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ESCOLA TÈCNICA SUPERIOR D'ENGINYERIA INDUSTRIAL, AUDIOVISUAL I
AEROESPACIAL DE TERRASSA - ESEIAAT

BACHELOR'S DEGREE IN AEROSPACE TECHNOLOGIES
ENGINEERING

BACHELOR'S DEGREE THESIS

Study and Design of the attitude control of a cubesat 1U based on reaction wheels

BUDGET

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The budget of the thesis is developed within this document, taking into account all the different costs, and specifying the parts that conform the total budget seen on the main document.

1 Human costs

Concerning the human costs, one has to considerate the hours of work done for the development of all the sections on the thesis. These hours can be seen on the next table:

HUMAN COSTS			
Process	Hours	Price (€ /h)	Total cost (€)
Research	30	20	600
State of the art	30	20	600
Mechanical model definition	40	20	800
System modeling	60	20	1200
Control modeling	50	20	1000
Simulation	40	20	800
Output analysis	30	20	600
Document elaboration	40	20	800

Table 1: Human costs of the project

2 Software and Hardware costs

For this section, the cost of the different software and hardware used is assessed.

The software and hardware expenses will be considered as amortisable expenses. Therefore, the cost will be computed with a thesis duration of 3 months for the analysis execution.

Annual licenses will be considered for software, and hardware is considered to have a 4 year lifespan.

Matlab and Simulink licence prices have been extracted from [1].

For the hardware cost, modelling, simulations, research and documents elaboration has been performed in a regular laptop. The estimated prices are shown on the tables below:

SOFTWARE		
Software	Annual license €	AMORTIZATION Total thesis (€)
Matlab	800	200
Simulink	1200	300
Aerospace Toolbox	460	125
Aerospace Blockset	500	115
Overleaf (LaTeX compiler)	Free	Free

HARDWARE		
Product	Purchase price €	AMORTIZATION Total thesis (€)
Laptop	800	50
Monitor	200	12,5

Table 2: Software and hardware thesis costs

3 Total cost

Since in this thesis only the design of the attitude system has been developed, there are no manufacturing costs. The total costs are, hence, the sum of the human costs and the software costs:

This yields a total amount of:

Human Costs	6.600 €
Software Costs	740 €
Hardware Costs	62,5 €
TOTAL COSTS	7.402,5€

Table 3: Project's budget summary

References

- [1] *Pricing and Licensing - MATLAB & Simulink*. URL: <https://es.mathworks.com/pricing-licensing.html> (visited on 06/05/2019).