

Project Proposal: Skill Bridge - A Collaborative Platform for Bridging the Skills Gap Between Sri Lankan Private University Students and Industry Needs.

1. Introduction

The software industry in Sri Lanka faces two critical challenges:

1. High Costs for SMEs: Small and medium enterprises (SMEs) struggle to afford professional software solutions due to expensive services from established companies.
2. Skill Mismatch in Talent: Large companies face difficulties sourcing skilled interns/new hires, as graduates often lack practical experience aligned with industry standards.

Skill Bridge proposes a platform to connect private university students with clients (SMEs) and enterprises. Students gain real-world experience by delivering affordable, structured software projects, while clients receive quality solutions. Enterprises leverage verified student portfolios to recruit skilled talent.

2. Objectives

1. Develop a platform for students to build portfolios, form teams, and manage end-to-end software projects.
2. Implement blockchain-secured agreements, ML-driven team/client matching, and automated workflows.
3. Integrate skill verification (proctored assessments, peer reviews) and mentorship programs.
4. Provide enterprises with AI-curated candidate shortlists based on verified skills.

3. System Overview

Key Features

1. Student Profiles & Teams:

- Portfolio creation with GitHub, Behance, and skill badges.
- Team formation tools (skill-based matching, availability tracking).

2. Client Project Pipeline:

- ML-powered team recommendations.
- Project rooms with task boards, document collaboration, and CI/CD integration.

3. Enterprise Recruitment:

- AI-driven candidate scoring for internships/jobs.
- Direct interviews via the platform.

4. Blockchain & Security:

- Smart contracts for milestone payments and NDAs.
- Dispute resolution with audit logs.

Workflow

1. Clients post projects; ML suggests student teams.
2. Teams collaborate with clients via project rooms (tasks, docs, meetings).
3. Payments released via blockchain upon milestone completion.
4. Enterprises recruit students via verified portfolios and assessments.

4. Technology Stack

Component	Technologies
Frontend	React.js, Redux, Material-UI
Backend	Node.js, Express.js, REST/GraphQL APIs
Database	MongoDB (NoSQL), Redis (caching)
Blockchain	Ethereum, Solidity (smart contracts)
ML Models	Python, TensorFlow, Scikit-learn (matching/scoring)
Real-Time Features	Socket.io, WebRTC (video conferencing)
CI/CD	GitHub Actions, Docker, AWS EC2/S3

5. Division of Work Among Team Members

Member	Responsibilities
Member 1	User Management & Blockchain: Student/client profiles, smart contracts, payment escrow.
Member 2	Project Collaboration Tools: Task boards, real-time chat, CI/CD integration.
Member 3	ML Models & Skill Verification: Team/client matching, proctored assessments.
Member 4	Enterprise Dashboard & Analytics: Recruitment tools, performance analytics.

Collaboration: Weekly standups, shared Git repository, and peer code reviews.

6. Timeline

Phase	Duration	Deliverables
Phase 1(Months 1–6)	6 months	Core platform (profiles, team formation, project rooms), basic ML matching, blockchain agreements.
Phase 2(Months 7–12)	6 months	Advanced features (proctored assessments,

		CI/CD hooks), enterprise dashboards, final testing.
--	--	---

7. Expected Outcomes

1. A fully functional platform with 1,000+ student users and 50+ client projects in the pilot phase.
2. Improved employability for students via verified portfolios and mentorship.
3. Cost reduction for SMEs (40–60% cheaper than market rates).
4. Research contributions in blockchain-based project management and ML-driven talent matching.

8. Budget & Resources

Development Tools: \$500 (IDE licenses, cloud credits).

Blockchain Fees**: \$300 (Ethereum gas costs).

Marketing**: \$200 (university partnerships).

9. Conclusion

Skill Bridge bridges the gap between academia and industry, empowering students to deliver professional-grade software while addressing SME affordability and enterprise recruitment challenges. The platform's integration of blockchain, ML, and collaborative tools ensures scalability, security, and sustainability.