Task 1: Analysing Sensors

1. **Document values with the different**

Light sensor on blue carpet

Distance (mm)	Value 1	Value 2	Value 3	Value 4	Value 5	Value 6	Value 7	Mean	Std. Deviation
5	100	100	100	100	100	100	100	100	0
25	32	27	26	27	25	29	26	27.42857	2.194613
50	5	8	7	7	7	7	6	6.714286	0.880631
100	1	2	1	2	2	1	1	1.428571	0.494872

Light sensor on white line

Distance (mm)	Value 1	Value 2	Value 3	Value 4	Value 5	Value 6	Value 7	Mean	Std. Deviation
5	14	16	15	16	13	12	14	14.28571	1.385051
25	4	4	4	4	4	4	4	4	0
50	0	1	0	1	0	1	0	0.428571	0.494872
100	0	0	0	0	0	0	0	0	0

Ultrasonic sensor

Distance (mm)	Value 1	Value 2	Value 3	Value 4	Value 5	Value 6	Value 7	Mean	Std. Deviation
5	2550	2550	2550	2550	2550	2550	2550	2550	0
25	32	32	32	32	32	32	32	32	0
50	55	51	50	50	50	51	51	51.14286	1.641304
100	101	107	103	103	103	101	107	103.5714	2.321154
250	250	251	251	251	251	251	251	250.8571	0.349927
infinity	2550	2550	2550	2550	2550	2550	2550	2550	0

Gyroscopic sensor

Angle (degrees)	Value 1	Value 2	Value 3	Value 4	Value 5	Value 6	Value 7	Mean	Std. Deviation
90	90	89	95	91	90	83	90	89.71429	3.282607
180	187	185	183	169	184	184	183	182.1429	5.51436
270	274	270	272	264	264	251	261	265.1429	7.259055
360	333	334	345	347	345	353	365	346	10.18402
720	710	717	713	693	697	716	706	707.4286	8.633111
1080	1045	1060	1068	1044	1043	1029	1044	1047.571	11.7699

2. **Discuss the reliability of the sensors based on your findings.**

Consistency

Most of the sensors are consistent with the recorded values, except gyroscopic sensor, which had varying readings from one sensor to another. This makes the gyroscopic sensor not suitable for most of the tasks in lab.

Light sensor

Color sensor

Task 2: Testing Motors

1.**Document values from the experiments.** (4 in total):

Repeat each experiment 7 times. Record values in a spreadsheet and compute mean and standard deviation of the recorded values.

Straight line

Speed	Value 1(cm)	Value 2(cm)	Value 3(cm)	Value 4(cm)	Value 5(cm)	value 6(cm)	Value 7(cm)	Mean	Std. Deviation
slow (60)	135	82	293	74	164	34	128	130	77.83683
medium (120)	34	125	114	140	37	73	215	105.4286	59.15321
fast (240)	50	60	162	30	60	56	41	65.57143	40.6443

2. **Discuss the reliability of the motors based on your findings.**

Task 3: Spot Finder

1. **Document selection of sensor(s) with justification.**
2. **Provide a picture of the driving base with the selected sensor(s).**
3. **Document the algorithmic idea.**
4. **Provide well-commented MicroPython source code of the implementation.**

Task 4

1.
2.
3.
4.

Task 5

1.
2.
3.
4.

Task 6

1.
2.
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