

Business Case

Project: PLCOpen-Editor (SWE I practice-based project 2020/2021, TINF19C)

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0.1	31.10.2020	Franziska Kopp	Created
0.2	04.11.2020	Franziska Kopp	Changed some costs and adapted it to the calculation
1.0	07.11.2020	Franziska Kopp	Removed the calculation of earning power and the risk analysis and changed the structure of the document.

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1. Introduction

The goal of the project is to implement a web version of the PLCOpen-Editor that supports the languages Sequential Function Chart and Function Block Diagram. It is supposed to be an easy tool to program a programmable logic controller without needing a lot of knowledge about the concrete syntax of the languages. Thereby for example a company can benefit, because it doesn't have to train the employees which results in a decrease of costs and time.

By planning a business case the suppliers can get aware of all costs and risks that might occur and in order of that they can find out if the project is profitable.

2. Working hours

In total each member of the project has a capacity of 180 hours. The distribution to the different work packages and members in table 1 follows from the data of the GANTT-Chart which is available via the following URL: https://github.com/elian15122000/TINF19C-PLCOpen-Editor/blob/master/PROJECT/PM/Gantt_chart.xlsx

	Mouaz Tabboush (Project Manager)	Leonie de Santis (Product Manager)	Elia Yildirim (Programmer)	Franziska Kopp (Technical Editor)
Documents	35	40	30	40
GitHub Organisation	5	10	15	10
Analysis	15	15	15	15
Design	10	10	10	10
Programming	35	35	40	35
Testing	30	30	30	30
Meetings	30	30	30	30
Project management	10	0	0	0
Presentation	10	10	10	10
Total (Stunden)	180	180	180	180

Table 1: Estimated working hours

3. Cost Calculation

3.1. Fixed Costs

The members of the project are all working remotely from home so there is no rent for an office to pay. Merely the cost of power and for internet access will have to be paid. In the following table this is summarized under the term *additional costs*. For the project a sever was bought, so the costs for the server is 200,00€/month. Moreover, some of the members had to buy some hardware like a second screen or a better office chair in order to have a better working environment. These costs for the initial equipment are estimated to 250,00€ per person. Table 3 shows all the fixed costs summed up.

Fixed costs	Price	Term/User	Total costs
Additional costs	7,00€/month/user	6 months/4 users	168,00€
Server	200,00€/month	6 months	1.200,00€
Initial equipment	250,00€/user	4 users	1.000,00€
Total			2.368,00€

Table 2: Fixed costs

3.2. Variable Costs

The salary of each member is as follows:

Role	Salary
Project Manager	46,00€/h
Product Manger	43,00€/h
Programmer	42,00€/h
Technical Editor	41,00€/h

Table 3: Salary

The costs of the salary (Table 3) set off against the estimated working hours (Table 1) sum up to the following variable costs.

Working package	Costs	%
Documents	6.230,00€	20,93%
GitHub Organisation	1.700,00€	5,71%
Analysis	2.580,00€	8,67%
Design	1.720,00€	5,78%
Programming	6.230,00€	20,93%
Testing	5.160,00€	17,34%
Meetings	3.960,00€	13,31%
Project management	460,00€	1,55%
Presentation	1.720,00€	5,78%
Total	29.760€	100,00%

Table 4: Costs of the working packages

3.3. Overall Costs

Adding the costs of the working packages to the fixed costs makes the following overall costs.

Fixed costs	2.368,00€
Variable Costs	29.760,00€
Overall Costs	32.128,00€

Table 5: Overall Costs

4. Offer

According to the determined risks (see Risk Analysis in PM) and a desired profit of the project a margin of 20% is calculated. This leads to the following offer price:

$$32.128,00€ * 1,2 = \mathbf{46.264,32€}$$