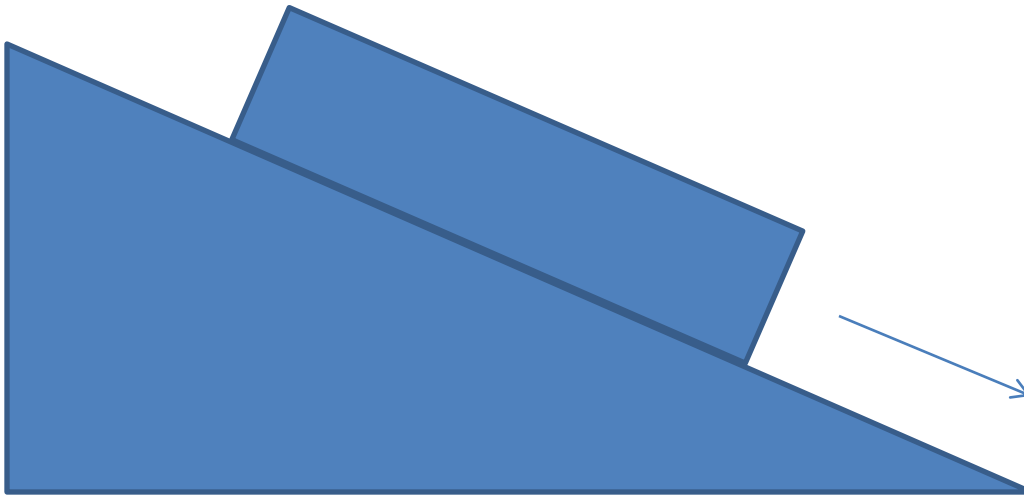


Results of the Wheel Friction Coefficient Experiment

Lucy Stuehrmann

Experimental Procedure

- Wheels were tested in DEWBot V frame
- 4 wheels were fixed in place on frame
- Frame was placed on a slope and slope was tilted until the frame began slipping



Wheel Type 1: HiGrip

	Polycarb	Carpet
Trial 1: Orientation 1	45	60
Trial 2: Orientation 1	44	61
Trial 3: Orientation 1	42	60
Averages	43.66666667	60.33333333
Coefficients	0.954508314	1.755559014
Trial 1: Orientation 2	35	60
Trial 2: Orientation 2	35	59
Trial 3: Orientation 2	35	60
Averages	35	59.66666667
Coefficients	0.700207538	1.709011649

Wheel Type 2: Plaction

	Polycarb	Carpet
Trial 1: Orientation 1	25	62
Trial 2: Orientation 1	28	61
Trial 3: Orientation 1	25	61
Averages	26	61.33333333
Coefficients	0.487732589	1.829062775
Trial 1: Orientation 2	27	52
Trial 2: Orientation 2	26	54
Trial 3: Orientation 2	27	54
Averages	26.66666667	53.33333333
Coefficients	0.502218876	1.343233111

Wheel Type 3: Omni

	Polycarb	Carpet
Trial 1: O1	14	20
Trial 2: O1	12	20
Trial 3: O1	11	19
Averages	12.333333333	19.666666667
Coefficients	0.218644772	0.357395613
Trial 1: O2	3	9
Trial 2: O2	4	8
Trial 3: O3	3	9
Averages	3.333333333	8.666666667
Coefficients	0.058243367	0.152426157

Wheel Type 4: Rover

	Polycarb	Carpet
Trial 1: O1	7	13
Trial 2: O1	7	15
Trial 3: O1	6	12
Averages	6.666666667	13.333333333
Coefficients	0.116883237	0.237004354
Trial 1: O2	8	15
Trial 2: O2	7	14
Trial 3: O3	7	13
Averages	7.333333333	14
Coefficients	0.128694322	0.249328003

Wheel Type 5:

	Polycarb	Carpet
Trial 1: O1	10	19
Trial 2: O1	10	17
Trial 3: O1	11	18
Averages	10.33333333	18
Coefficients	0.182331854	0.324919696
Trial 1: O2	15	29
Trial 2: O2	15	28
Trial 3: O3	14	29
Averages	14.66666667	28.66666667
Coefficients	0.261723367	0.546728091

Conclusions

- Although the Plaction wheels had a slightly higher friction coefficient for the carpet test, it was outstripped by the HiGrip wheels in all other categories
- The HiGrip wheels also performed better than all other wheel types tested