**Business Case**

(TINF20C, SWE I Praxisprojekt 2021/2021)

Project: Modelling Wizard for Cables

Customer: Rentschler & Holder

Rotebühlplatz 41

70178 Stuttgart

Supplier: Team 2 by Kevin Pauer (Leon Amtmann, Calvin Friedrich, Max Gohlke, Kevin Pauer,  
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| --- | --- | --- | --- |
| **Version** | **Date** | **Author** | **Comment** |
| 0.1 | 12.10.2021 | Kevin | Created |
| 0.2 | 13.10.2021 | Tim, Kevin | Add structure |
| 0.3 | 15.10.2021 | Tim | Final cost calculation edited |
| 0.4 | 19.10.2021 | Kevin, Tim | Risks added |
| 0.5 | 21.10.2021 | Kevin, Tim | Offer added, Timeframe added |
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# Scope

The goal of this project is to develop a web-based application which allows the user to easily configure cables, add device interfaces, ports, and data attachments using a user-friendly GUI. Almost every modern cable shop has those functionalities, and therefore we will start with a Usability-Analysis and use the results to improve our product.

The user will receive files in the AutomationML format.

Furthermore, we will expand the electrical interface library to include the newest connectors for single-pair-ethernet from the IEC63171-6 and M12-Push/Pull from the IEC 61076-2-010.

# Profitable Benefits

|  |  |
| --- | --- |
| **Benefits** | **Description** |
| **Higher efficiency and lower cost** | By using an easy-to-use User Interface, the costumer can more efficiently search for a product. AutomationML gives us the opportunity to store and exchange data effortlessly, thus significantly reducing the cost of data management and communication. |
| **Better customer experience** | Through the ability to configure the needed cable via a User Interface, the customer has a better and easier shopping experience. Happy costumers pay better and visit more regularly. |
| **Standardization** | AutomationML makes it possible to store cable data in a standardized format. This helps reduce costs and raise the efficiency of transactions and makes it easier to organize data. |

*Table 1: Qualitative and quantitative project benefits*

# Time frame

The project has a time frame from 13.09.2021 to END DATE, whereby it is not possible to continue working on it in the following months of December to February due to staff shortages, which was however observed in the schedule.

The following objectives should be achieved:

1. The first half of the project will be spent looking at the current solution of our competitors. We will then perform a Usability-Analysis to learn valuable insights for our project. Our time will also be spent on time management and resource allocation, to maximize our efficiency. Furthermore, we will lay the foundations of our prototype, by organizing our GitHub repository, making key decisions about the architecture and dividing the workload among us. In the last week, we will give a brief presentation to the costumer on our current progress.
2. The second half of the project will focus primarily on the implementation of the above-mentioned prototype. Along the implementation, we will need to test, document and integrate the different modules. We will conclude the project with a presentation, where we show our achievements, learnings, and experiences of the development cycle.

Detailed lists of tasks and time required by person:

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  |  | **Leon Amtmann (DOCU)** | **Calvin Friedrich (Pm)** | **Max Gohlke (LE)** | **Kevin Pauer (PL)** | **Thorsten Rausch (SA)** | **Tim Sellemann**  **(TM)** | **Fabian Thomé (LE)** |
| **PM** | **Project Management** | 0 | 60 | 0 | 70 | 0 | 0 | 0 |
| **Meetings** | 30 | 30 | 30 | 30 | 30 | 30 | 30 |
| **GitHub Organisation** | 5 | 5 | 5 | 5 | 5 | 5 | 5 |
| **Presentation** | 22 | 8 | 8 | 10 | 8 | 8 | 8 |
| **DEV** | **Documentation** | 90 | 15 | 10 | 20 | 10 | 15 | 10 |
| **Analysis** | 10 | 15 | 20 | 10 | 40 | 10 | 10 |
| **Design** | 5 | 30 | 10 | 10 | 40 | 10 | 15 |
| **Coding** | 0 | 0 | 70 | 10 | 10 | 15 | 65 |
| **Testing** | 0 | 0 | 15 | 0 | 20 | 70 | 25 |
|  | **Total (hours)** | **162** | **163** | **168** | **165** | **163** | **163** | **168** |

Table 2: Timeframe measurement

# Risks

* Financial risk: One potential risk is staff costs that are incurred if the product completion is delayed.  
  *Action* à *Keeping the workload as low as possible by structuring without causing a decrease in quality.*
* Planning risk: Defined project goals cannot be achieved as planned.

*Action* à *Project plan must be revised with realistic time and work schedules*.

* Communication risk: Less or incorrect communication can lead to unproperly processed tasks up to not completing tasks on time.

*Action* à *Regular meetings to keep track of progress.*

* Personnel risk: Employees can leave the project during the entire period.

*Action* à *Edit achieved progress and distribute work so that several people can cope with it.*

# Expenses

The project plans to create a web application that exists in digital form and therefore does not incur any material costs.

However, the elaboration and modelling must be planned and structured, for which the Office package 365 is suitable as organizational software. With € 30 per employee per month, the services of a well-functioning department are covered. Standard office equipment is also required for this. The engineering software AutomationML is used, which proves its usefulness free of charge.

To make our work as effective as possible, we rent office space in the vicinity of Stuttgart. With an area of 28m² we can create a good working environment to give the team space and the opportunity to work. The rental costs amount to € 330 per month plus additional costs of € 90 which include electricity, water, and internet.

The finished product should run on a server that has sufficient resources and is regularly maintained. We will transfer these services to a provider who, in consultation, will check the status of the application and respond to our requests. We expect € 150 per month for this.

The following tables show the hourly salary for the respective departments and the resulting costs of the individual work packages.

In addition, there is the invoice for fixed costs that are incurred monthly.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **WORK** | **COST** |  | **ARBEITSPAKET** | **COST** |
| **Project Manager** | 34,30 €/h |  | **Project management (PM)** | 15.369,68 € |
| **Product manager** | 28,50 €/h |  | **Development (DEV)** | 21.297,15 € |
| **Leading Developer** | 32,17 €/h |  | **Total** | **36.666,83 €** |
| **System Architect** | 30,56 €/h |  |  |  |
| **Test Manager** | 29,19 €/h |  |  |  |
| **Documentation** | 25,33 €/h |  |  |  |

Table 3: Cost by work package

|  |  |  |  |
| --- | --- | --- | --- |
| **FIXED COSTS** | **PRICE** | **DURATION** | **TOTAL COST** |
| **Rent** | 330€/ monthly | 6 months | 1.980,00 € |
| **Extra costs** | 90€/ monthly | 6 months | 540,00 € |
| **Software and tools** | 30€/ monthly per user | 6 months 7 users | 1.260,00 € |
| **Provider services** | 150€/ monthly | 9 months | 1.350,00 € |
| **Total** |  |  | **5.130,00 €** |

Table 4: Fixed costs

From a calculation of the employee costs of 36,666.83 € and the fixed costs over the course of the project of 5,130.00 €, the total for the end product amounts to **41,796.83 €**.

# Offer

|  |  |
| --- | --- |
| **Expenses** | 41,796.83 € |
| **+ Profit (25%)** | 10,449.21 € |
| **Bid amount=** | **52,246.04 €** |

Table 5: Total price

The calculated costs and the profit margin of 25%, result in the bid amount of € **52,246.04**.