

FreelanceGo: A Transparent Freelance Job Bidding System Using Escrow Payment Mechanism

Design and Implementation with Value-Based Bidding and Reputation Models

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Abstract—Traditional freelance job platforms often face problems like unclear payment processes, delayed payments, and a lack of trust between clients and freelancers. This work introduces FreelanceGo, a smart and secure platform for bidding on freelance jobs that makes it easier to start and manage projects. The system uses an escrow payment system combined with Razorpay's Route method, which keeps client money safe until the project is finished and approved. FreelanceGo tackles key issues in the market by encouraging bidding based on value, setting up a fair reputation system for new users, and offering a flexible, user-focused model for working with people around the world. By using automated money handling and strong security, the platform creates a clear, fair, and dependable online workspace for everyone involved. (*Abstract*)

Index Terms—Freelancing, job bidding, escrow payment, reputation system, React.js. (*key words*)

I. INTRODUCTION :

All The freelance economy has grown quickly in recent years, changing how people and companies work together across different countries. Digital platforms now act as middlemen, connecting freelancers with clients, offering chances for short-term, project-based work that goes beyond borders. Even though this growth is happening fast, traditional freelance platforms still face ongoing problems that make them less effective. Major issues include unclear bidding processes, payment issues, and conflicts because of differing goals between clients and freelancers. As global freelancing is expected to be worth over \$455 billion by 2028, fixing these deep-seated problems is both a tech and economic necessity.

A common problem in existing freelance systems is the lack of transparency and fairness when it comes to bidding and assigning projects. Freelancers often find it hard to get noticed, while clients get flooded with messy proposals, making it hard to choose the right one. Once projects are given, the lack of strong protections often leads to disagreements about the work done, deadlines, or the final product. Traditional platforms try to handle these disputes through centralized arbitration, but these methods are usually slow, expensive, and can be unfair. This leads to a big loss of trust, which makes it harder for freelancers and clients to work together long-term.

Another big challenge is the way money flows in these systems. On most platforms, payments are delayed or released too early, putting one side at risk. Freelancers are worried about getting paid properly once they finish the job, while clients are concerned about paying before they are sure the work matches their needs. Escrow systems, which are commonly used, are still at risk of hacking, have operational issues, and come with high fees.

To address these issues, this work introduces FreelanceGo, a smart and secure freelance platform aimed at making the process more trustworthy, transparent, and efficient. A key part of FreelanceGo is its use of Razorpay's

II. Literature Survey :

Challenges: The research highlights several main problems, including underbidding, where freelancers bid too low, bid flooding, where there are too many bids, reputation bias, where past ratings unfairly influence decisions, and the struggles new freelancers face in standing out.

Bidding Models: The findings suggest the need for changes in how bidding works, such as using tiered bidding systems, setting limits on how much can be bid, and creating better rules and oversight to make the process fairer. Trust Issues: As trust between freelancers and clients grows, there's a risk that work might move to other platforms, which can hurt the main platform's ability to stay competitive.

The Project's Niche: FreelanceGo's approach, which includes value-based bidding, fair reputation systems, and bid caps, directly addresses these identified issues and offers a better way to handle the challenges in the freelance marketplace.

III. Software Requirements Specification

A. Project Scope :

Define the system as a safe, easy-to-use, and value-driven platform that encourages value-based bidding and includes a secure payment system using escrow.

B. User Classes and Characteristics:

Describe the different roles: Freelancers (including students and new users), Employers or Clients, and Admins.

C. Functional Requirements:

List the main features: User Registration and Login, Job Posting (with bid limits), Bid Review, Secure Payment Processing (Escrow), Communication Tools, and Admin Oversight.

D. Non-Functional Requirements:

Include performance (speed and ability to handle growth), security (using OAuth and JWT, ensuring escrow safety), and usability (simple and easy-to-navigate interface).

IV. Analysis Models: Software Development Life Cycle Model

A. Software Development Life Cycle Model :

Mention that the selected model is the Incremental (Iterative + Agile) Software Development Life Cycle Model.

B. Reason for Choosing Incremental Model :

Describe that this model works well with the architecture and enables the development of complex features, such as Bidding and Escrow Payment, in separate, step-by-step phases.

C. Phases of the Software Development Life Cycle for FreelanceGo :

Outline the main increments: Increment 1 (Core Authentication and Posting), Increment 2 (Bidding Engine and Evaluation), Increment 3 (Transaction, Escrow, and Communication), and Increment 4 (Admin and Advanced Features).

V. System Design

A. System Architecture

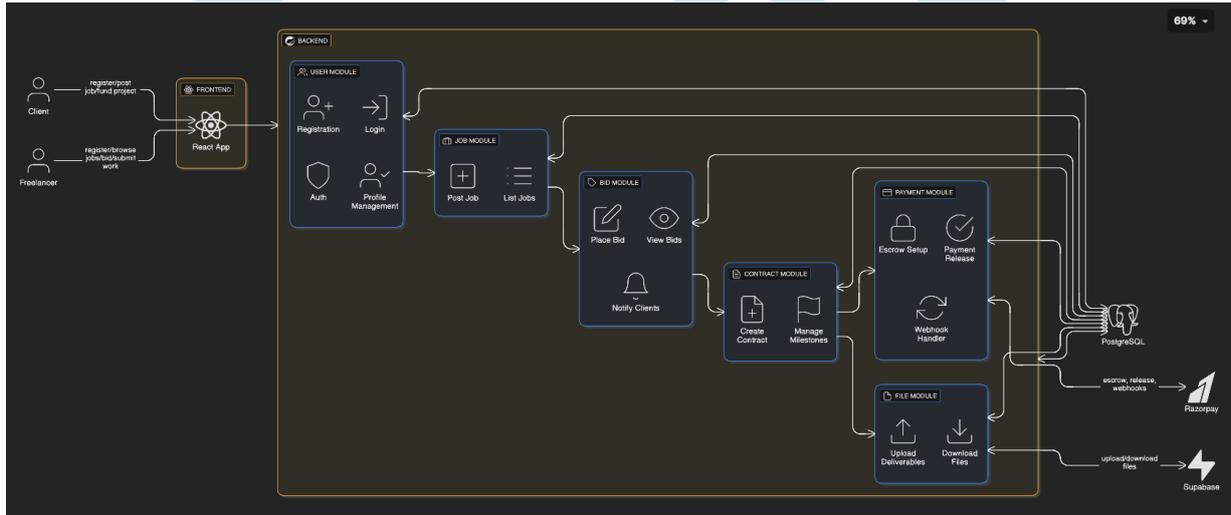


Fig1

Figure 1 The system uses a modular and based design that focuses on secure interactions and ensuring payments are handled properly. The main part users interact with is the User Interface (UI), built using React JS for the front end. All actions from the Client, Freelancer, and Admin roles go through an Authentication and Authorization Service, which keeps access secure using methods like OAuth and JWT (JSON Web Token). The back-end logic is divided into separate Backend Services, including specific modules for Client Service, Freelancer Service, Bid Service, and Payment Service. For managing money transactions, the system connects with Razorpay as the secure payment gateway to handle the escrow system.

B. Data Flow Diagrams

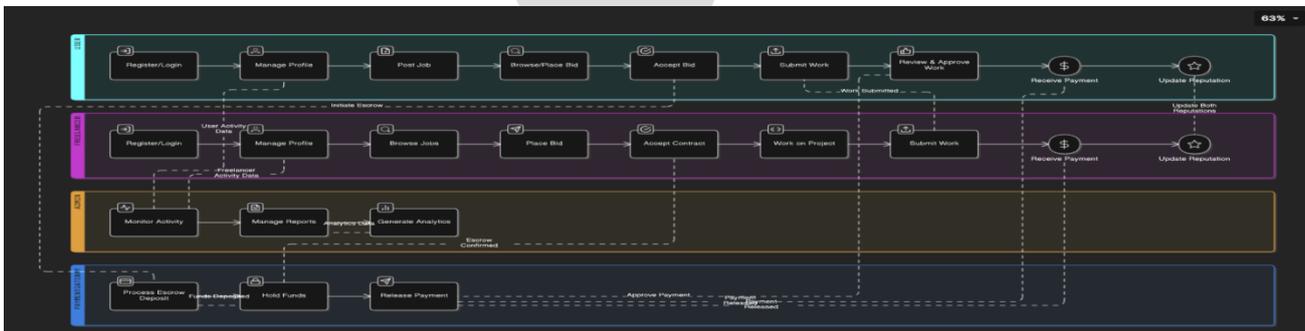


Fig2

Figure 2 The Data Flow Diagram (DFD) shows the full process involving four main parts: User (Client), Freelancer, Admin, and the Payment Gateway. The main process highlights the secure escrow process: Job Award and Escrow Initiation: The User creates a job, the Freelancer submits a bid, and when the User accepts the bid, the Escrow process starts. Fund Holding: The Payment Gateway is told to Process Escrow Deposit and then Hold Funds. The Admin checks the activity and confirms the escrow status. Payment Release: Once the Freelancer submits work, the User does a Review and Approve Work. The approval sends a signal to Release Payment from the held funds. Reputation Update: After payment is received, the system does a final step to Update Reputation

C. Entity Relationship Diagrams

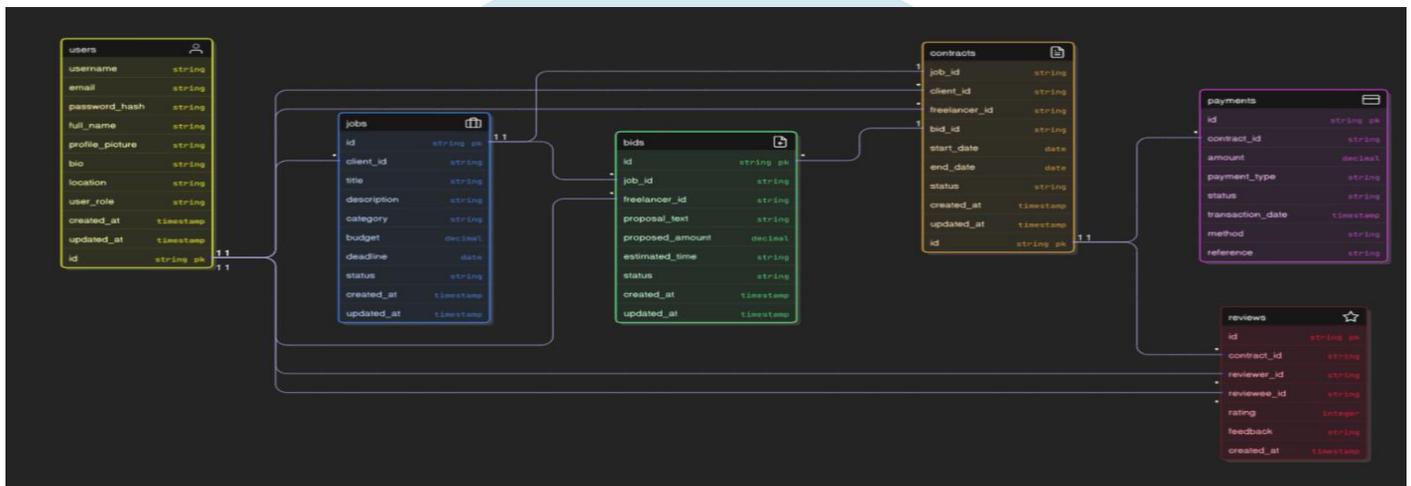


Fig3

Figure3 The Entity Relationship (ER) Diagram shows how the main data structures work together in the bidding platform. The key entities are users, jobs, bids, contracts, payments, and reviews. Users have a one-to-many (1:N) relationship with jobs (a client posts many jobs) and with bids (a freelancer makes many bids). A job receives many bids (1:N). The contracts entity is in the middle, connecting the job_id, client_id, and freelancer_id after a bid is accepted. The payments entity is directly connected to the contracts entity, so transactions are linked to the agreed-upon work.

VI. Other Specification

A. Advantages :

- Helps save money and reduce unnecessary costs: Employers can find affordable talent when they need it, allowing them to grow their business without spending a lot on hiring.
- Makes payments safer and builds trust: A payment system that works like an escrow ensures fair deals, helping both freelancers and employers feel confident and reducing problems like fraud or disagreements.
- **Opportunities for Newcomers**
Empowers Beginners: The platform is built to offer paths for newcomers.
Experience for Students: Students and freshers can get real-world project experience and boost their chances of getting a job.

B. Limitations :

Market Entry and Competition

- **High Competition:** The platform is entering a market where big, well-known companies already have a strong presence, like Upwork and Freelancer. It will be hard to bring in enough skilled freelancers and real employers at first.
- **Building Initial Trust:** Creating a trustworthy platform from the start is tough. Both clients and freelancers are cautious about new sites because they don't fully trust existing ones. Operational and Feature Complexity This is harder to build and keep working compared to just choosing the lowest price, which is what most people do now.
- **Escrow and Payment Liability:** Using a third party like Razorpay for secure payments adds extra steps and responsibility. The platform has to handle large amounts of money safely, which can be risky.
- **Admin Burden:** The team has to watch for unfair behavior and make sure everything is fair. This takes a lot of work, either by people checking manually or by using complicated tools to catch fraud, especially in the early days.

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