System Architecture Description

This architecture integrates core features of **Taskfinity**, including task bidding, monetization strategies, task management, and blockchain integration, ensuring scalability, security, and user engagement.

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1. Users (Task Posters, Workers, & Bidders)

- **Description:** The key stakeholders interacting with the platform:
  - **Task Posters**: Individuals or businesses that create tasks with predefined budgets.
  - **Task Workers**: Users claiming or bidding on tasks to complete them.
  - **Bidders**: Workers who compete by submitting bids with proposed costs and timelines.
- **Interactions:**
  - Task creation, bidding, claiming, and login.

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2. Frontend (React.js)

- **Description:**
  - A user-friendly interface facilitating interactions between users and the platform.
  - Developed using React.js for responsiveness and scalability.
- **Features Added:**
  - **Bidding Module**: Allows users to view and submit bids for tasks.
  - **Task Monitoring Dashboard**: For posters to track bids and progress.
  - **Notifications**: Updates users about bid statuses, task completion, and payment releases.

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3. Backend APIs (Task Mgmt, Bidding, Auth, Payments, Monetization)

- **Description:**
  - Serves as the central logic layer, managing task workflows, bidding mechanisms, user authentication, and payments.
- **Features Added:**
  - **Bidding Management**: Handles bid submissions, updates, and selection of winners.
  - **Task Moderation**: Verifies task legitimacy before posting.
  - **Platform Monetization**: Includes:
    - **Bidding Fees**: A percentage charged for winning bids.
    - **Subscription Plans**: Premium access for task posters/workers for advanced features like analytics.

        - **Priority Listing Fees**: Task posters can pay to prioritize their tasks.
    - **Revenue Reporting**: Tracks platform earnings and user transactions.

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4. User Authentication (Access Control)

- **Description:**
    - Ensures secure user access and role-based access control.
- **Features Added:**
    - Supports multi-factor authentication (MFA).
    - Distinguishes between task posters, bidders, and platform administrators.

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5. Task Verification & Review System

- **Description:**
    - Validates task completion and incorporates user reviews to ensure quality.
- **Features Added:**
    - **Reputation System**: Tracks user ratings based on task performance.
    - **Automated Verifications**: Uses AI to verify simple task completions (if applicable).
    - **Dispute Resolution**: For resolving disagreements between posters and workers.

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6. Blockchain (ICP) Smart Contracts & Escrow

- **Description:**
    - Manages task-related data and payment transactions securely on-chain.
- **Features Added:**
    - **Escrow for Bids**: Holds funds until the bidding process concludes and the task is completed.
    - **Task Audit Logs**: Stores bidding history and task interactions for transparency.

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7. ICP Token Payments (Escrow & Release)

- **Description:**
    - Manages token-based payments securely.
- **Features Added:**
    - **Flexible Payment Options**: Supports partial payments for milestones.
    - **Automated Payouts**: Triggers payments after task verification and dispute resolution.