Robot Mass	0.433	Kg	
Coefficient of friction	0.4	Plastic on wood. https://mae.ufl.edu/designlab/Class%20Projects/Background%20Information/Friction%20coefficients.htm	
Helium Balloons' "Lift"	0.220	Kg	
Gravitational acceleration	4.8	m/s2	gmicro = 9.8 x (Robot mass - Lift)/Robot mass
Force of friction	0.8	N	Robot mass x coefficient of friction x gravitational acceleration
Predicted Thrust	6.5	N	

d = 1/2 at^2
a = 2d/(t^2)
F = m*2d/(t^2)

Actual Net Thrust + Force of Friction

Formula = 1 - (Expected Net Thrust + Friction)/(Actual Net Force + Friction)

Actual Net Thrust X Impulse Duration

v =(Actual Net Thrust * Impulse duration)/Mass

Run	Impulse Phase		Glide Phase		Time			Distance			Impulse phase				
	Start Time (s)	End time (s)	Start Time	End Time	Impulse duration	Glide Duration (s)	Total Travel time (s)	Total Distance travelled (m)	Impulse Phase Distance (m)	Glide Distance (m)	Actual Net Thrust (N)	Actual Generated Thrust (N)	% Difference in Thrust (Model vs Measured)	Actual Net Impulse (Ns)	Peak Velocity (m/s)
1	9.2	9.53	9.53	10.48	0.33	1.0	1.3	1.60	0.51	1.09	4.1	4.9	25%	1.3	3.1
2	16.48	16.85	16.85	17.88	0.37	1.0	1.4	1.70	0.6	1.13	3.6	4.5	32%	1.3	3.1
3	17.42	17.63	17.63	18.7	0.21	1.1	1.3	1.14	0.3	0.80	6.7	7.6	-16%	1.4	3.3

Legend

Green	Actual measurement data
Clear	Calculated from data using arithmetic
Gold	Well known value, sourced via an external source
Grey	Predicted by model
Orange	Indirect measurement: using actual data and Newton's laws of motion and motion equations

Air resistance		3.2	N	
Drag coefficient		0.5	Drag coefficient for a sphere: https://www.engineeringtoolbox.com/drag-coefficient-d_627.html	
Density of air (20 C) (Kg/r		1.2		
Velocity (m/s)		3.1		
Area (sq m)		1.11	**Circumference**	**Radius**
	Balloon 1	0.32	2.0066	0.32 m
	Balloon 2	0.47	2.4257	0.39 m
	Balloon 3	0.32	2.0066	0.32 m