



POLITECNICO
MILANO 1863

**SCUOLA DI INGEGNERIA INDUSTRIALE
E DELL'INFORMAZIONE**

Design Document (DD)

Students & Companies Problem

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1 | Introduction

As we discussed in the RASD (Requirement Analysis and Specification Document), finding suitable internships remains a challenge for university students, with 60% in the U.S. citing difficulty in locating opportunities as the main barrier [2]. Internship availability has decreased significantly, with only 3,817 positions advertised in October 2024 compared to nearly 5,500 a year earlier [3]. Participation rates are also low, with only 21.5% of U.S. college students and 8.7% of UK students gaining formal work experience, and just 19% at top universities [3].

Platforms like *LinkedIn* provide broad job listings but are not optimized for matching internships to student skills and interests. Additionally, companies often struggle to define projects and requirements, leading to mismatches and dissatisfaction. Despite U.S. students generally reporting high satisfaction with internships, 1 in 4 had negative experiences, highlighting the need for improved clarity and alignment between student expectations and company offerings. COVID-19 has also contributed to a sharp decline in internship rates, previously ranging from 50% to 60% in the U.S., now down to 21.5% [2].

1.1. Purpose

The primary objective of this document is to detail the software design and architectural components of the S&C platform. All our design choices will be documented and explained. This document, called *Design Document* (DD), will focus on the design of the system's architecture and user interface design while also providing a general implementation, integration and testing plan. Lastly, this document aims to provide the reader with an unambiguous description of the system's functionalities and constraints to allow the reader to verify if the system meets the expectations.

This document, with the *RASD*, have the general purpose of guiding the developers in the realization of the S&C platform. It is directed to the project manager, developers and testers but it could be useful for future development and maintenance. Please note that in this document there will be several references to the RASD document (to maintain also coherence and consistency), it is recommended to read the RASD document before the DD document.

1.2. Scope

As we wrote in the *RASD* document, the S&C platform was imagined to be a platform where students could find and apply internships and companies could create new internships and select students. Lastly the university tutor would be able to monitors the internships of the students. To create a positive user experience the platform would need to have a user-friendly interface.

The scope of the platform is to facilitate the matching between students and companies by assessing the student experiences, skills and attitudes (available in his/her CVs) and the projects and terms offered by the companies.

We identified three main categories of actors: students, company tutors and university tutors which will be presented in Section 1.3.1.

1.3. Definitions, Acronyms, Abbreviations

1.3.1. Definitions

- **User/actor:** A generic person who use the platform. Can be either a student, company tutor or a professor.
- **Student:** A primary actor representing a user who interacts with the platform to search for internships, submit applications and communicate with other types of users.
- **Company Tutor:** A primary actor representing a user who interacts with the platform to post internships, evaluate candidates and communicate with students and university tutors.
- **University Tutor/Academic Tutor:** A primary actor representing a user who monitors internship progress, evaluates reports and ensures alignment between the internship and university goals. He also have the ability to communicate with students and company tutors
- **Responsible Tutor:** a company or university tutor who is responsible for creating the profile either for the company or for the university, but not both.

1.3.2. Acronyms & Abbreviations

- **w.r.t.:** with respect to
- **i.e.:** *Id est*, that is
- **e.g.:** *Exempli gratia*, for example
- **CV:** Curriculum Vitae
- **RASD:** Requirements Analysis & Specification Document
- **DD:** Design Document

- **S&C**: Students & Companies
- **LLM**: Large Language Model
- **RAG**: Retrieval Augmented Generation
- **UI**: User Interface
- **API**: Application Programming Interface
- **AI**: Artificial Intelligence
- **NLP**: Natural Language Processing
- **HTTPS**: Hypertext Transfer Protocol Secure
- **UML**: Unified Modeling Language
- **GUI**: Graphical User Interface

1.4. Revision History

1.5. Reference Documents

The document is based on the following materials:

- The specification of the RASD and DD assignment of the Software Engineering II course a.a. 2024/2025
- Slides of the course on WeBeep
- Course book created from notes: <https://drive.google.com/drive/u/1/folders/1dH-0IdPxUwhFMTnOr7UGTCkolvEL6g15>
- IEEE Standard for RASD, ISO/IEC/IEEE 29148 (Nov 2018) <https://doi.org/10.1109/IEEESTD.2018.8559686>
- RASD document <https://github.com/GiacomoColosio02/AcquadroColosioDrugman>

1.6. Document Structure

- **Section 1: Introduction** Contains the overview of the problem, required functionalities, definitions, goals, acronyms and abbreviations that could be found in this document.
- **Section 2: Architectural Design** Describe the architectural choices, the main components and their interaction as well as deployment and runtime view.
- **Section 3: User Interface Design** Show the user interface design, it also show the possible actions a user could take when using the system. Contains some mockups of the user interface.

- **Section 4: Requirement traceability** Explains how the requirements listed in the RASD are connected to the design choices that were made in this document about the platform design.
- **Section 5: Implementation, integration and test plan** Defines the orders in which the components are implemented and their order of integration aiming to correctly implement the platform.
- **Section 6: Effort Spent** Effort spent by each member on the team for the realization of this document.

2 | Architectural Design

2.1. Architectural Design

2.1.1. Overview

The S&C platform is designed as a three-tier web-based system that connects, students, company tutors and university tutors. The three tier is the most popular implementation of a multi-tier architecture and consist of *Presentation Layer*, *Application Layer* and *Data Layer*. Thanks to this decomposition each layer can be developed or update independently by a different person and also it have great elasticity since a single layer can be scaled up or now regardless of the other layers.

- **Presentation Layer:** how the system interacts with the user. It is accessible to the user with a GUI.
- **Application Layer:** handle the logic of the platform and provide all the functions available to the user. It receive the requests from the clients and handles them. It also communicate with the Data layer.
- **Data Layer:** store and retried asked data. Does not implement any logic and it is only used for data storage.

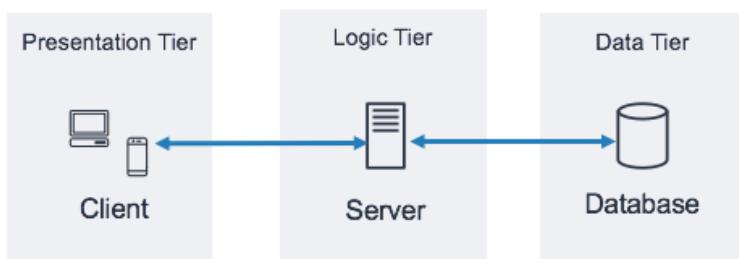


Figure 2.1: Three tier architecture. See [1].

2.2. Component View

BOZZA

Components needed - Registration Service: manage the user registration process. Store the data in the DB interacting with the database service. Interacts with e-Mail service to send a confirmation link - Authentication Service: allow users to login by checking their credentials must interact with the database service to access personal data and validate the login attempt

I have also three categories of users with different properties and functions needed

STUDENTS - StudentManager: manage all the functionalities related to students. - Profile Manager. Allow student to view and manage the profile in the system. A student can check and edit personal information in the profile. It provides a secure interface for managing passwords, allowing users to change them. To save all changes this component interacts with DB.

MISSING IN STUDENTS - Students receive from an AI model suggestions on how to edit their CV to make their profile more appealing to companies - Notification Service generated by student actions. - Messaging service (students can communicate with company tutor (when an internship is accepted) and university tutor (when they choose their university tutor for an internship)) and organize meetings - save events in his calendar

COMPANYTUTOR - CompanyTutorManager: manage all the functionality related to company tutor. All components will save in the DB all operations performed to keep an updated record of everything. - Application manager: handle the whole cycle of creation of an internship application. It includes the insertion of the description, payment, internship type (online, hybrid, in office). - Profile Manager. Allow company tutor to view and manage the profile in the system. A company tutor can check and edit personal information in the profile. It provides a secure interface for managing passwords, allowing users to change them. To save all changes this component interacts with DB. - Company profile manager. A company tutor (a specific one for a company (1-to-1) can edit the information about the company)

MISSING IN COMPANYTUTOR - Search for students who might be interested for an internship proposed by the companytutor - Visualize students who applied for an internship and accept them for that internship - communicate with the student and with the universitytutor (chosen by the student) and organize meetings - save events in his calendar generated by company tutor actions.

DB: includes all components tasked with storing, maintaining and managing data - Database service: allow the components that interact with it to communicate with the database

INFORMATION PROVIDER - includes all components that will handle all requests for information so they interact with the database. - Internship Information: manages all relevant internship information in a timely and accurate manner when requested by users. It provides important deadline associated with the internships - User information: designed to enable the display of information associated with another user within a system

- Company Information: designed to enable the display of information associated with a company within a system
- University Information: designed to enable the display of information associated with a university within a system

EXTERNAL API: - Email Service API: used to facilitate communication. It uses a service to send email such as registration confirmations, interview invitations and other notifications about new opportunities or updates. - Calendar integration APIs: used to synchronize internship-related events with user's personal calendars. SC integrates popular calendar services, such as Google Calendar or Apple Calendar, through the respective APIs. This is needed so that the user can add interview schedules, deadlines and other important events on his personal calendar. - Video Conferencing API: to enable seamless online interviews and virtual meetings between the users of the platform. The integration with Google Meet APIs should facilitate the automatic generation of meeting links, accessible directly from calendar events and related chats, while leveraging the existing platform for conducting the video calls themselves

2.3. Deployment View

2.4. Runtime View

You can use sequence diagrams to describe the way components interact to accomplish specific tasks typically related to your use cases.

2.5. Component Interfaces

2.6. Selected Architectural Styles and Patterns

Please explain which styles/patterns you used, why, and how.

2.7. Other Design Decisions

3 | User Interface Design

3.1. Authentication: Registration and Login

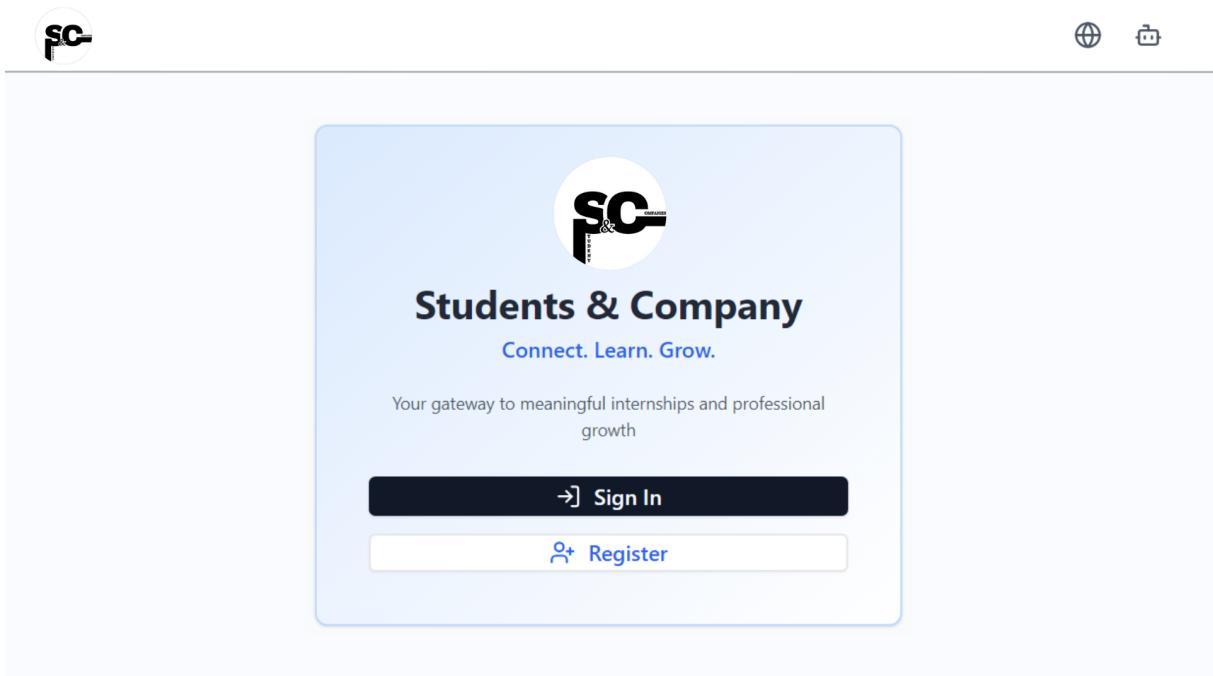


Figure 3.1: Authentication Interface of the Students & Companies platform.

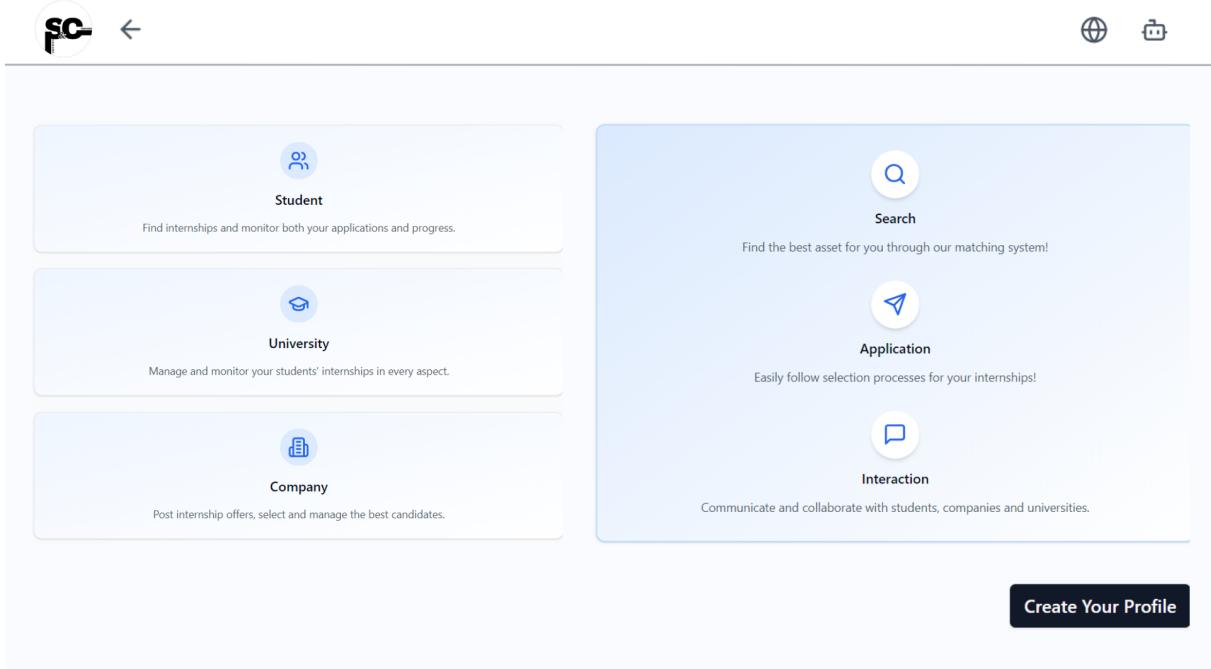


Figure 3.2: Registration - Introduction Interface.



Upload Your CV

Upload your CV to facilitate profile creation. If you don't have a CV ready, you can proceed with manual registration.



Drag and drop your CV here

or

[Browse Files](#)

Accepted formats: PDF, DOC, DOCX. Maximum file size: 5MB

[Continue with CV](#)

[Continue without CV](#)

Figure 3.3: Registration - Upload CV Interface.

The screenshot shows a registration form titled "Create Your Profile" with the sub-instruction "Fill in your profile details".

Personal Information:

- First Name: Enter your first name
- Last Name: Enter your last name

Contact Information:

- Phone Number: Enter your phone number
- LinkedIn Profile: Enter your LinkedIn URL
- Institutional Email: Enter your institutional email

Professional Information:

- Department: Select department
- Role: Select role
- Professional Biography: Describe your professional background and interests
- Certifications & Awards: List your certifications, awards, and recognitions
- Languages: Enter languages (comma separated)

Security Settings:

- Security Question: Choose a security question
- Security Answer: Enter your answer
- Password: Enter password
- Confirm Password: Confirm password

I accept the terms and conditions

Improve Content

Continue

Figure 3.4: Registration - Personal Profile Creation Interface.

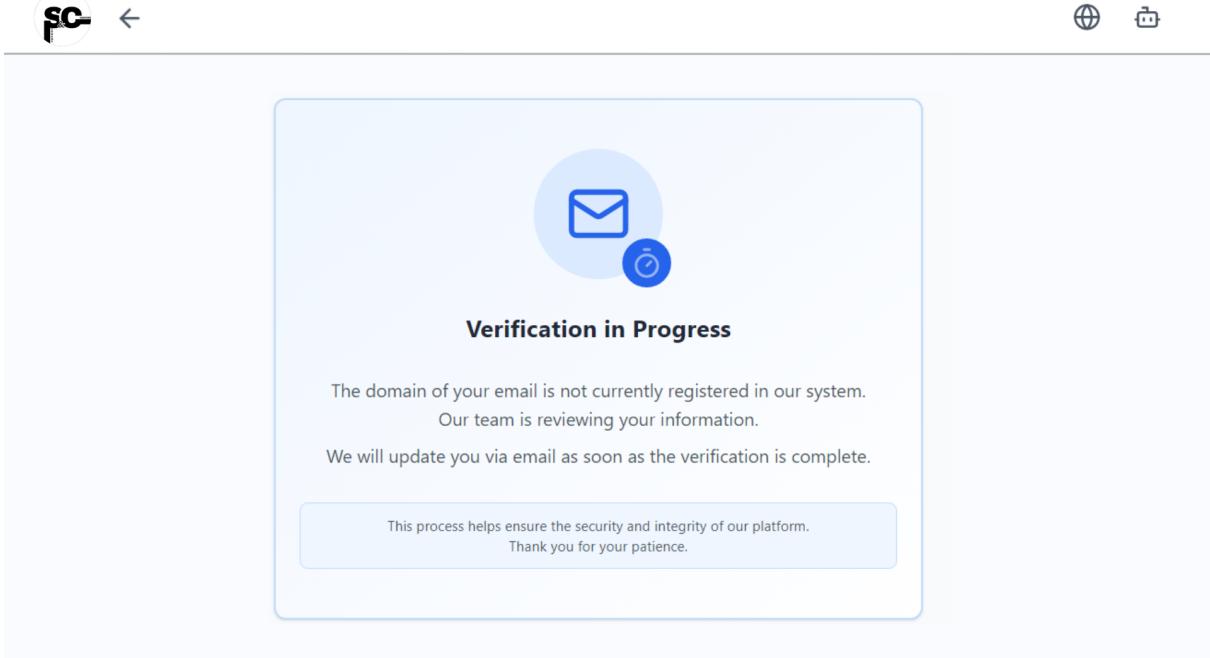


Figure 3.5: Registration - Verification in Progress Interface.

Create Institution Profile

Complete the information below to register your institution

Basic Information

Institution Name

Contact Information

Phone Number <input type="text" value="Enter phone number"/>	Email <input type="text" value="Enter administrative email"/>
Website <input type="text" value="Enter website URL"/>	LinkedIn <input type="text" value="Enter LinkedIn URL (optional)"/>

Address

Street Address

City <input type="text" value="Enter city"/>	ZIP Code <input type="text" value="Enter ZIP code"/>
Country <input type="text" value="Enter country"/>	

Institution Details

Sector
 Size

Description

Certifications & Awards

List certifications, awards, and recognitions

Domain Management

Tutor Domains

Student Domains

[Improve Content](#)

Figure 3.6: Registration - Institution Profile Creation Interface.

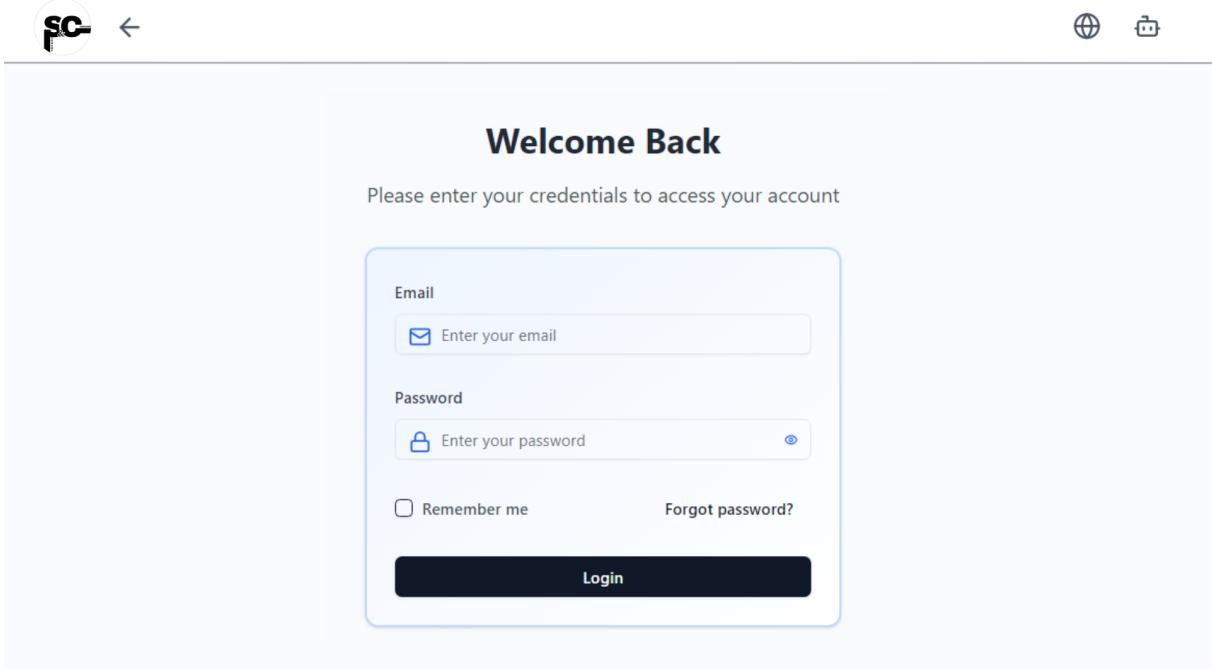


Figure 3.7: Login Interface of the Students & Companies platform.

The screenshot shows a password recovery form on a mobile application. At the top left is a circular profile icon with 'SC' and a back arrow. At the top right are a globe icon and a battery icon. The title 'Password Recovery' is centered at the top. Below it is a subtitle: 'Please enter your email and answer your security question to reset your password'. The form consists of several input fields and sections:

- Email**: A text input field with placeholder 'Enter your email'.
- Security Question**: A section containing a question: 'What was the name of your first pet?' with a help icon.
- Your Answer**: A text input field with placeholder 'Enter your answer'.
- Instructions**: A note: 'Instructions to reset your password will be sent to your email address' with a help icon.

A large black button at the bottom right says 'Send Recovery Instructions'.

Figure 3.8: Login - Password Recovery Interface.

3.2. Homepage with Settings, Change Language, and Chatbot Assistance

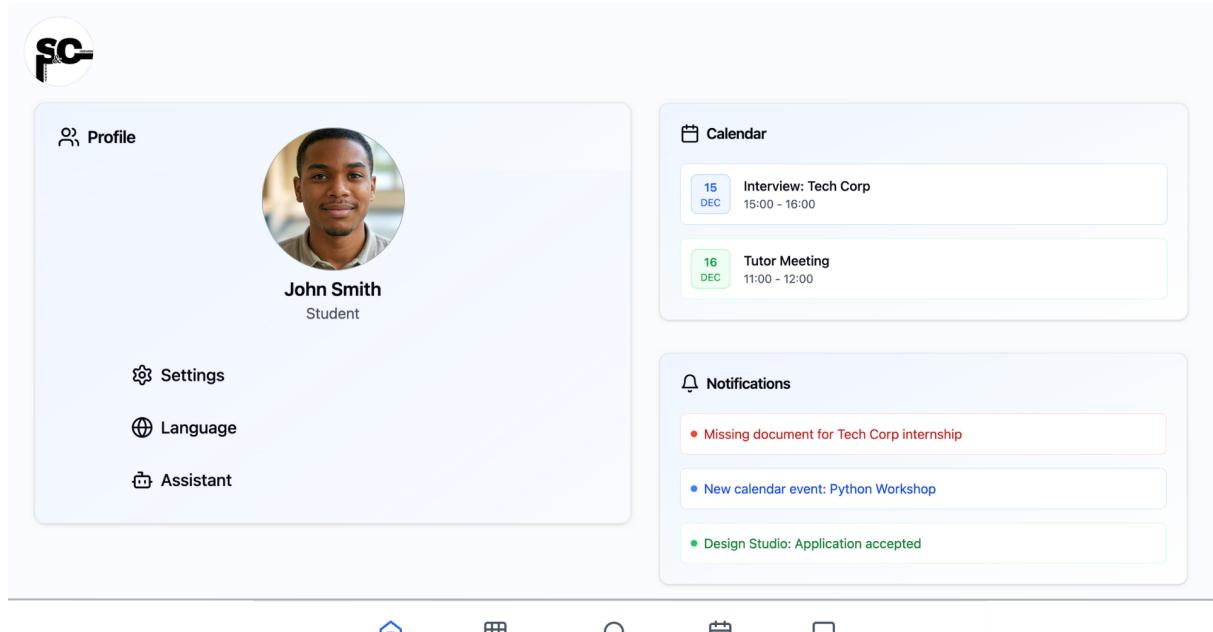


Figure 3.9: Homepage Interface for Students.

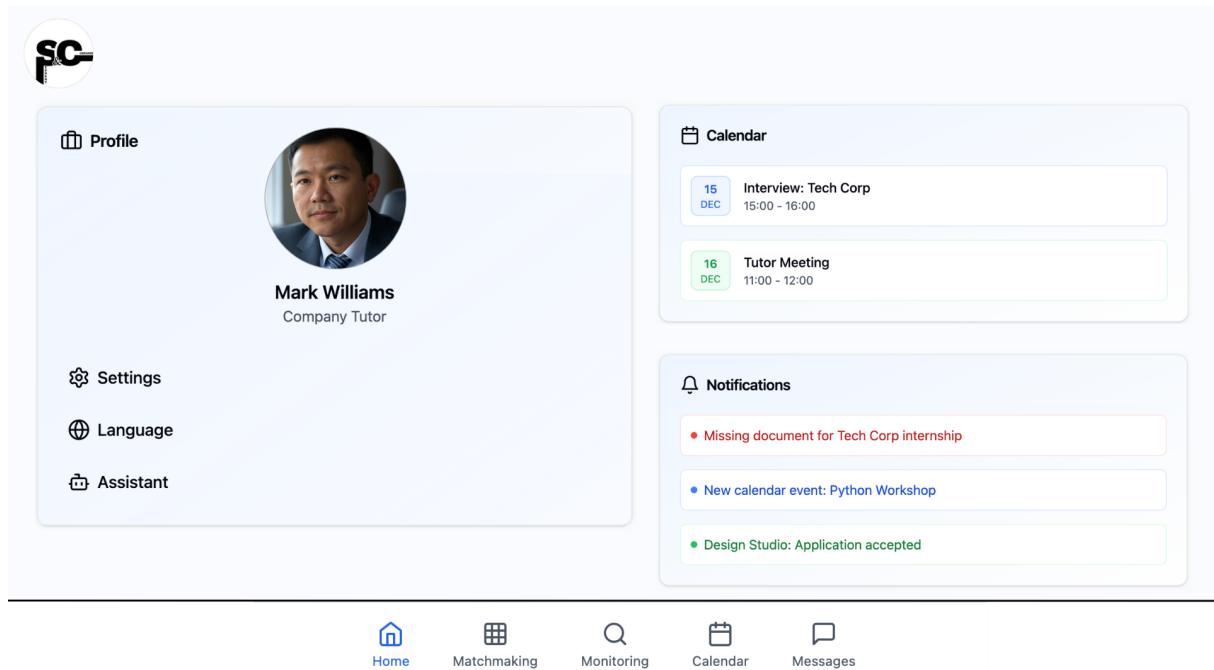


Figure 3.10: Homepage Interface for Company Tutors.

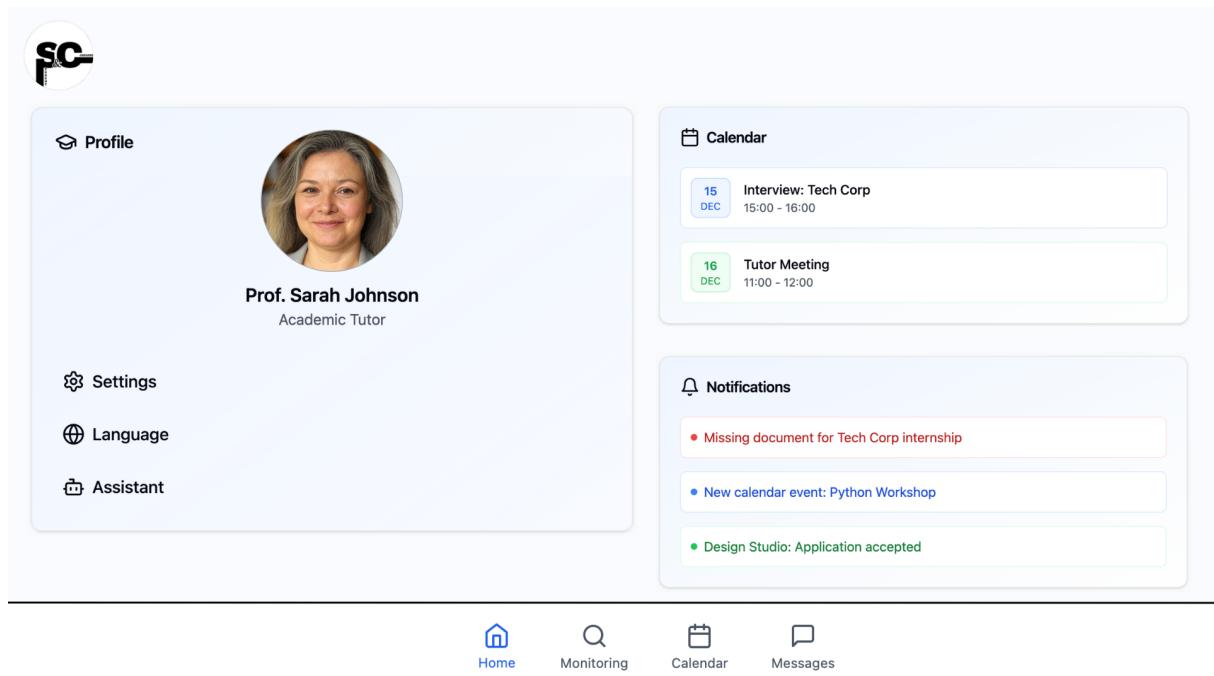


Figure 3.11: Homepage Interface for Academic Tutors.

The screenshot displays the Settings Interface, featuring two main sections: Personal Information and Institution Profile.

Personal Information

Manage your profile information visible to other users

Profile Picture
Upload a new profile picture or update the existing one

First Name [Input Field]
Last Name [Input Field]

Administrative Phone [Input Field]
Administrative Email [Input Field]
LinkedIn Profile URL [Input Field]

Department [Input Field]
Role [Input Field]

Biography
Tell us about your career, experiences, and interests...

Certifications & Awards
+ Add New
Teaching Certificate (2023) [List Item]
X

Languages
+ Add Language
* English X
* Italian X

Institution Profile

Manage your institution information visible to users

Institution Logo
Upload a new logo or update the existing one

Official Name
Enter institution name [Input Field]

Administrative Phone [Input Field]
Administrative Email [Input Field]

Profile Institution Preferences

Figure 3.12: Settings Interface.

The screenshot displays the Settings interface of a platform. At the top, there's a header bar with a back arrow, a save icon, and a delete icon. Below the header, the LinkedIn Profile URL is listed. The main section contains fields for Street Address, City, Postal Code, Country, Operating Sector (University), and Size (Employees/Students) (1-50 employees). A large text area for Description is present, with placeholder text: "Describe your institution's mission, specializations, and collaborations...". Under Certifications & Awards, two entries are shown: ISO 9001 (2023) and Excellence in Education (2022). There are buttons for "+ Add New" and "x" to remove items. The Student Domains section shows student.university.edu with a "+ Add New" button and an "x" button. The Tutor Domains section shows staff.university.edu with a "+ Add New" button and an "x" button. At the bottom, there are tabs for Profile, Institution, and Preferences (which is selected). The System Preferences section allows customizing platform experience, featuring sections for Notifications (New Messages, Internship Updates, Calendar Events) and Theme (Light or Dark mode). Buttons at the bottom include Cancel, Save Changes (highlighted in blue), Transfer Management, Delete Institution, and Delete Account.

LinkedIn Profile URL

Street Address

City

Postal Code

Country

Operating Sector

Size (Employees/Students)

Description

Describe your institution's mission, specializations, and collaborations...

Certifications & Awards

+ Add New

ISO 9001 (2023)

Excellence in Education (2022)

Student Domains

+ Add New

student.university.edu

Tutor Domains

+ Add New

staff.university.edu

Profile Institution Preferences

System Preferences

Customize your platform experience

Notifications

New Messages

Internship Updates

Calendar Events

Theme

Light Dark

Cancel Transfer Management Delete Institution Delete Account

Figure 3.13: Settings Interface.

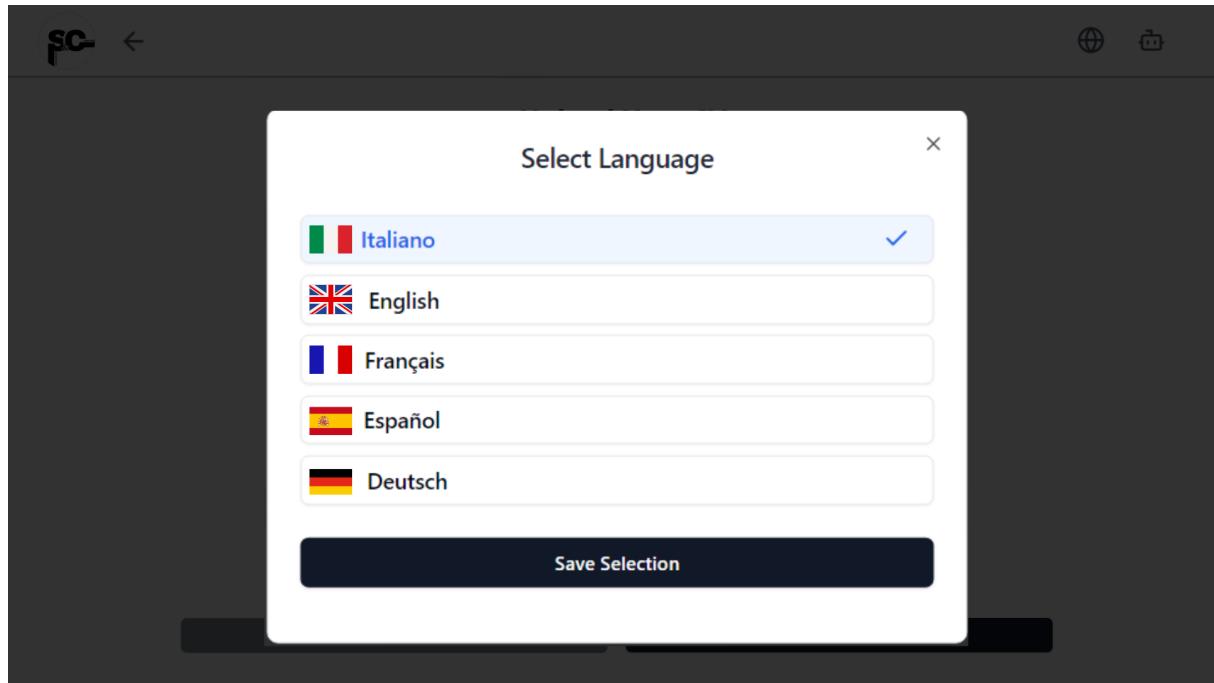


Figure 3.14: Change Language Interface.

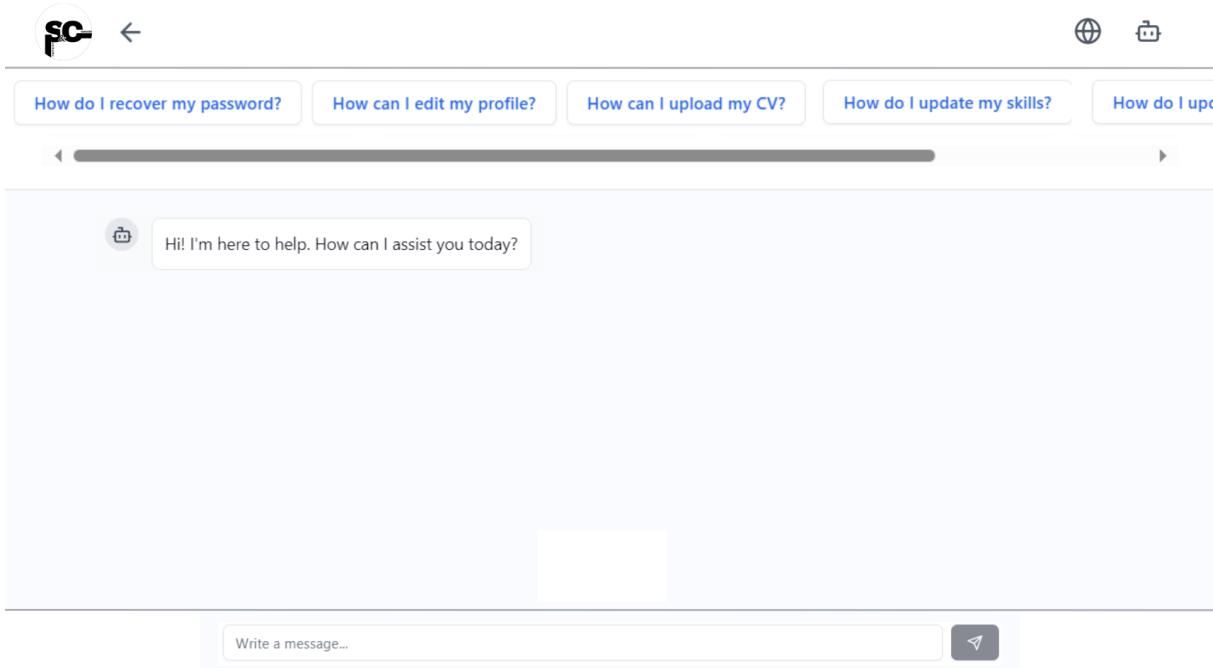


Figure 3.15: Chatbot Assistance Interface.

3.3. Matchmaking

The screenshot shows a student's matchmaking interface with three internship opportunities listed:

- Frontend Developer Intern** at Tech Solutions Inc.
 - Match % 95
 - Programming
 - 6 months
 - 1000€/month
 - Milan • Hybrid
- UX Design Intern** at Creative Studio
 - Match % 88
 - Design
 - 3 months
 - 800€/month
 - Rome • In-person
- Data Analysis Intern** at Data Insights Corp
 - Match % 82
 - Finance
 - 4 months
 - No compensation
 - Remote • Online

Below the list are navigation icons: Home, Matchmaking (highlighted), Monitoring, Calendar, and Message.

Figure 3.16: Matchmaking Interface for Students.

The screenshot shows a user interface for a matching service. At the top left is a logo consisting of a stylized 'S' and 'C'. To its right is the word 'Matching'. On the far right are three buttons: 'Clear All' (with an 'X' icon), 'Sort' (with a double arrow icon), and a downward-pointing triangle icon. Below this is a search bar with the placeholder 'Search internships...'. The main content area displays three profile cards, each with a blue header bar containing the name, a green 'Match' button, and a percentage (95%, 88%, or 82%). Each card includes the recommended role, education background, certifications, languages, and a 'Contact' button.

Profile	Recommended for	Education	Certifications	Languages
Marco Rossi	Frontend Developer Intern	Computer Science and Engineering Politecnico di Milano	AWS Certified Cloud Practitioner	Italian, English
Laura Bianchi	UX Design Intern	Digital Communication Università di Bologna	Adobe UX Certification	Italian, Spanish
Giuseppe Verdi	Data Analysis Intern	Mathematics and Statistics Università di Torino	Microsoft Data Analyst	Italian, German

Below the profiles are five navigation icons: Home (house), Matchmaking (grid), Monitoring (magnifying glass), Calendar (calendar), and Message (speech bubble).

Figure 3.17: Matchmaking Interface for Company Tutors.

3.4. Monitoring: Selection Process, Active Stages and Questionnaires

The screenshot shows a user interface for monitoring selection processes. At the top, there is a logo consisting of 'SC' in a circle and the word 'Monitoring'. Below the logo, there are three tabs: 'Selection Process' (which is underlined), 'Active Stages', and 'Questionnaires'. The main content area displays three sections, each representing a different intern position:

- Frontend Developer Intern:** Company Tutor: John Smith, Tag: Received, Academic Tutor: Michael Brown, Status: Pending, Remove button.
- Backend Developer Intern:** Company Tutor: David Thompson, Tag: Sent, Academic Tutor: Not defined, Status: Pending, Remove button.
- UX Design Intern:** Company Tutor: [redacted], Tag: [redacted], Academic Tutor: [redacted], Status: [redacted], Remove button.

At the bottom of the interface, there is a navigation bar with five items: Home (with house icon), Matchmaking (with grid icon), Monitoring (with magnifying glass icon, currently selected), Calendar (with calendar icon), and Messages (with speech bubble icon).

Figure 3.18: Selection Process Interface for Students.

Monitoring

Selection Process Active Stages Questionnaires

Draft Stages Create Stage

Frontend Developer Intern

Student	Tag	Academic Tutor	Status	Remove
Alice Johnson	Received	Michael Brown	✉	ⓧ

Backend Developer Intern

Student	Tag	Academic Tutor	Status	Remove
Emma Davis	Received	Not defined	✗	ⓧ

UX Design Intern

Student	Tag	Academic Tutor	Status	Remove

Home Matchmaking **Monitoring** Calendar Messages

Figure 3.19: Selection Process Interface for Company Tutors.



Monitoring

[Selection Process](#)[Active Stages](#)[Questionnaires](#)

Frontend Developer Intern

Student	Company Tutor	Status	Deadline	Remove
Alice Johnson	John Smith		3 days left	

UX Design Intern

Student	Company Tutor	Status	Deadline	Remove
Robert Wilson	Sarah Parker		2 days left	

Backend Developer Intern

Student	Company Tutor	Status	Deadline	Remove

 [Home](#) [Matchmaking](#) [Monitoring](#) [Calendar](#) [Messages](#)

Figure 3.20: Selection Process Interface for Academic Tutors.

SC Monitoring

[←](#)

Template Selection (Optional)

Choose a template

Internship Title *

e.g., Junior Backend Developer Intern

Category *

Select a category

Description *

Describe the internship role and responsibilities...

Requirements *

List required skills, qualifications, and experience...

Duration *

months

Compensation *

e.g., 800 EUR/month + benefits

Work Mode *

Select work mode

Location

Office address

Application Deadline *

gg/mm/aaaa

Company Tutor *

Select or enter tutor name

Required Languages

+ Add Language

Save as template for future use

[Improve Content](#) [Save Draft](#) [Publish](#)

[Home](#) [Matchmaking](#) [Monitoring](#) [Calendar](#) [Messages](#)

Figure 3.21: Selection Process - Internship Creation Interface for Company Tutors.



Monitoring

Sort ↗



Internship Title	Last Modified	Status	Category	Actions
Frontend Developer Intern	Mar 20, 2024, 02:30 PM	Ready to Publish	Programming	
UX Research Assistant	Mar 19, 2024, 09:15 AM	Incomplete	Design	
Digital Marketing Specialist	Mar 18, 2024, 04:45 PM	Ready to Publish	Marketing	



Home



Matchmaking



Monitoring



Calendar



Messages

Figure 3.22: Selection Process - Drafts Interface for Company Tutors.



Monitoring

[Selection Process](#)[Active Stages](#)[Questionnaires](#)

UX Design Intern

Company Tutor
Emily Davis

Academic Tutor
Robert Wilson

Status
Final Evaluation

Issues
None

Backend Developer Intern

Company Tutor
David Thompson

Academic Tutor
Michael Brown

Status
Stage Start

Issues
None

Frontend Developer Intern

Company Tutor

Academic Tutor

Status

Issues

Home

Matchmaking

Monitoring

Calendar

Messages

Figure 3.23: Active Stages Interface for Students.

Monitoring

Selection Process **Active Stages** Questionnaires

UX Design Intern

Student	Academic Tutor	Status	Issues
Alice Johnson	Robert Wilson	Final Evaluation	None

Backend Developer Intern

Student	Academic Tutor	Status	Issues
Emma Davis	Michael Brown	Stage Start	None

Frontend Developer Intern

Student	Academic Tutor	Status	Issues

Home Matchmaking **Monitoring** Calendar Messages

Figure 3.24: Active Stages Interface for Company Tutors.

The screenshot shows the 'Monitoring' section of the 'Active Stages' interface. At the top, there are tabs for 'Selection Process', 'Active Stages' (which is selected), and 'Questionnaires'. Below the tabs, there are three cards representing different internships:

- UX Design Intern**: Student: Alice Johnson, Company Tutor: John Smith, Status: Scheduled Event: Weekly Review, Issues: Communication.
- Backend Developer Intern**: Student: Robert Wilson, Company Tutor: Sarah Parker, Status: Stage Start, Issues: None.
- Frontend Developer Intern**: Student: [not visible], Company Tutor: [not visible], Status: [not visible], Issues: [not visible].

At the bottom, there are navigation icons: Home (house icon), Matchmaking (grid icon), Monitoring (magnifying glass icon, highlighted in blue), Calendar (calendar icon), and Messages (speech bubble icon).

Figure 3.25: Active Stages Interface for Academic Tutors.



Monitoring



Stage Start

September 10, 2024

Stage started after company selection and student approval

Planned Event: Progress Meeting

December 20, 2024

Next scheduled event

 Current state - Actions in progress

Last Event

Expected January 2025

Final stage meeting

Final Evaluation

Expected January 2025

Final assessment and questionnaires

Stage End

Expected January 2025

Stage completion

Status Change Information

States change automatically based on user actions in the system. An automatic notification is sent to all involved users when a state change occurs.



Home



Matchmaking



Monitoring



Calendar



Messages

Figure 3.26: Active Stages - States History Interface.



Issue Management

Unclear Project Requirements Technical Skills

👤 Reported by: John Smith ⏰ 2024-03-15

Description

Student reports difficulties in understanding technical requirements for the assigned tasks, leading to implementation delays.

Company Contact **Student Contact**

📞 Call 💬 Chat 📞 Call 💬 Chat

ⓧ Terminate ⠚⠄ Suspend ▶ Resume

🏠 Home 🔍 Monitoring 📅 Calendar 💬 Messages

Figure 3.27: Active Stages - Issue Management Interface for Academic Tutors.

SC Monitoring



Prof. Robert Anderson

University of Technology
Computer Science • Academic Tutor

Contact Information

+39 123 456 7890
m.rossi@university.edu
[LinkedIn Profile](#)

Biography

Professor of Computer Science with 15 years of experience in academic research and teaching. Specialized in Artificial Intelligence and Machine Learning, with a strong focus on mentoring graduate students and leading research projects.

Certifications & Awards

Advanced Machine Learning Certification
Stanford University 2023

Best Paper Award - AI Conference 2023
International AI Society 2023

Languages

Italian (Native) English (C1) French (B2)

Curriculum Vitae

[View CV](#)

Reviews

★ 5/5 15/01/2024
Excellent mentor, very knowledgeable and supportive
by Student

★ 5/5 20/01/2024
Exceptional teaching methods and deep knowledge of the subject matter. Always available for consultation.
by Graduate Student

Home **Matchmaking** **Monitoring** **Calendar** **Messages**

Figure 3.28: Selection Process/Active Stages - Personal Profile Visualization Interface.

The screenshot displays the SC Monitoring application's interface for viewing an institution's profile. At the top, there is a header with the SC logo and the word "Monitoring". Below the header, the institution's logo is shown, followed by the name "Tech Solutions International" and its industry category, "Information Technology".

The profile is divided into several sections:

- Contact Information:** This section contains four input fields with icons: a phone icon for "+1 (555) 123-4567", an envelope icon for "admin@techsolutions.com", a globe icon for "www.techsolutions.com", and a LinkedIn icon for "LinkedIn Profile".
- Location:** This section shows the institution's address: "123 Innovation Avenue, Silicon Valley, 94025, United States".
- Institution Size:** This section indicates the number of employees: "500-1000 employees".
- About:** This section provides a brief description of the institution: "Tech Solutions International is a leading provider of innovative software solutions, specializing in enterprise applications and cloud services. With a strong focus on research and development, we collaborate with top universities and have established ourselves as pioneers in AI-driven solutions."
- Achievements:** This section lists three awards:
 - ISO 27001 Information Security Certification** (2024)
 - Best Workplace Innovation Award** (2023)
 - Top 50 Tech Companies Recognition** (2023)

At the bottom of the interface, there is a navigation bar with five items: Home, Matchmaking, Monitoring (which is highlighted in blue), Calendar, and Messages.

Figure 3.29: Selection Process/Active Stages - Institution Visualization Interface.

The screenshot shows the 'Monitoring' section of a web application. At the top, there's a header with the 'Monitoring' tab selected. Below the header, a job listing for a 'Junior Backend Developer Intern' is displayed. The listing includes details like company ('Tech Solutions Ltd'), location ('Milan, Italy'), duration ('6 months'), compensation ('800 EUR/month'), and work mode ('Hybrid (2 days remote)'). A 'Description' section outlines the role's responsibilities, mentioning Node.js and PostgreSQL. A 'Requirements' section lists skills such as Computer Science, Node.js, REST APIs, Git, database concepts, and problem-solving. The 'Company Tutor' is listed as Marco Bianchi, a Senior Backend Developer. Language requirements show Italian (B2 Required) and English (B2 Required). The 'Application Deadline' is set for August 15, 2024. A large 'Apply Now' button is prominently displayed at the bottom. The footer contains navigation links for Home, Matchmaking, Monitoring (which is highlighted), Calendar, and Messages.

Monitoring

Junior Backend Developer Intern

Tech Solutions Ltd • Milan, Italy

Duration
6 months

Compensation
800 EUR/month

Work Mode
Hybrid (2 days remote)

Description

Join our backend development team and gain hands-on experience in building scalable web applications. You'll work with modern technologies like Node.js and PostgreSQL, participating in the development of REST APIs and microservices architecture.

Requirements

- Computer Science or related field student
- Basic knowledge of Node.js and REST APIs
- Familiarity with Git version control
- Understanding of database concepts
- Good problem-solving skills

Company Tutor

Marco Bianchi
Senior Backend Developer

Required Languages

*A Italian (B2 Required) *A English (B2 Required)

Application Deadline

August 15, 2024

Apply Now

Home Matchmaking **Monitoring** Calendar Messages

Figure 3.30: Selection Process/Active Stages - Internship Visualization Interface.



Monitoring

Selection Process Active Stages **Questionnaires**

First Meeting Questionnaires Final Evaluations

Company Tutor	Internship Title	Meeting Date	Questionnaire
John Smith ↗	Web Development Intern ↗	15/03/2024	View Questionnaire
Sarah Wilson ↗	UX Design Intern ↗	14/03/2024	View Questionnaire



Home



Matchmaking



Monitoring



Calendar



Messages

Figure 3.31: First Meeting Questionnaires Interface for Students.



Monitoring

Selection Process Active Stages **Questionnaires**

[First Meeting Questionnaires](#) [Final Evaluations](#)

Student Name	Internship Title	Meeting Date	Questionnaire
Alice Johnson	Web Development Intern	15/03/2024	View Questionnaire
Bob Smith	UX Design Intern	14/03/2024	View Questionnaire



Home



Matchmaking



Monitoring



Calendar



Messages

Figure 3.32: First Meeting Questionnaires Interface for Company Tutors.



Monitoring



✓ First Meeting Evaluation

- Complete the following questionnaire to evaluate the candidate. All responses will be kept confidential and used exclusively for the selection process.

General impression of the student

Poor

Fair

Good

Excellent

Did the student show interest and motivation for the role?

Poor

Fair

Good

Excellent

Would you recommend this student for the internship?

Poor

Fair

Good

Excellent



Home



Matchmaking



Monitoring



Calendar



Messages

Figure 3.33: First Meeting Questionnaire Creation Interface.



Monitoring



Was the student clear in communicating their experience and skills?

Poor

Fair

Good

Excellent

Did the student understand the internship requirements?

Poor

Fair

Good

Excellent

What are the student's key strengths?

Enter your observations here...

What areas need improvement?

Enter your observations here...

How suitable is the student for this role?

1 - Not at all

2 - Slightly

3 - Moderately

4 - Very much

5 - Perfectly

Save Evaluation

Home

Matchmaking

Monitoring

Calendar

Messages

Figure 3.34: First Meeting Questionnaire Creation Interface.



Monitoring



Student Evaluation Results

First meeting evaluation results for the student's internship application.

General impression of the student

Excellent

Was the student clear in communicating their experience and skills?

Good

Did the student understand the internship requirements?

Excellent

Did the student show interest and motivation for the role?

Excellent

Would you recommend this student for the internship?

Good

How suitable is the student for this role?

4 - Very much

Student's key strengths

Strong technical background in relevant technologies. Shows great enthusiasm for learning and adapting to new challenges. Excellent problem-solving approach demonstrated during the discussion.

Areas needing improvement

Could benefit from more practical experience in team projects.
Communication skills are good but could be more concise.



Home



Matchmaking



Monitoring



Calendar



Messages

Figure 3.35: First Meeting Questionnaire Visualization Interface.



Monitoring

[Selection Process](#)[Active Stages](#)[Questionnaires](#)[First Meeting Questionnaires](#)[Final Evaluations](#)

Final Evaluations

Internship	Period	Student Evaluation	Company Tutor Evaluation	Academic Tutor Evaluation
Web Development Internship ↗	Jan-Mar 2024	View Evaluation	View Evaluation	View Evaluation
UX Design Internship ↗	Feb-Apr 2024	View Evaluation	View Evaluation	Pending

Reviews Received

John Smith

Company Tutor



Shows great initiative and technical aptitude. Quickly adapted to our development workflow and contributed valuable code to the project.

[Web Development Internship ↗](#)**Sarah Wilson**

Company Tutor



Demonstrated strong understanding of UX principles and user research methods. Consistently delivered high-quality design solutions.

[UX Design Internship ↗](#)**Dr. Michael Brown**

Academic Tutor



Excellent integration of academic knowledge with practical skills. The student has shown remarkable



Home



Matchmaking



Monitoring



Calendar



Messages

Figure 3.36: Final Evaluations Interface for Students.



Monitoring

[Selection Process](#)[Active Stages](#)[Questionnaires](#)[First Meeting Questionnaires](#)[Final Evaluations](#)

Final Evaluations

Internship	Period	Student Evaluation	Company Tutor Evaluation	Academic Tutor Evaluation
Web Development Internship	Jan-Mar 2024	View Evaluation	View Evaluation	View Evaluation
UX Design Internship	Feb-Apr 2024	View Evaluation	View Evaluation	Pending

Reviews Received

Alice Johnson

Student



Mr. Smith has been an excellent mentor throughout my internship. His guidance and support have been invaluable for my professional growth.

[Web Development Internship](#)**Bob Smith**

Student



Dr. Wilson provided great mentorship and industry insights. Her feedback was always constructive and helped me improve my skills.

[UX Design Internship](#)**Dr. Michael Brown**

Academic Tutor



Excellent collaboration with the company tutor. The mentorship provided was perfectly aligned with our academic goals.

[Web Development Internship](#)

Home



Matchmaking



Monitoring



Calendar



Messages

Figure 3.37: Final Evaluations Interface for Company Tutors.

Final Evaluations

Internship	Period	Student Evaluation	Company Tutor Evaluation	Academic Tutor Evaluation
Web Development Internship	Jan-Mar 2024	View Evaluation	View Evaluation	View Evaluation
UX Design Internship	Feb-Apr 2024	View Evaluation	View Evaluation	Pending

Reviews Received

Alice Johnson ★★★★★
Student
Dr. Brown has been extremely helpful in connecting academic concepts with practical work. His guidance helped me understand the theoretical foundations of my tasks.
[Web Development Internship](#)

Bob Smith ★★★★☆
Student
Regular feedback sessions with Dr. Brown were very insightful. He helped me understand how academic principles apply to real-world UX challenges.
[UX Design Internship](#)

John Smith ★★★★★
Company Tutor
Excellent collaboration with Dr. Brown. His academic oversight ensured the internship aligned well with the student's educational goals.
[Web Development Internship](#)

Sarah Wilson ★★★★★
Company Tutor
Dr. Brown provided valuable academic perspective and maintained great communication throughout the internship period.
[UX Design Internship](#)

Home **Matchmaking** **Monitoring** **Calendar** **Messages**

Figure 3.38: Final Evaluations Interface for Academic Tutors.



Monitoring



⌚ Final Stage Evaluation

Internship Title
Web Development Intern

Company Tutor
John Smith

Student
Alice Johnson

Duration
Jan 15, 2024 - Apr 15, 2024

ⓘ Your responses to this questionnaire will be private and visible only to the parties involved in the internship.

How would you rate the support received from your company tutor during the internship?

1 - Very Poor

2 - Poor

3 - Fair

4 - Good

5 - Very Good

6 - Excellent

Were your objectives and responsibilities clearly defined?

1 - Very Poor

2 - Poor

3 - Fair

4 - Good

5 - Very Good

6 - Excellent



Home



Matchmaking



Monitoring



Calendar



Messages

Figure 3.39: Final Evaluation Creation Interface.



Monitoring



Has the internship contributed to your professional growth?

1 - Very Poor

2 - Poor

3 - Fair

4 - Good

5 - Very Good

6 - Excellent

Which aspects of the internship did you enjoy the most?

Share your positive experiences...

Do you have any suggestions for improving the internship?

Share your suggestions for improvement...

- ⓘ This review will be visible on the user's profile. Please ensure your feedback accurately reflects your experience.

Rate your overall experience



Write a review for your company tutor

Share your thoughts about their competencies, behavior, and qualities...

Submit Final Evaluation



Home



Matchmaking



Monitoring



Calendar



Messages

Figure 3.40: Final Evaluation Creation Interface.

SC Monitoring

←

⌚ Final Evaluation Results

Internship Title
Web Development Intern

Company Tutor
John Smith

Student
Alice Johnson

Duration
Jan 15, 2024 - Apr 15, 2024

How would you rate the support received from your company tutor during the internship?

5 - Very Good

Were your objectives and responsibilities clearly defined?

6 - Excellent

Has the internship contributed to your professional growth?

5 - Very Good

Which aspects of the internship did you enjoy the most?

The hands-on experience with modern web development technologies was invaluable. The team was very welcoming and I had the opportunity to work on real projects. The regular feedback sessions with my tutor were particularly helpful in understanding my progress and areas for improvement.

Do you have any suggestions for improving the internship?

It would be beneficial to have more structured documentation about the initial setup process. Perhaps a welcome package for new interns with all the necessary information would streamline the onboarding process.

Company Tutor Review



John has been an exceptional mentor throughout my internship. His expertise and patience in guiding me through complex technical challenges helped me grow significantly as a developer. He consistently provided constructive feedback and was always available when I needed support. His approach to mentoring fostered both my technical skills and professional development.

Home

Matchmaking

Monitoring

Calendar

Messages

Figure 3.41: Final Evaluation Visualization Interface.

3.5. Calendar

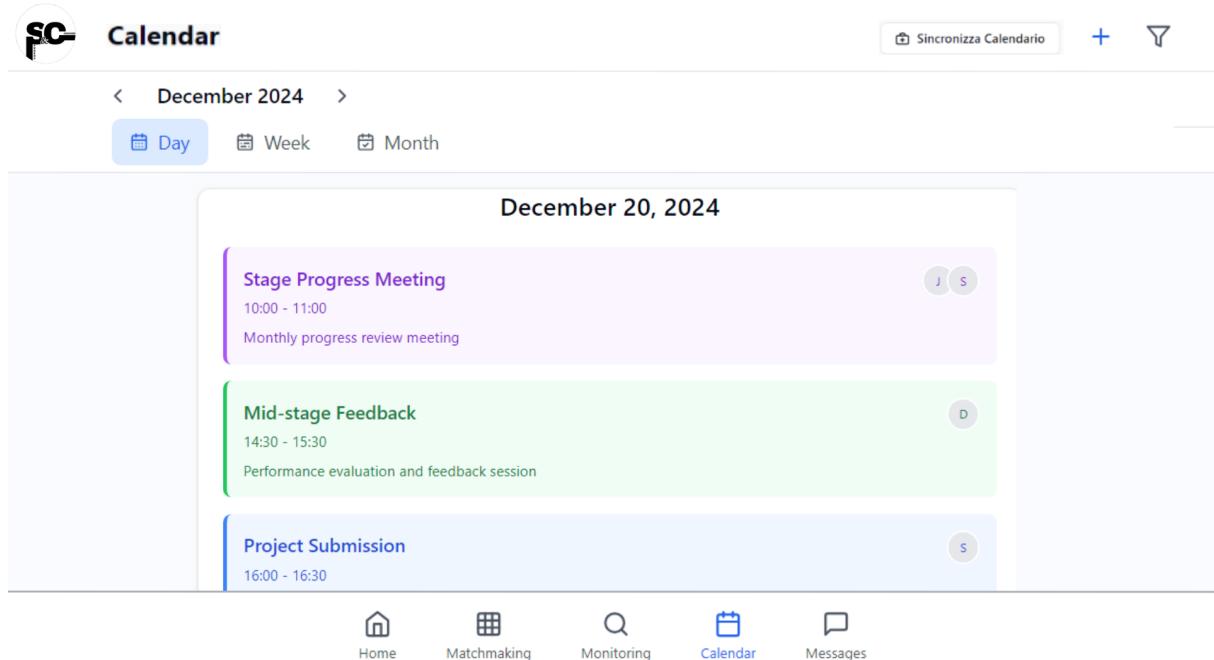


Figure 3.42: Calendar in "Day" Visualization Interfaces.

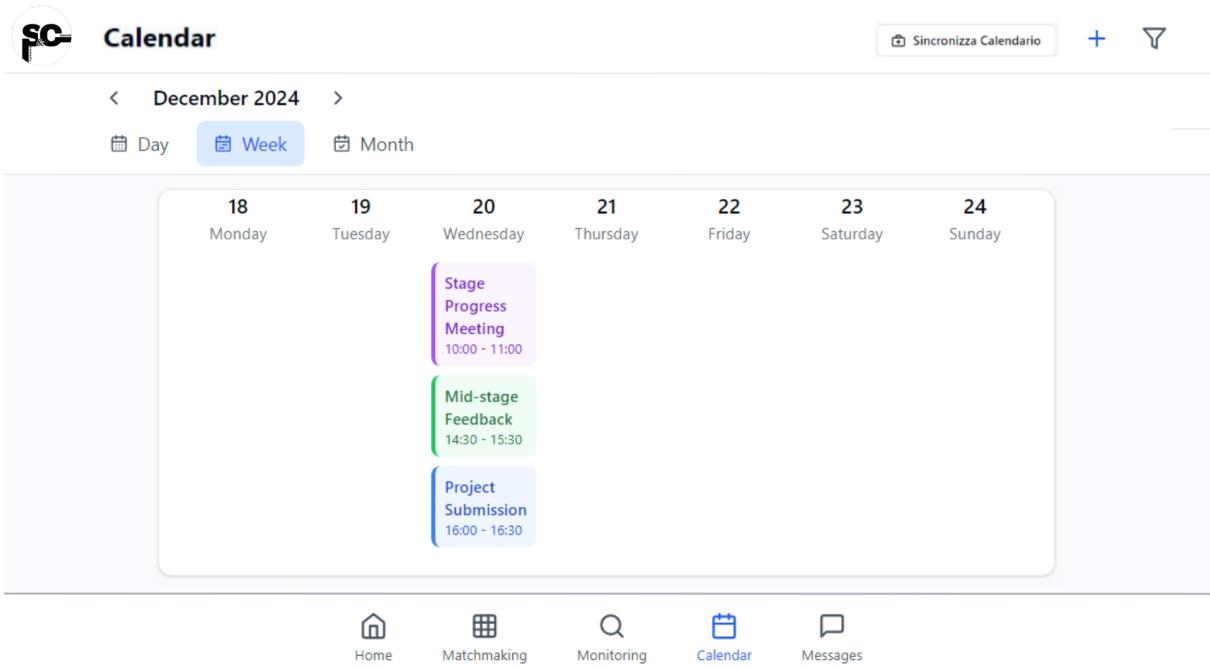


Figure 3.43: Calendar in "Week" Visualization Interface.

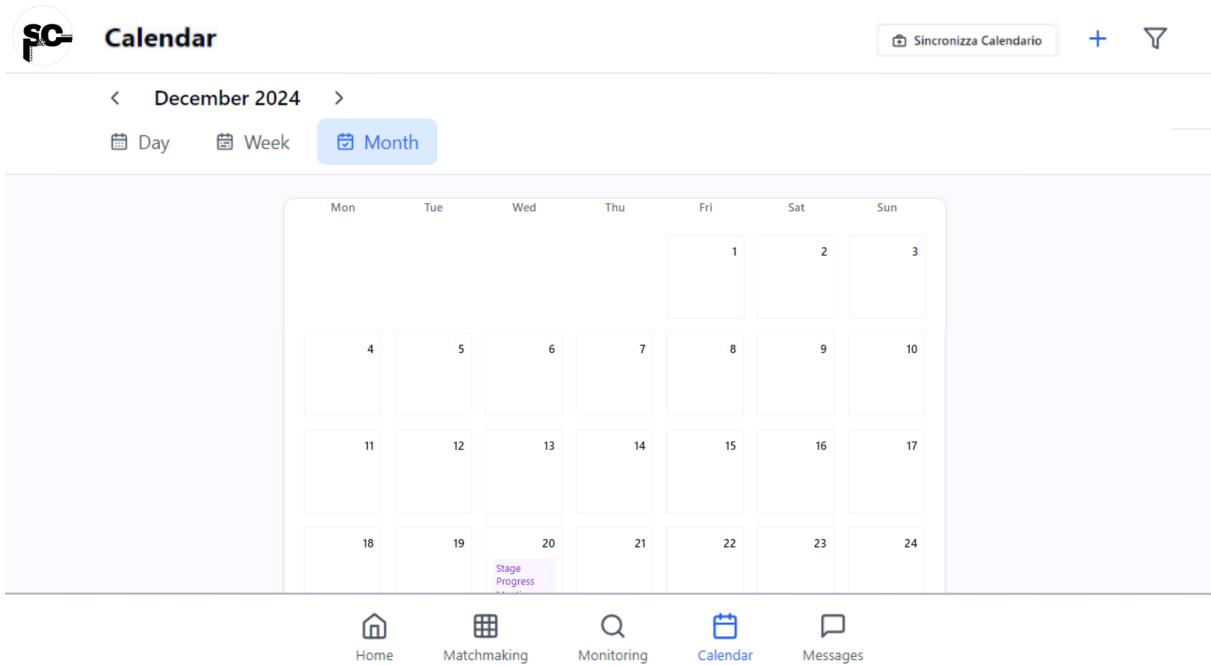


Figure 3.44: Calendar in "Month" Visualization Interface.



Calendar



Create New Event

Event Title

Date

Time

Category

Participants

John Smith Sarah Johnson

Description

Virtual Meeting



Location

Home Notification



Last Event

This will trigger the final evaluation process



Home



Matchmaking



Monitoring



Calendar



Messages

Figure 3.45: Calendar - Event Creation Interface.



Calendar



Stage Progress Meeting

Meeting

⌚ December 20, 2024

10:00 - 11:00

▢ Virtual Meeting

[Join Meeting](#)

[Open Chat](#)

- Monthly progress review meeting to discuss the advancement of the frontend development internship project. We will review the completed tasks, address any challenges, and plan the next sprint objectives.

⌚ This is marked as the last event of the stage

👤 Participants

John Smith

Company Tutor

✓ Present

Sarah Johnson

Academic Tutor

✓ Present

David Thompson

Student

⌚ Waiting

Emily Wilson

Administrator

✗ Not Present

[Confirm Attendance](#)

[Edit Event](#)



Home



Matchmaking



Monitoring



Calendar



Messages

Figure 3.46: Calendar - Event Visualization Interface.

3.6. Messaging with Issues and Video-calls

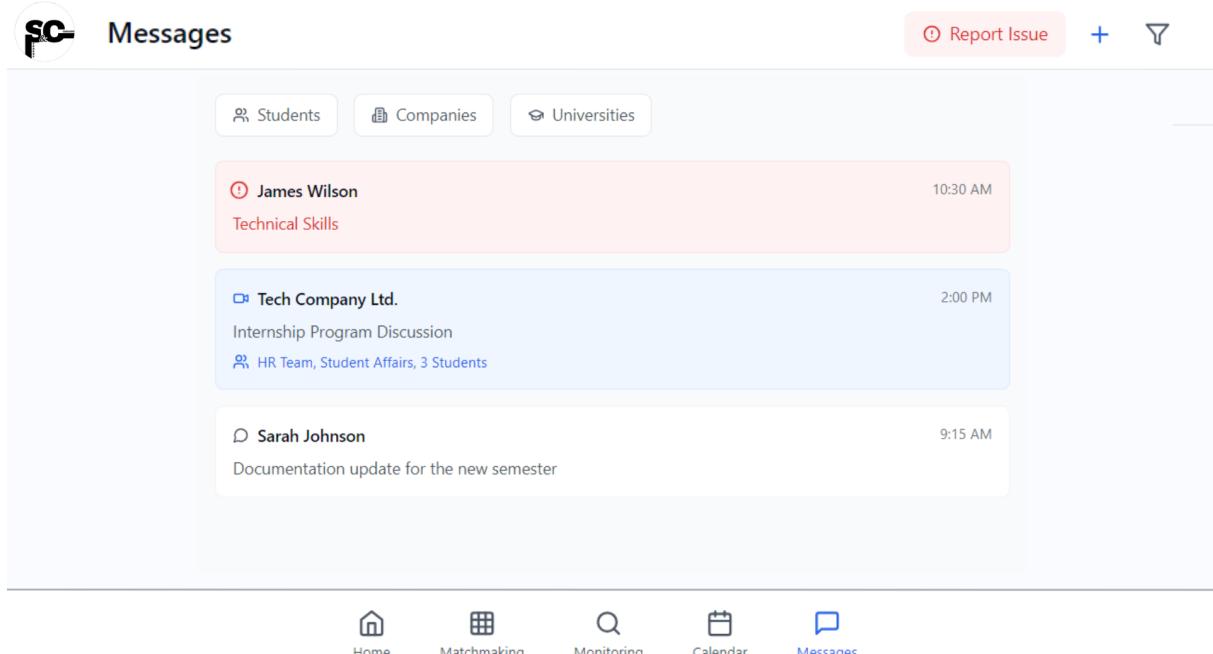


Figure 3.47: Messaging Interface.



Report Issue



Issue Details

Issue Title *

Enter a clear and concise title

Category *



Communication

Issues related to misunderstandings, lack of clarity, or communication difficulties between parties



Technical Skills

Difficulties encountered due to lack of technical skills or inability to solve specific technical problems



Time Management

Issues related to missed deadlines, delays, or difficulties in meeting established timelines



Interpersonal Problems

Conflicts or friction between participants, personal relationship difficulties that affect collaboration effectiveness



Other

For any other category not listed above

Detailed Description *

Describe the issue in detail, including specific examples and context

Minimum 50 characters

0 characters

Save and Submit



Home



Matchmaking



Monitoring



Calendar



Messages

Figure 3.48: Messaging - Report Issue Interface for Students and Company Tutors.

The screenshot shows a messaging interface with the following details:

- Header:** SC Messages, James Wilson, a red notification circle with a white exclamation mark, and a refresh icon.
- Section Header:** **⚠ Technical Skills Platform Issue**
- Text:** Student reported difficulties with the technical skills assessment platform. Unable to submit completed assignments due to unresponsive submission button.
- Text:** Category: Technical Skills In Progress
- Message 1:** System 09:00 AM ✓
Issue created: Technical Skills Platform Issue
- Message 2:** James Wilson 09:15 AM ✓
I'm unable to submit my completed assignments through the platform. The submit button appears to be unresponsive.
- Message 3:** Dr. Sarah Parker 09:30 AM ✓
Thank you for reporting this. I'll check with the technical team. Could you please provide your browser version and operating system?
- Input Field:** Type a message...
- Buttons:** Microphone, Send (blue arrow), and a small circular icon.
- Bottom Navigation:** Home (house icon), Matchmaking (grid icon), Monitoring (magnifying glass icon), Calendar (calendar icon), and Messages (speech bubble icon).

Figure 3.49: Messaging - Issue Chat Interface.

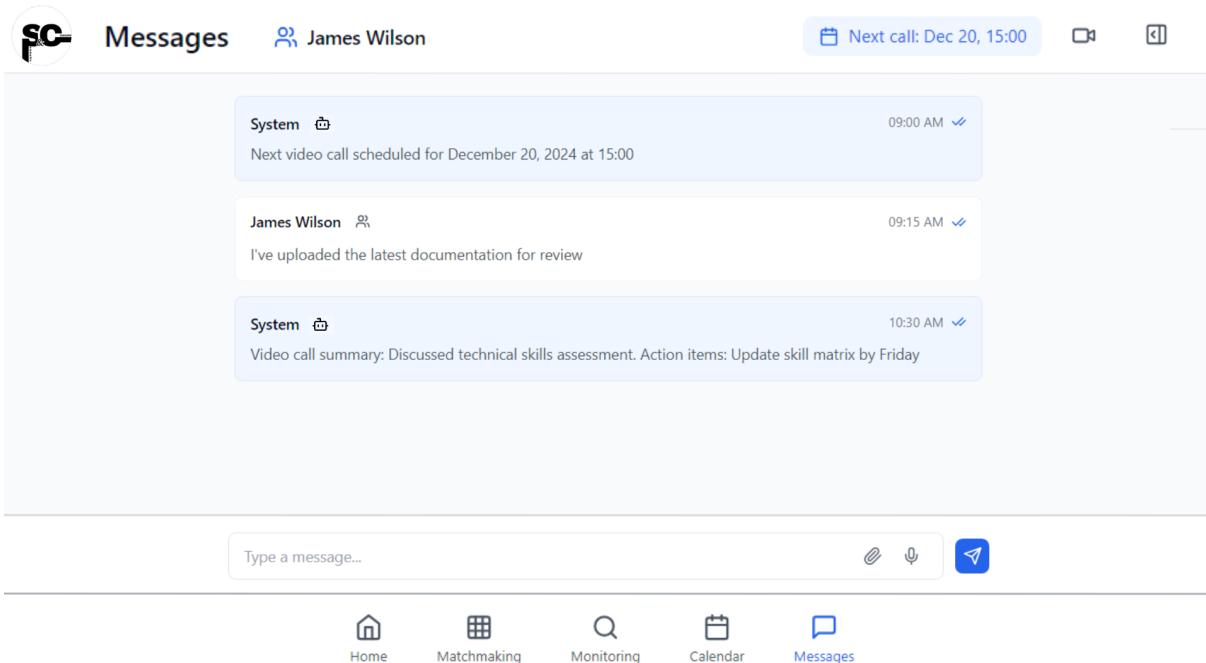


Figure 3.50: Messaging - Video-call Chat Interface.



Create a New Chat



Chat Participants

Search users by name, role, or category...

Suggested Users



John Smith
Company Tutor • Tech Corp

Add



Dr. Sarah Wilson
Academic Tutor • University

Add



Alice Johnson
Student • Computer Science

Add

Who can add participants?

- Only the creator
 All members

Chat Details

Chat Name *

Enter chat name

Description (Optional)

Add a brief description...

Cancel

Create Chat



Home



Matchmaking



Monitoring



Calendar



Messages

Figure 3.51: Messaging - Chat Creation Interface.

4 | Requirements Traceability

5 | Implementation, Integration And Test Plan

5.1. Overview

5.2. Implementation Plan

5.2.1. Features Identification

5.3. Component Integration and Testing

5.4. System Testing

5.5. Additional Specifications on Testing

6 | Effort Spent

In this section you will include information about the number of hours each group member has worked for this document.

Acquadro Patrizio

chapter	Effort (In hours)
1	5.5
2	25
3	37.5
4	4

Colosio Giacomo

chapter	Effort (In hours)
1	5
2	26.5
3	35.5
4	4

Drugman Tito Nicola

chapter	Effort (In hours)
1	7.5
2	17.5
3	19
4	27

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