Collision Lab Shared Data

Car 1: Ruby
Red channel/detector 1
Mass = 0.985 kg

Car 2 Hershey
Blue channel/detector 2
Mass = 1.348 kg

We found that the irregular shapes of the "guinea pig tanks" made data collection of the motion of the tanks very noisy. So we added flat pieces of paper to each end of the tank so that the motion detector had a flat and perpendicular surface to bounce sound from
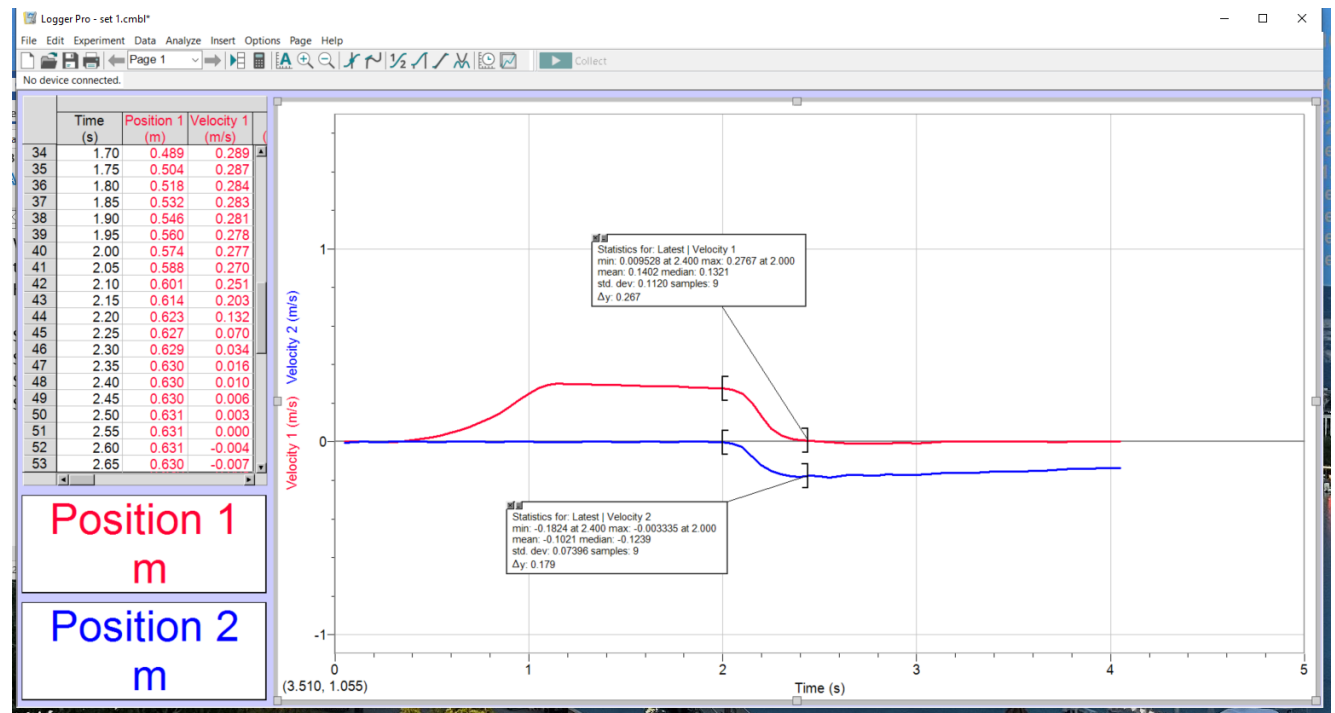
Set 1: Elastic. Ruby is initially at rest. Hershey almost stops after the collision.
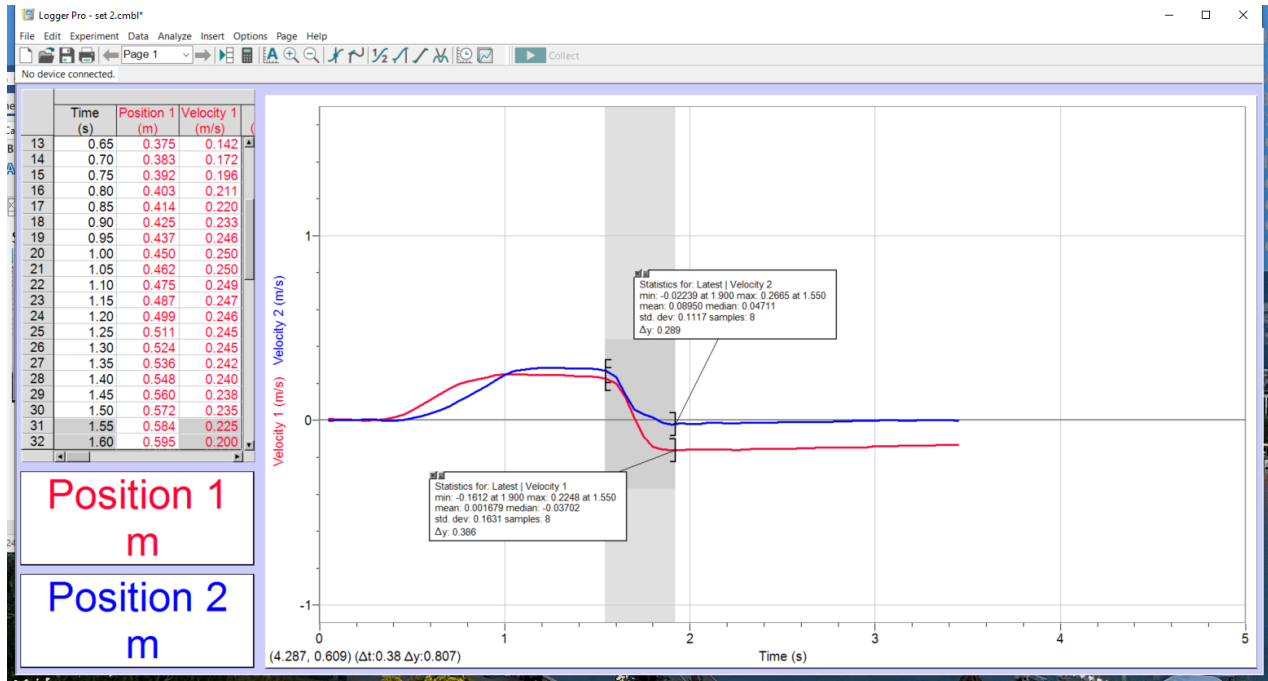Set 2: Elastic. Head-on (both pigs have initial velocity). Hershey again almost stops after the collision.
Set 3: Inelastic. Ruby is initially at rest.
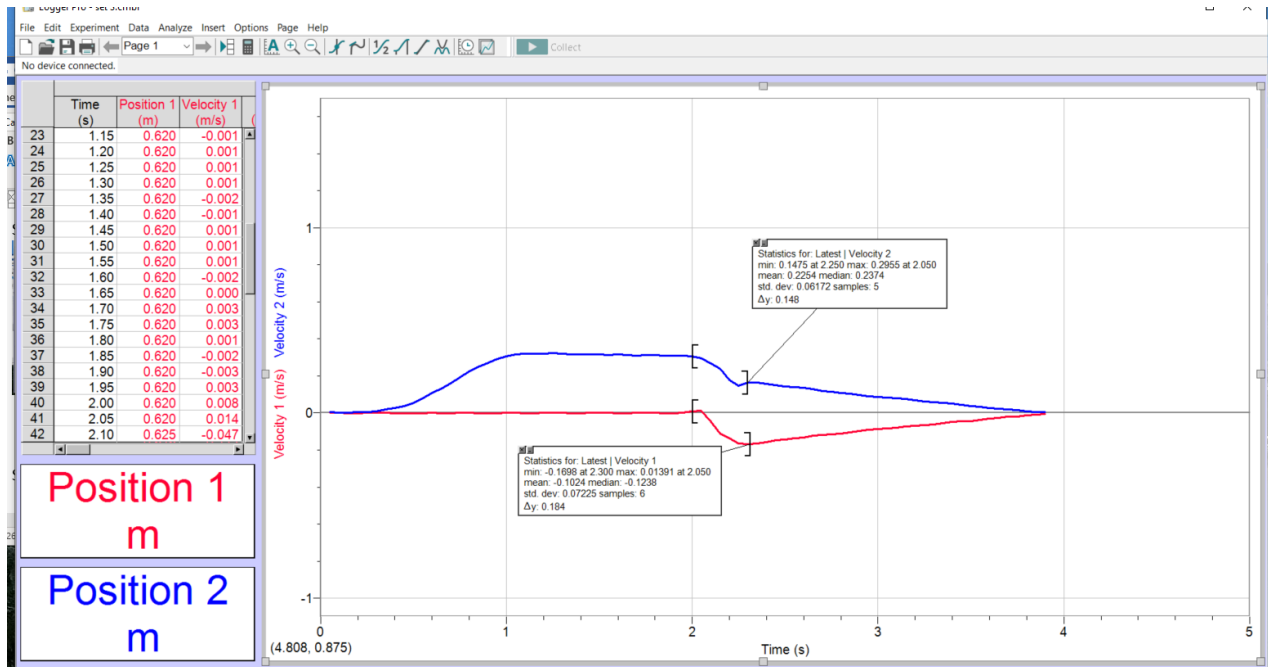Set 4: Inelastic. Hershey is initially at rest.

Set 1:

Set 2:

	Time (s)	Position 1 (m)	Velocity 1 (m/s)
13	0.65	0.375	0.142
14	0.70	0.383	0.172
15	0.75	0.392	0.196
16	0.80	0.403	0.211
17	0.85	0.414	0.220
18	0.90	0.425	0.233
19	0.95	0.437	0.246
20	1.00	0.450	0.250
21	1.05	0.462	0.250
22	1.10	0.475	0.249
23	1.15	0.487	0.247
24	1.20	0.499	0.246
25	1.25	0.511	0.245
26	1.30	0.524	0.245
27	1.35	0.536	0.242
28	1.40	0.548	0.240
29	1.45	0.560	0.238
30	1.50	0.572	0.235
31	1.55	0.584	0.225
32	1.60	0.595	0.200

Position 1 m

Position 2 m

Statistics for: Latest | Velocity 2
min: -0.02239 at 1.900 max: 0.2665 at 1.550
mean: 0.08950 median: 0.04711
std. dev: 0.1117 samples: 8
Δy: 0.289

Statistics for: Latest | Velocity 1
min: -0.1612 at 1.900 max: 0.2248 at 1.550
mean: 0.001679 median: -0.03702
std. dev: 0.1631 samples: 8
Δy: 0.386

(4.287, 0.609) (Δt:0.38 Δy:0.807)

Set 3:

	Time (s)	Position 1 (m)	Velocity 1 (m/s)
23	1.15	0.620	-0.001
24	1.20	0.620	0.001
25	1.25	0.620	0.001
26	1.30	0.620	0.001
27	1.35	0.620	-0.002
28	1.40	0.620	-0.001
29	1.45	0.620	0.001
30	1.50	0.620	0.001
31	1.55	0.620	0.001
32	1.60	0.620	-0.002
33	1.65	0.620	0.000
34	1.70	0.620	0.003
35	1.75	0.620	0.003
36	1.80	0.620	0.001
37	1.85	0.620	-0.002
38	1.90	0.620	-0.003
39	1.95	0.620	0.003
40	2.00	0.620	0.008
41	2.05	0.620	0.014
42	2.10	0.625	-0.047

Position 1 m

Position 2 m

Statistics for: Latest | Velocity 2
min: 0.1475 at 2.250 max: 0.2955 at 2.050
mean: 0.2254 median: 0.2374
std. dev: 0.06172 samples: 5
Δy: 0.148

Statistics for: Latest | Velocity 1
min: -0.1698 at 2.300 max: 0.01391 at 2.050
mean: -0.1024 median: -0.1238
std. dev: 0.07225 samples: 6
Δy: 0.184

(4.808, 0.875)

Set 4: