



CATSAT TEAM
UPM_SPAIN



Mission Facts:



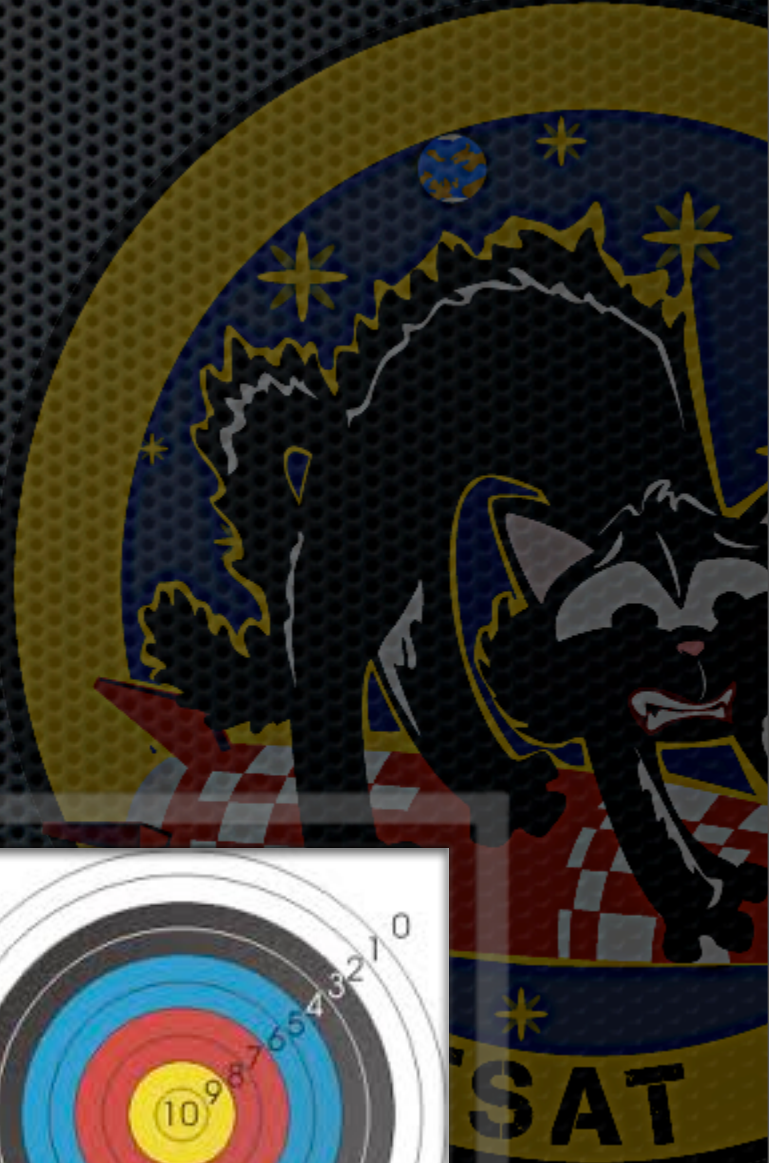
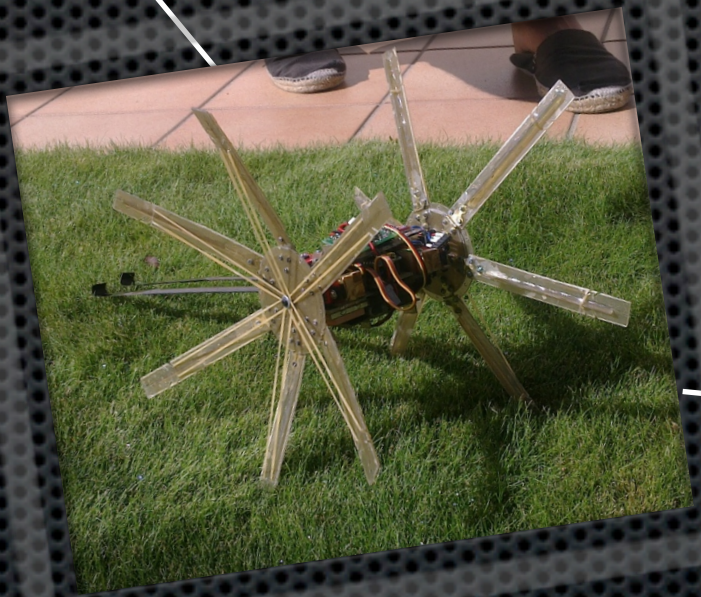
Success

Inside the balloon.
Cansat in standby.

Unexpected
Lose of a Wheel

¿?
Ground
movement towards the
target.

Success
Parachute
deployment.



Mission:

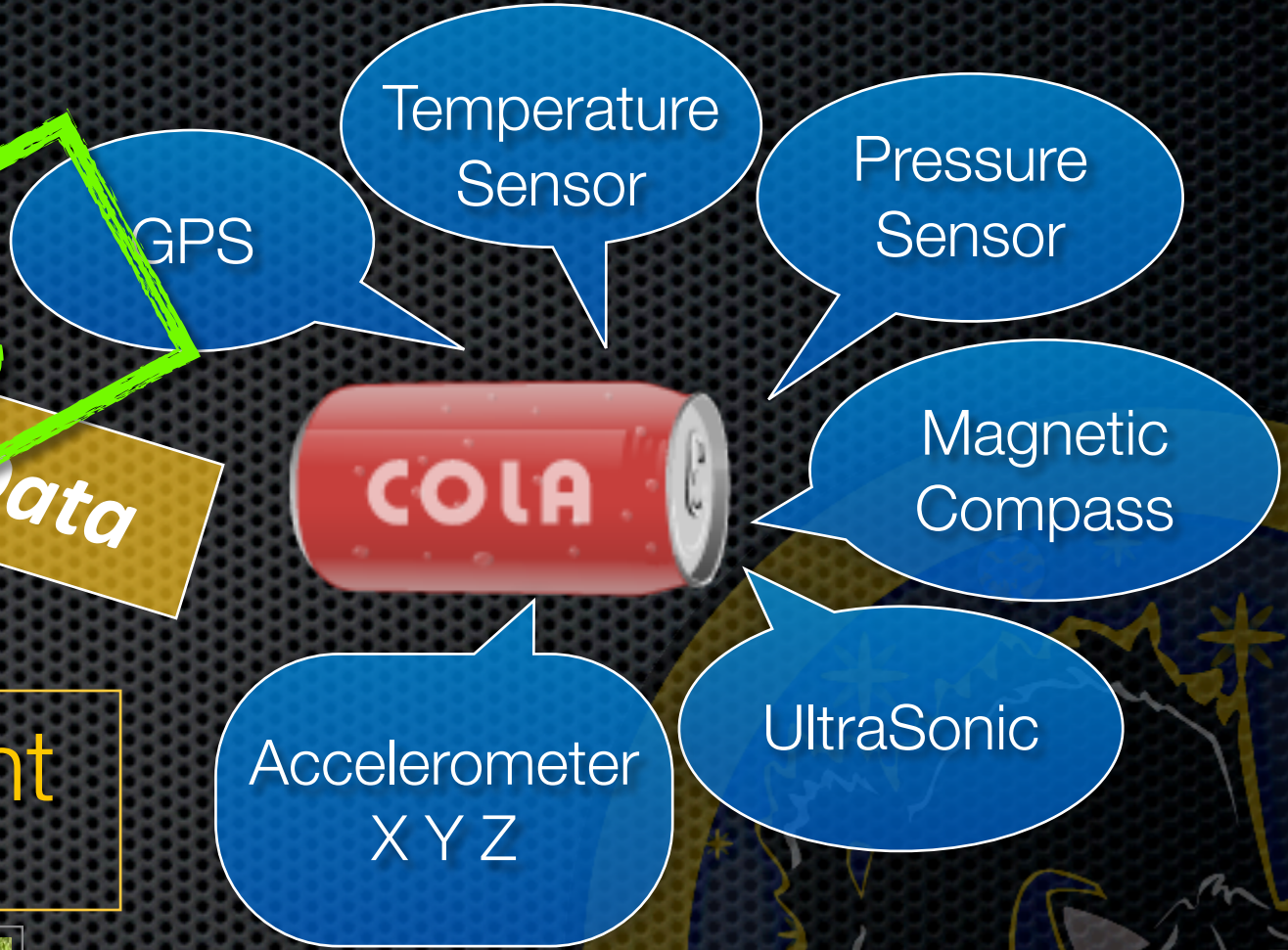


1. Telemetry

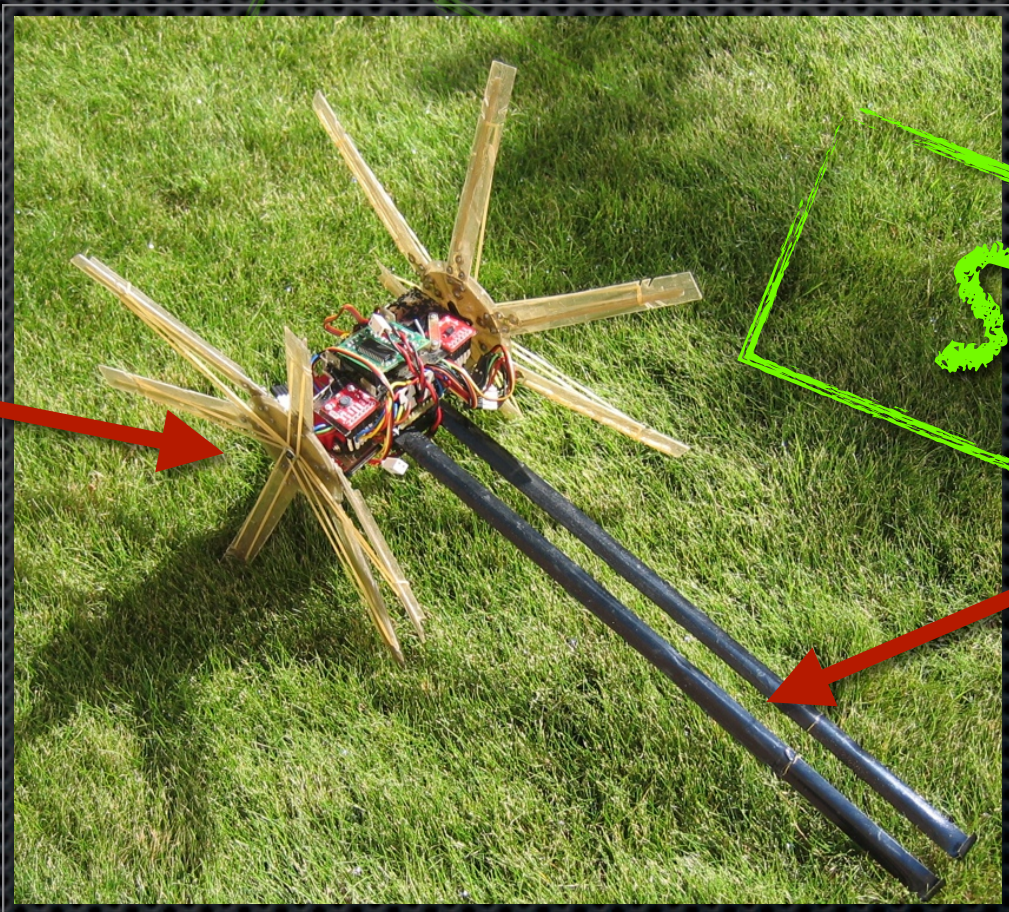
Data

Data

Success



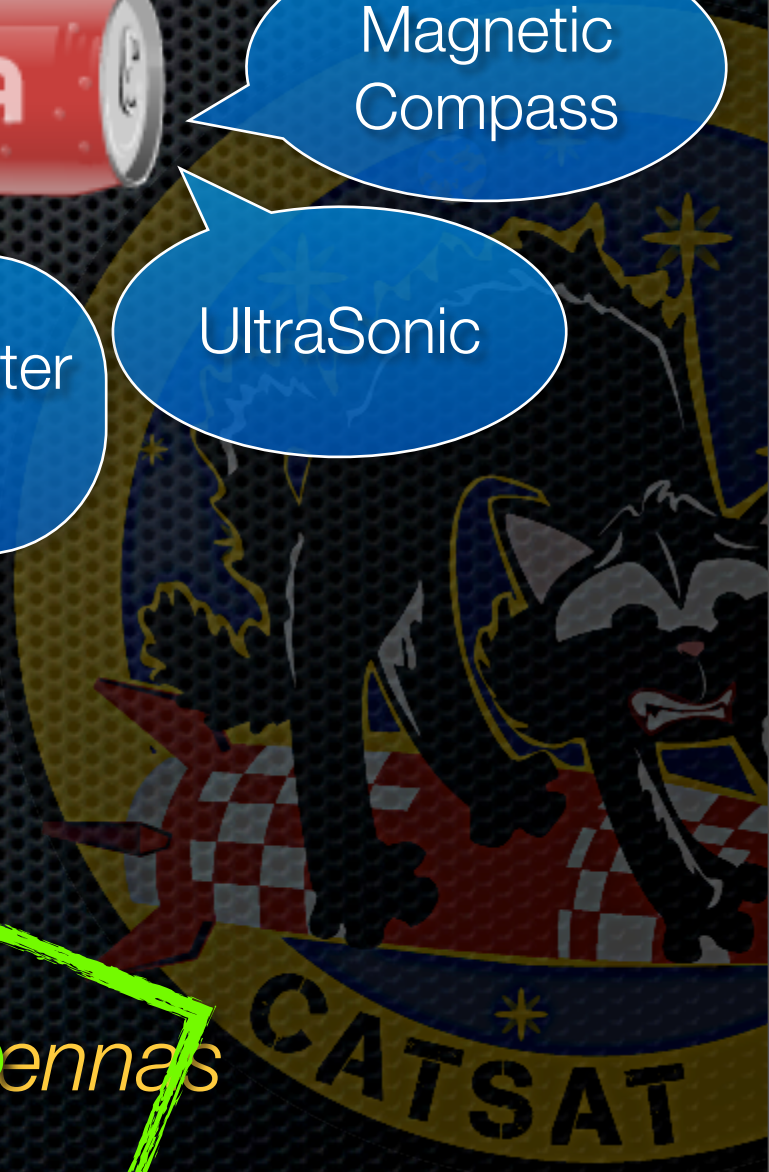
2. Antennas Deployment
(Non Functional)



Wheels// Antennas

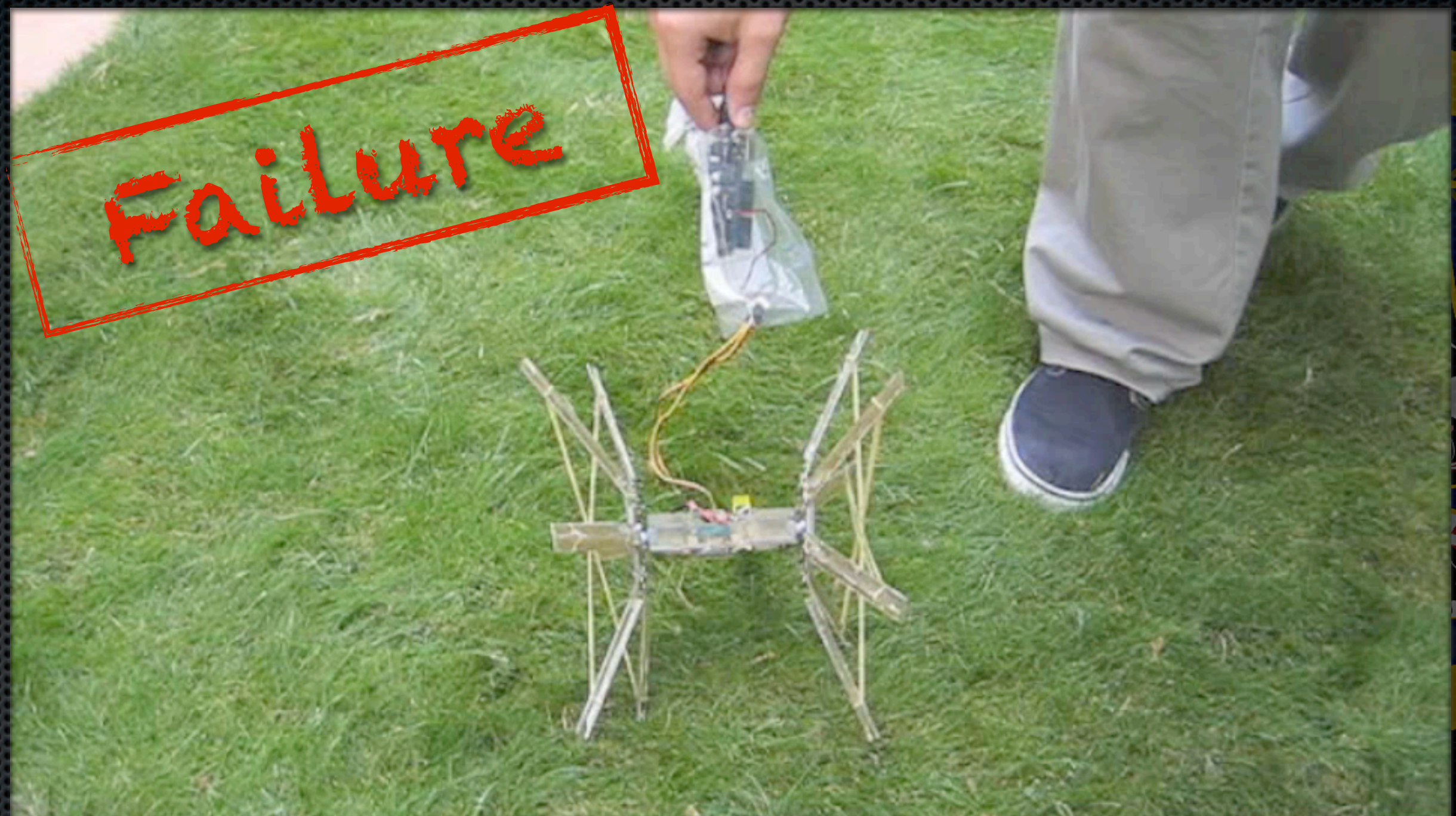
Success

Legs// Antennas



3^a ComeBack/Navigation:

- Rover Cansat
- ComeBack Mission
- Explore foreign lands.
- Avoid obstacles.
- Big wheels.



Mission

Flight duration

Balloon height
when release

Average falling
speed:

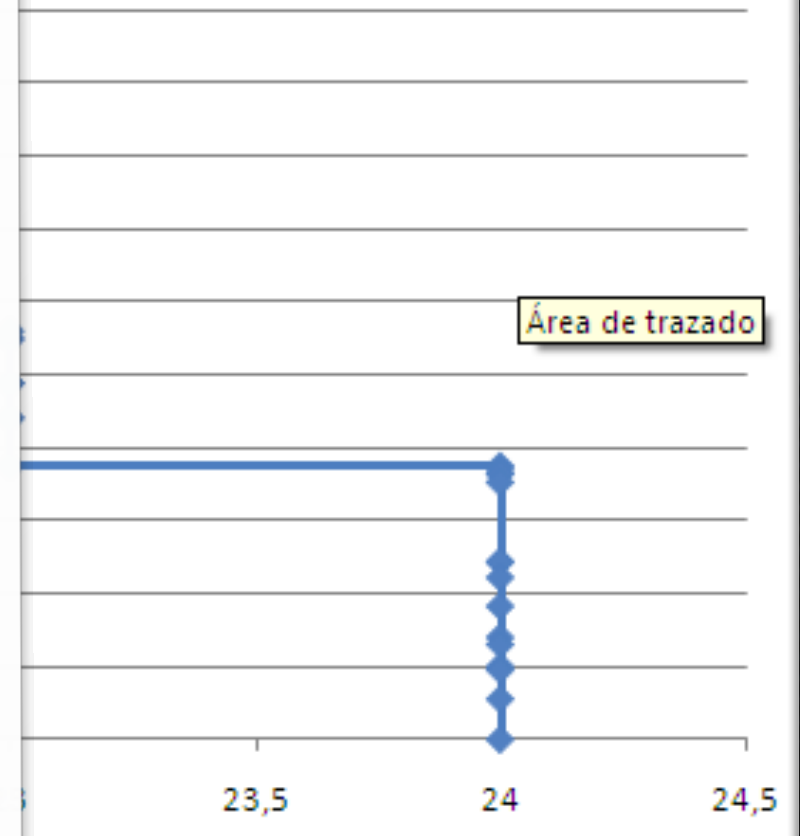
Average
temperature

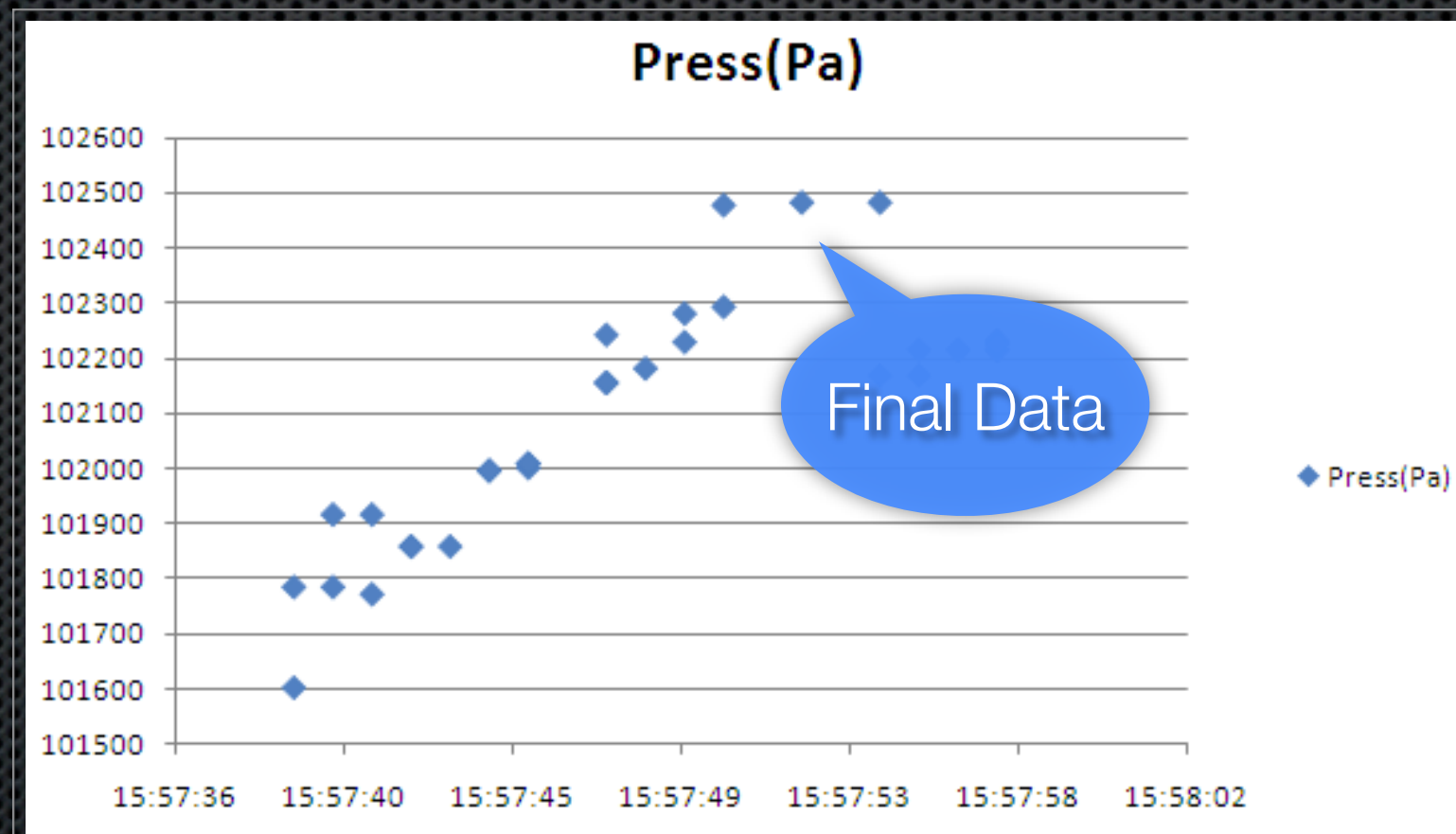
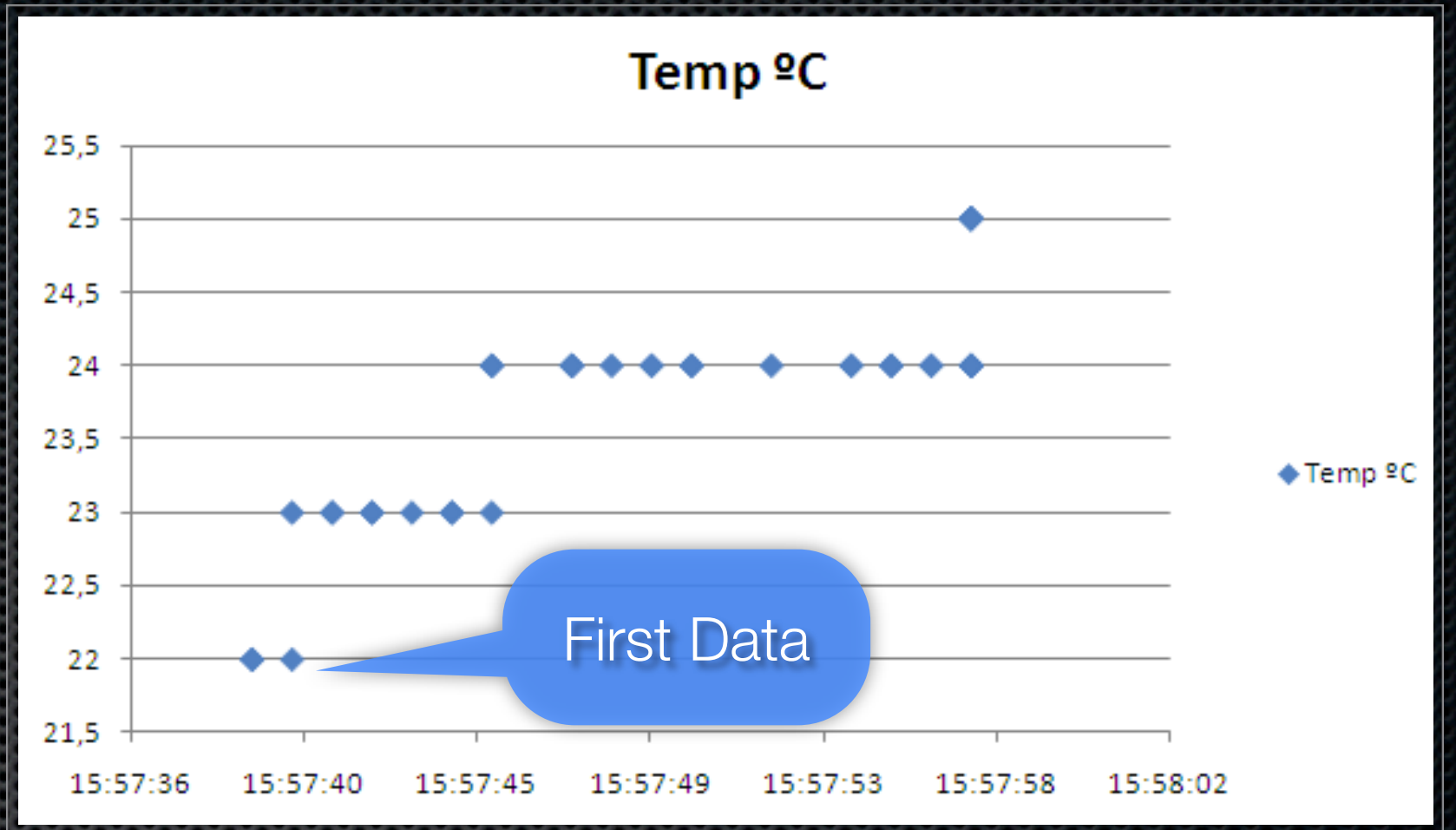
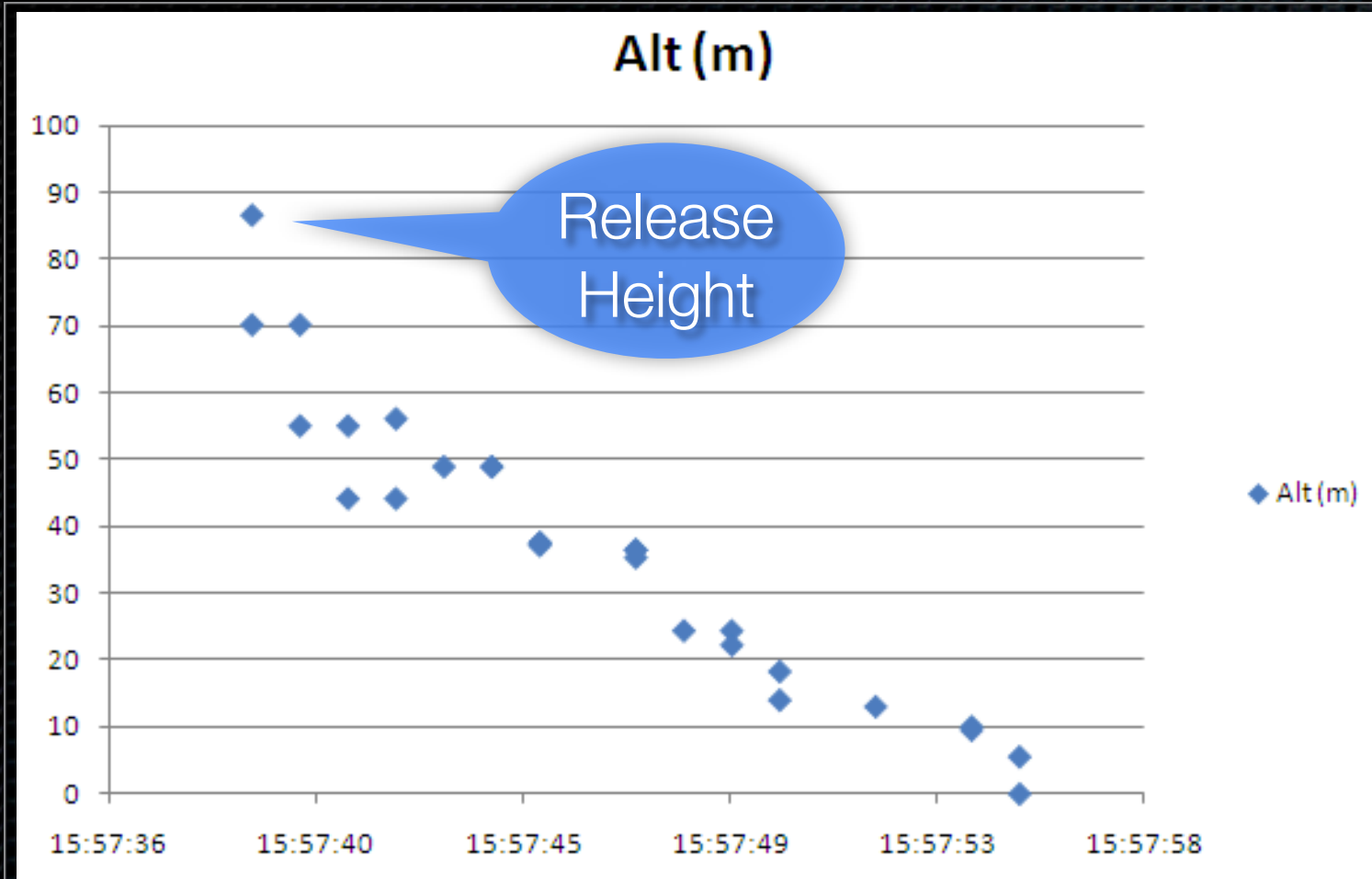
15:57:40	44.259464 N, 1.145486 W	232.55	554	903	52	24	101601	148	101.0	70.14886
15:57:40	44.259464 N, 1.145486 W	232.55	511	564	408	24	101784	148	39.0	55.041985
15:57:41	44.259457 N, 1.145488 W	203.57	515	565	405	24	101784	148	53.0	55.041985
15:57:41	44.259457 N, 1.145488 W	203.57	503	537	438	24	101916	0	64.0	44.160183
15:57:42	44.259453 N, 1.145497 W	241.91	502	542	385	24	101916	0	56.0	44.160183
15:57:42	44.259453 N, 1.145497 W	241.91	526	559	386	24	101771	0	129.0	56.115395
15:57:43	44.25945 N, 1.145487 W	207.58	513	571	402	24	101858	0	91.0	48.939102
15:57:44	44.25944 N, 1.145479 W	145.98	508	567	414	24	101858	0	88.0	48.939102
15:57:44	44.25943 N, 1.145479 W	145.98	508	567	414	24	101858	0	88.0	48.939102
15:57:45	44.25943 N, 1.145455 W	113.5	524	576	399	24	101996	0	111.0	37.569386
15:57:45	44.25943 N, 1.145455 W	113.5	524	576	399	24	101996	0	111.0	37.569386
15:57:45	44.25943 N, 1.145455 W	113.5	500	557	415	23	102001	0	102.0	37.15532
15:57:45	44.25943 N, 1.145455 W	113.5	500	557	415	23	102001	0	102.0	37.15532
15:57:47	44.259403 N, 1.14539 W	128.36	509	560	415	24	102009	0	110.0	36.49861
15:57:47	44.259403 N, 1.14539 W	128.36	507	554	420	24	102009	0	101.0	36.49861
15:57:47	44.259403 N, 1.14539 W	128.36	521	586	395	23	102213	0	100.0	17.245785
15:57:48	44.259384 N, 1.145353 W	113.68	515	586	401	23	102156	0	122.0	24.40098
15:57:49	44.25937 N, 1.1453221 W	137.44	506	561	425	23	102156	0	104.0	24.40098
15:57:49	44.25937 N, 1.1453221 W	137.44	511	564	418	23	102156	0	77.0	22.26207
15:57:50	44.25935 N, 1.145301 W	136.37	508	550	426	23	102230	0	67.0	18.313921
15:57:50	44.25935 N, 1.145301 W	136.37	506	550	412	23	102282	230	116.0	14.041377
15:57:51	44.25933 N, 1.145281 W	145.5	494	550	425	24	102267	230	96.0	15.27303
15:57:51	44.25933 N, 1.145281 W	145.5	513	551	415	23	102362	0	87.0	7.469042
15:57:52	44.25931 N, 1.14527 W	174.35	517	542	412	23	102362	0	87.0	7.469042
15:57:52	44.25931 N, 1.14527 W	174.35	509	554	410	23	102294	0	79.0	13.054999
15:57:52	44.25931 N, 1.14527 W	174.35	512	576	403	24	102410	0	116.0	3.5288057
15:57:53	44.259293 N, 1.145263 W	168.97	518	538	401	24	102426	0	137.0	2.2153938
15:57:54	44.259274 N, 1.14526 W	186.11	496	547	429	24	102479	0	132.0	-2.130998
15:57:54	44.259274 N, 1.14526 W	186.11	415	489	413	23	102484	0	116.0	-2.542428
15:57:55	44.259254 N, 1.145262 W	186.88	414	481	396	23	102484	2069	115.0	-2.542428
15:57:55	44.259254 N, 1.145262 W	186.88	415	475	400	23	102169	2069	117.0	23.330206
15:57:56	44.25924 N, 1.145261 W	183.99	415	474	400	23	102169	2069	117.0	23.330206
15:57:56	44.25924 N, 1.145261 W	183.99	416	474	399	23	102216	0	117.0	19.466454
15:57:57	44.25923 N, 1.145257 W	183.93	415	476	399	23	102216	0	117.0	19.466454
15:57:57	44.25923 N, 1.145257 W	183.93	415	476	399	23	102216	0	117.0	19.466454
15:57:57	44.25923 N, 1.145257 W	183.93	415	476	399	23	102216	0	117.0	19.466454
15:57:57	44.25923 N, 1.145257 W	183.93	415	475	400	23	102216	0	117.0	19.466454
15:57:57	44.25923 N, 1.145257 W	183.93	415	475	400	23	102216	0	117.0	19.466454
15:57:57	44.25923 N, 1.145257 W	183.93	415	475	400	23	102216	0	117.0	19.466454
15:57:57	44.25923 N, 1.145257 W	183.93	415	473	400	23	102232	0	117.0	18.150404
15:57:57	44.25923 N, 1.145257 W	183.93	415	473	400	23	102232	0	117.0	18.150404
15:57:57	44.25923 N, 1.145257 W	183.93	415	475	399	23	102226	0	118.0	18.643593
15:57:57	44.25923 N, 1.145257 W	183.93	415	475	399	23	102226	0	118.0	18.643593

Data Recovered

Success

Temp





Electronic Subsystem:

Success

Accelerometer

Magnetic Comp. ass

Ultrasonic

Battery

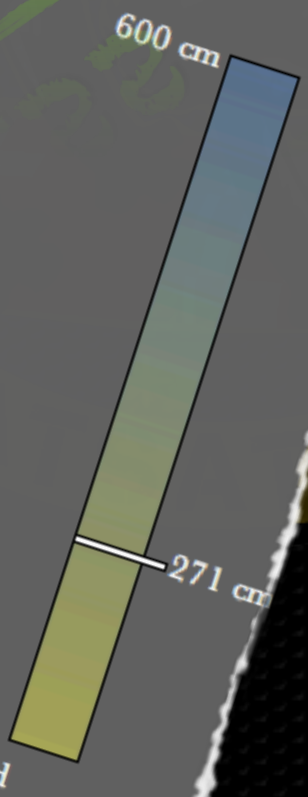
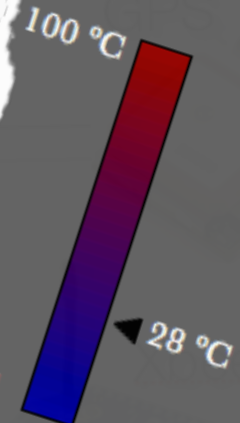
u. Arduino



GROUND STATION
RX: ON

8/10/2010
19:35:12 GMT
42.420094 N, 6.379834 W
Heading: 196.54 (grados)
Speed: 0.44718 (m/s)

Ax: 469
Ay: 38
Az: 5
Temp: 28 °C
Pres: 92243 Pa
Ultra: 271 cm
Bruj: 275.0 (grados)
Alt: 782.47974 (metros)

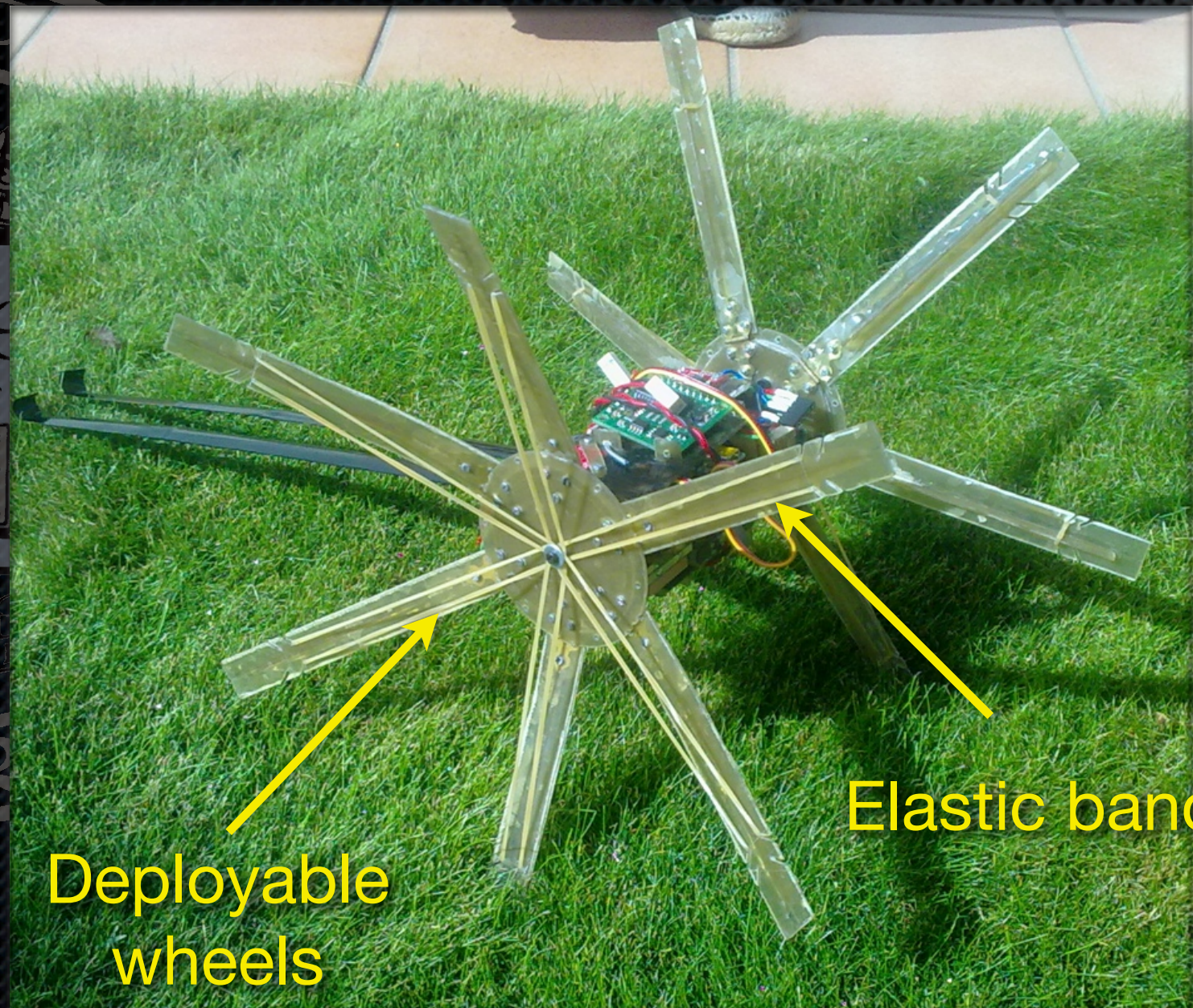


44.259464 N, 1.145486 W	222.31	250	656	753	24	101601	0	143.0	70.14000
44.259464 N, 1.145486 W	232.55	511	564	52	24	101601	148	101.0	70.14886
44.259464 N, 1.145488 W	203.57	515	565	408	24	101784	148	39.0	55.04198
44.259457 N, 1.145488 W	203.57	503	537	405	24	101784	148	53.0	55.04196
44.259457 N, 1.145497 W	241.91	502	542	438	24	101916	0	64.0	44.16018
44.259453 N, 1.145497 W	241.91	526	542	435	24	101916	0	56.0	44.16018
44.259453 N, 1.145497 W	145.98	508	571	402	24	101771	0	129.0	56.11539
44.259453 N, 1.145497 W	145.98	508	567	414	24	101858	0	91.0	48.93910
44.259434 N, 1.145479 W	145.98	508	546	386	24	101858	0	88.0	48.93910
44.259434 N, 1.145455 W	113.5	524	576	415	24	101996	0	88.0	37.56930
44.25943 N, 1.145455 W	113.5	500	557	414	24	101996	0	111.0	37.15530
44.25943 N, 1.145455 W	113.5	500	567	414	24	101996	0	111.0	37.15530
44.25943 N, 1.145455 W	113.5	509	546	399	24	102001	0	102.0	37.15530
44.25943 N, 1.145455 W	128.36	507	576	415	23	102009	0	102.0	36.49861
44.25943 N, 1.14539 W	128.36	521	557	415	24	102009	0	110.0	36.49861
44.259403 N, 1.14539 W	128.36	515	557	415	24	102243	0	101.0	17.24578
44.259403 N, 1.14539 W	128.36	515	560	415	24	102243	0	100.0	24.40090
44.259403 N, 1.145353 W	113.68	506	554	399	23	102156	0	102.0	24.40098
44.259384 N, 1.1453221 W	137.44	508	554	395	23	102156	0	102.0	28.31392
44.25937 N, 1.1453221 W	136.37	506	554	395	23	102182	0	67.0	14.04137
44.25937 N, 1.145301 W	136.37	494	586	401	23	102182	0	116.0	15.27303
			586	425	23	102230	230	95.0	7.469042
			561	418	23	102282	230	87.0	7.469042
			564	428	23	102267	0	87.0	13.84419
			550	412	24	102362	0	79.0	3.528805
			550	425	23	102362	0	116.0	2.2153936
			540	415	23	102294	0	137.0	-2.130998
			581	412	23	102410	0	132.0	-2.542428
						102426	0	116.0	-2.542428

Success

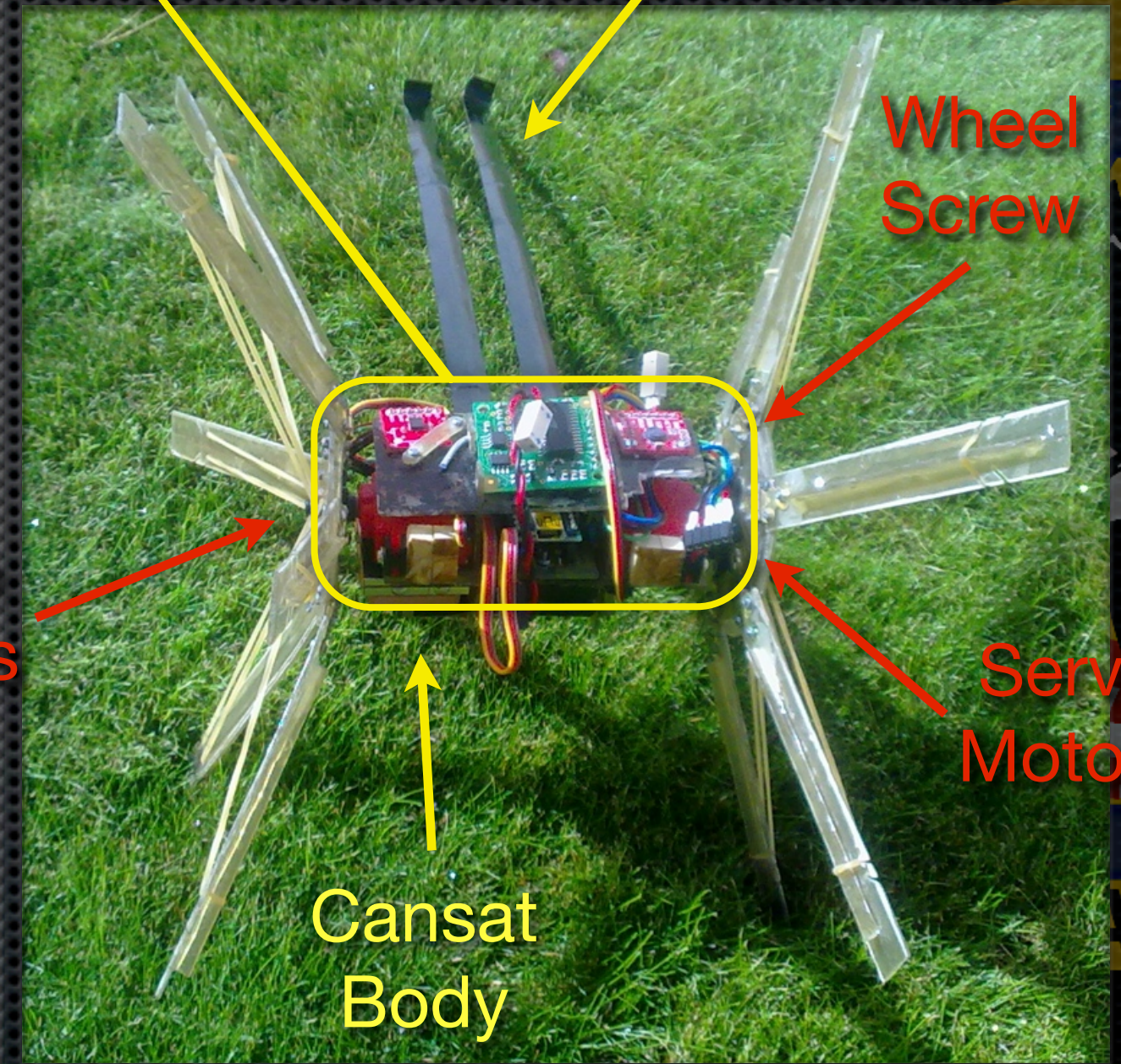
Structure:

- Success
- Failure



Electronic Bay

Legs



Parachute:

Success



- Semispherical parachute
- Made of Nylon
- Area: $0,47 \text{ m}^2$
- Falling speed: 4 m/S
- Nylon threads



Final Conclusions:

- Our FIRST COMEBACK_Project
- Stronger union between the structure and the wheels.
- More resistant motors instead of servos.
- Better recovery system.
- More accurate data. (e.g. Temperature sensor accuracy)

Other Conclusions:

- A cat has 7 lives...well, now only 6.. and a broken leg.
- A cat always lands on its feet, even if they are broken.
- Cats do can fly!



CATSAT TEAM

UPM_SPAIN



NEXT STEPS...