



UNIVERSITAT POLITÈCNICA DE CATALUNYA
BARCELONATECH

Escola Superior d'Enginyeries Industrial,
Aeroespacial i Audiovisual de Terrassa

Design and Manufacture of 3DOF reaction wheels as actuators for Attitude Control of a 1U CubeSat

Document:

Budget

Author:

A. E. Miño Duran

Director/Co-director:

Prof. David Gonzalez Diez/ Prof. Miquel Sureda Anfres

Degree:

Master in Space and Aeronautical Engineering

Examination session:

Spring

MASTER FINAL THESIS

Budget summary

The budget used to carry out this thesis is described in this chapter. Different tables for common means have been created and a last table will show the overall budget.

First of all, some parts were bought to manufacture the mechanical design. These parts are shown in table 1 with their corresponding costs.

Item	Quantity	Unit Price (€)	Total price (€)
Motor EC 20 flat	1	98.18	98.18
ESCON Module 24/2	1	107.73	107.73
Screws M2 x 5mm	1 bag (100 u)	7.01	7.01
Screws M2 x 10mm	1 bag (100 u)	4.60	4.60
Hexnuts M2	1 bag (100 u)	8.26	8.26
Printed parts	1 bucket	1000	1000
TOTAL			1 225.78

Table 1: Materials bought

Then, for the software used: SolidWorks and MATLAB, an estimate of the year price has been made. This is estimated as a third of the yearly license because the software can be used for other projects running in parallel. Table 2 shows this costs.

Item	Quantity	Unit Price (€)	Total price (€)
SolidWorks Standard	1	2500/year	833
MATLAB	1	800/year	266
TOTAL			1099

Table 2: Software

Furthermore, the hourly salary of the engineer working on this project is presented. This is an estimation of the salary of an aerospace engineering working in Spain. Table 3 shows this costs.

Item	Hours	Hourly Salary (€/h)	Total (€)
Aerospace eng.	350	20.5	7175
TOTAL			7175

Table 3: Aerospace engineer salary

Finally, a recompilation of all the costs is join together in a final budget table (table 4).

Item	Total (€)
Materials bought	1225.78
Software	1099
Salary	7175
TOTAL	9499.78

Table 4: Total budget