



# Disseny d'un Petit Coet de 2 Etapes amb Recuperació Quadcopter

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# DESIGN OF A SMALL 2-STAGE ROCKET WITH QUADCOPTER RECOVERY

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This document contains: **BUDGET**



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*“The story of civilisation is, in a sense, the story of engineering - that long and arduous struggle to make the forces of nature work for man’s good.”*

*Lyon Sprague DeCamp*

# Contents

Contents	I
1 Budget	1

# Budget

The aim of this document is to present the costs associated to the *Design of a Small 2-Stage Rocket with Quadcopter Recovery*. All the costs derived from the project's development are listed in this document, including: materials, hardware, software, tools, and engineering costs.

Materials makes reference to all the primary materials used for manufacturing of the model rocket, as well as the screws and other fixing elements. Hardware refers to the avionics components used for the implementation of the Quadcopter Landing System (QLS). The software section considers the costs of the software's licences used for designing and computing. Tools adds the costs of the machinery and devices used for manufacturing and assembling. Finally, engineering encompasses the costs of developing the overall project, counting the man hours in designing, simulations, documenting, or testing.

These different costs are broken down and presented in the following page.

Engineering			
	Hours	Cost/hour [€]	Cost [€]
Salary	600	15	<b>9000</b>
Software			
	Units	Cost/unit [€]	Cost [€]
SolidWorks	1	3995	3995
Matlab	1	2000	2000
			<b>5995</b>
Tools			
	Units	Cost/unit [€]	Cost [€]
Creality Ender 3 V2	1	300	330
Matlab	1	19,95	19,95
			<b>349,95</b>
Materials			
	Units	Cost/unit [€]	Cost [€]
PLA	1	1	20
Screws	40	0,265	10,58
Tin and Flux	1	20	20
Body Tubes	4	1,7	6,8
Electric Connectors	20	0,479	9,58
Electric Wire	4	0,678	2,71
			<b>69,67</b>

**Total Cost [€] 16068,23**

Hardware			
	Units	Cost/unit [€]	Cost [€]
Propellers 2-blades	24	0,68	16,35
Propellers 3-blades	4	0,68	2,7
Lumenier LUX H7	1	118,9	118,9
ESC T-Motor Pro II	1	110,9	110,9
GPS/Compass	1	40	40
Propeller fixer	1	9,45	9,45
GPS TBS	1	16,99	16,99
Motor fixer	1	15,9	15,9
FrSky Taranis X9 Lite	1	145	145
FrSky ACCESS Archer M+	1	29,9	29,9
Zippy Compact 1400mAh	1	19,37	19,37
Turnigy Multistar 4in1 F4	1	73,76	73,76
Turnigy 2600KV Motor	4	7,86	31,44
Transmitter Battery	2	11,48	22,95
			<b>653,61</b>

