

Project Proposal – Internship

Version: 7
Period: Spring 2023



Goal and use of this document

The proposal is used to describe a practical research internship which is carried out in semester 5 of the study program. Through this form the student requests approval for the assignment from the internship coordinator. This document is also used to receive feedback from client and coordinator and should lead to all three parties having one single view of the assignment. The student is responsible for writing the content, based on input of the organization and feedback of the coordinator. This document may be written in Dutch.

Student details

Student number : 4190580
First name + Family name : Khoa Dang Nguyen
Location : Eindhoven
Profile Semester 3 : M
Specialisation Semester 4 : CT
Internship choice : M
Dutch-speaking? : No

Internship period

Start date : September 2nd, 2024 (official start date: Monday FHICT-week 1)
End date : Friday January 24th, 2025 (official end date: Friday FHICT-week 18)

Organisation details

Name : Ambianti B.V.
Visiting address : Kronehoefstraat 30A,
Zipcode + City + Country : 5622AC, 5612 DG Eindhoven, The Netherlands
Phone : +31 (0)40 202 8633
Website : <https://ambianti.com>
Own Company ("Eigen bedrijf")? : No

Company mentor

(The person who guides the student on a regular basis)

First name + Family name : Metaxas Georgios
Department : Ambianti
Position : Co-founder
Background (highest education) : PhD, PDEng in the field of UI/UX and industrial design
Background URL (e.g. LinkedIn) : N
Phone : +31 639 27 28 55
Email : info@ambianti.com
Assignment in ASAM? : N

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1. Context & Problem/Opportunity

Below the organization and its activities and structure are described. It must become clear in which part of the organization and activities the problem or opportunity lies and what the reason is for this assignment.

1.1 Context & Background

The organization is introduced by describing its main activities and processes. The relevant (recent) developments within the company and or related field of interest (e.g. IT) are described also.

Ambianti, a company at the forefront of high-tech building materials, takes a unique approach by integrating cutting-edge digital intelligence with minimalist design principles. This allows for seamless integration of their materials into existing construction processes. Their mission is to revolutionize architecture and industrial design by materializing innovative concepts that complement current building practices. Ultimately, they aim to transform the way people interact with indoor environments.

One of Ambianti's noteworthy internal developments is the JSL framework, a web application framework used to build internal applications that support their operations. While JSL is valuable for Ambianti's internal needs, it currently lacks a public web presence, hindering its potential for wider adoption within the developer community.

1.2 Current situation & Stakeholders

The current situation regarding the activities, problems (or opportunity) is described. The relevant stakeholders within the organization are provide with an explanation why they (possibly) are stakeholders. The scope of the project must become clear at this point.

Current Situation:

Ambianti has a powerful in-house web application framework called JSL. However, despite its internal success, JSL lacks a dedicated and informative web presence. This absence hinders JSL's potential for wider adoption and knowledge sharing amongst developers. The current website (<https://jsl3.codemax.net>) serves a basic function but fails to effectively communicate the framework's capabilities and potential benefits to a broader audience.

To unlock JSL's true potential, a strategic redesign and rebuild of the website is necessary. This initiative should prioritize the creation of a user-friendly and informative platform that showcases JSL's functionalities, provides comprehensive documentation, and fosters a space for developer engagement.

Stakeholders:

- Ambianti Developers: These developers rely on JSL for web application development. A well-designed and documented framework would improve their productivity and streamline development processes.
- JSL Product Owner/Manager: Responsible for the framework's development and overseeing its growth. A redesigned website can significantly improve developer adoption of JSL, both internally and potentially externally.
- Potential External Users: In the future, a broader developer community could benefit from JSL's capabilities.

Project Scope:

This project focuses on creating a robust and user-friendly web development environment for JSL, including:

- Website Development: Design and develop a dedicated website for JSL that clearly explains its functionalities, advantages for web development, and target audience.
- Documentation and Tutorials: Create comprehensive documentation and tutorials that guide developers through JSL's features and best practices.
- Code Samples and Libraries: Provide a library of well-structured code samples and reusable components to expedite development using JSL.

1.3 Problem/opportunity description

The problems/opportunities, possible causes and impact or effects of these problems/opportunities are described. Concrete examples are given and the depth and scope of the situation is made clear. In this section it should become clear what the added value of the internship will be.

Ambianti's JSL framework holds significant potential beyond its current internal use. However, the lack of a dedicated website hinders its discoverability and adoption by external developers. This creates a missed opportunity for several reasons:

- Limited Discoverability: Currently, JSL lacks a dedicated and informative website. This obscurity prevents developers from discovering JSL's functionalities and potential benefits.
- Knowledge Sharing Bottleneck: The absence of a central platform restricts knowledge sharing and collaboration among developers who could benefit from JSL. This limits the framework's growth and potential for improvement through external contributions.

Impact and Effects

These limitations have a direct impact on Ambianti's ability to:

- Foster a Developer Community: A vibrant developer community around JSL could provide valuable feedback, contribute to the framework's development, and ultimately accelerate innovation in construction technology solutions.
- Attract External Talent: A well-known framework can attract skilled developers interested in working with cutting-edge building materials. This can benefit Ambianti by expanding their talent pool and potentially fostering new collaborations.
- Maximize JSL's Potential: JSL's current limited reach restricts its potential impact on the web technology landscape. A broader developer base could lead to more innovative use cases and integrations, ultimately contributing to Ambianti's mission of revolutionizing the industry.

The Opportunity: A Redesigned JSL Website

By creating a dedicated website for JSL, Ambianti can transform this internal tool into a valuable resource for the developer community.

This website would serve as a central hub for developers to:

- Learn about JSL: The website can provide clear explanations of JSL's features, its advantages for web development and potential use cases.
- Explore JSL's Capabilities: Developers can access comprehensive documentation with tutorials, code samples, and clear API references, enabling them to experiment and build web applications using JSL.

The Intern's Added Value

- Researching Developer Needs: Understanding the specific needs and preferences of developers in the construction technology sector is crucial for tailoring the JSL website and documentation effectively.
- Creating Engaging Content: Developing clear, informative, and engaging website content that showcases JSL's functionalities and benefits will be essential for attracting and retaining developer interest.
- Building a User-Friendly Website: Designing and implementing a user-friendly website with intuitive navigation and easy access to documentation and resources is key to maximizing developer adoption.

2. Assignment

2.1 Desired project result

Below it should be clear what the desired result of the internship is. What situation should be reached at the end of the internship?

Project goal

A clear and as concrete as possible description of the intended results and what value they should have for the organization. A (concept) project goal can be formulated and products to be delivered are indicated.

This project aims to bridge the gap between Ambianti's JSL framework and the wider developer community by building a dedicated and informative website. The primary goal is to unlock JSL's potential beyond internal use and establish it as a valuable resource for developers.

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Project Deliverables:

A User-Friendly JSL Website: The website will serve as the central hub for JSL, featuring:

- Clear explanations of JSL's functionalities and advantages for web development.
- Comprehensive documentation library with tutorials, code samples, and well-structured API references.
- Interactive elements or playgrounds where developers can experiment with JSL code and its functionalities.

Value to Ambianti:

- Increased Developer Adoption: The redesigned website will attract new developers interested in JSL for their projects.
- Enhanced Knowledge Sharing: The website will foster a vibrant developer community around JSL, leading to increased knowledge sharing, collaboration, and potential contributions to the framework's future development.
- Streamlined Development Processes: Improved documentation and a focus on web development workflows will make it easier for developers to learn and adopt JSL, potentially improving development efficiency within Ambianti.

Project IT-deliverable

Specifically indicate the IT-products (proof-of-concept) that will be developed. Describe the end product as well as any intermediate products or other deliverables that are already known. For each IT-deliverable, specify the technology(s) to be used.

Technology:

- HTML, CSS, JavaScript (potentially a front-end framework like React or Vue.js)

Deliverable:

- A fully functional website with:
 - o Informative landing page explaining JSL's purpose, features, and benefits for web development.
- Dedicated sections showcasing:
 - o JSL functionalities with clear explanations and use cases.
 - o Comprehensive documentation library containing tutorials, code samples, and well-structured API references specifically tailored for web development tasks.
 - o Interactive elements like code playgrounds or code editors where developers can experiment with JSL and explore its functionalities in a practical way.
 - o Intuitive navigation for easy access to all sections and resources.
 - o Responsive design to ensure optimal viewing experience across various devices (desktops, tablets, mobiles).

Intermediate Deliverables:

- Wireframes and Mockups: These visual representations will be created before development to define the website's layout, navigation, and user interface.
- Prototype (Figma): A basic functional prototype (potentially limited to core functionalities) might be developed initially to gather feedback and iterate on the design before full-scale development.

2.2 Research aspects

Research questions.

As it is important that all results are based upon (also practical) research: Which research questions are going to be relevant in order to achieve the desired project result? Provide (sub)-research questions and possibly a main research question.

Main Research Question:

- How can we design and develop a user-friendly website that effectively positions JSL as a valuable framework for web development?

Sub-Research Questions:

- Understanding Developer Needs:
 - o What are the preferred resources and learning styles of developer? (e.g., tutorials, code samples, video demonstrations)
 - o What are the common challenges developers face when working on web applications for projects?
 - o What features and functionalities do developers find most valuable in a web application framework tailored for their needs?
 - o What existing web application frameworks are popular and what are their strengths and weaknesses?
- Website Design and Functionality:

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- What website design trends and user interface (UI) elements are most popular and effective within the developer community?
- How can we ensure the website is responsive and provides a seamless user experience across different devices (desktop, mobile, tablet)?
- What search functionalities and content organization strategies would be most helpful for developers navigating the JSL website?
- AI-powered Tutoring Functionalities:
 - Is it feasible to integrate AI-powered tutoring functionalities into the JSL developer website?
 - How can AI be effectively integrated into the learning process for JSL, considering the target audience and their learning styles?
 - What potential benefits could AI-powered tutoring offer to developers learning JSL?
 - What challenges might arise when integrating AI tutoring functionalities?

Research approach.

Regarding the DOT Framework: give a first indication of which research strategies and methods will be used and/or will be the most important ones. Think of the possibilities your internship environment specifically has or lacks and how you can in any case ensure you have enough methods and strategies to use.

Define:

- Literature Review: Research existing academic papers, industry reports, and online resources to understand:
 - Developer needs and preferred learning styles.
 - Best practices for online developer communities and AI-powered learning tools.
 - Trends in web development frameworks.
- Internal Resource Analysis: Explore the internship environment's resources, including:
 - Existing JSL documentation to understand its functionalities and target audience.
 - Communication channels with internal JSL developers to gather insights and potential challenges.
 - Any available user feedback data on JSL to identify areas for improvement.

Observe:

- Online Surveys: Develop and distribute online surveys targeted towards developers. These surveys can gather data on:
 - Preferred learning styles for JSL (tutorials, code samples, AI-powered tutoring, etc.).
 - Challenges faced while working on web applications.
 - Features and functionalities desired in a web application framework for their field.

Think:

- Competitive Analysis: Research popular web application frameworks. Analyze their websites, documentation, and online communities to identify:
 - Effective features and functionalities for developer engagement.
 - Potential areas where JSL can differentiate itself, including AI integration.
- AI Feasibility Research: Explore existing research and tools related to:
 - AI-powered tutoring functionalities for web development frameworks.
 - The potential integration of AI into the JSL learning process.
- Usability Testing:
 - Information architecture and navigation of the website.
 - User experience with potential AI-powered tutoring features (prototypes or simulations).

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3. Guidance & Expertise

Coach/Mentor

What background does your company mentor have? Think of education (Bachelor/Master/Phd) as well as experience in (internship) coaching or mentoring. How many hours of guidance will there be per week and will you be coached?

Mentor: Dr. Metaxas Georgios

Education: Ph.D. and a Professional Doctorate in Engineering (PDEng) in the field of UI/UX and industrial design.

Expertise / Guidance

What expertise is available in the company and who has that expertise? What kind of support does the company provide on IT skills related to your domain? Describe the people and/or teams or departments where you are able to go to and who will help and guide you with (IT)-domain related questions, advice and review.

Three of the founders themselves hold Ph.D.s in the field.

The entire 12-person team is highly qualified, with 6 Ph.D.s and the remaining members possessing at least Master's degrees in relevant engineering fields.

4. Personal & Professional goals

Which aspects on personal or professional development will you further develop? Focus on soft-skills. Select a realistic three to five aspects to work on. Use previous feedback received from others (e.g. semester coaches and teachers as input).

Personal goal	Describe what exactly you want to achieve and how to work on this.
Communication & Collaboration	Maintain regular progress reports and schedule meetings to discuss project updates and address any concerns. Be open to feedback and suggestions and strive to find solutions through open communication.
Project Management & Time Management	Develop a detailed project plan with clear milestones and deadlines. Utilize project management tools and techniques (e.g., Gantt charts) to track progress and identify potential roadblocks.
Increased Technical Writing & Documentation Skills	Follow established technical writing guidelines, actively seek feedback on written documentation, and utilize online resources and tutorials to improve technical writing skills.
Presentation Skills	Practice and refine your presentation skills, focusing on clarity, conciseness, and audience engagement.

5. (Optional) other important remarks