all over, going straight most of the time but

				when it turns it might turn around and go a new direction.
4-9	20		Make our turning time shorter and speed up the straight away	This gave us the desired “drunken sailor” walk that we had been missing it randomly chooses left or right at random times and goes straight for random times, never having a turning radius greater than, say 2 ish or 11 ish o’clock
4-12	21		demo 3	Wander is doing what it should! But now our robot gets stuck in the corner...one more tweek. (because when we fixed wander we messed with the turning wheel speeds and the turn radius isn’t as random as should be.
4-12	22		Added a random calculation the sleep time for the turn left and turn right functions	not working, sometimes the robot turns around completely, or goes straight...indicating a calculation of zero
4-12	23		Did a bit of research, change rand() to random() for calculation	Now it works, The turns now randomly go for a random amount of time, no going straight after a collision(unless it hits both, backs up and randomly chooses straight again). Gets out of small spaces more quickly.
4-12	24		demo 3.5	Wander went great again! (though we didn’t touch that code so it should work) Passed the table. Our robot still had more large turns than small turns it was completely random.
4-12	25	leah	Cleaned up the journal	done
4-12	26	lorenzo	Commented and cleaned up the code and uploaded it to our team Google drive	done
4-12	27	leah	submit files to canvas	will do before 5 pm April 12th