



## AUTHORS

Ramesh Kumar Sah

Uni Id: 2212384

Supervisor: Tara GC

BSc (Hons) Computer Science & Software Engineering



## AFFILIATIONS

We're also thankful to the University of Bedfordshire that we are with and support our research.

# FreelanceFusion – Smart Contract Based Freelance Platform with Payment Integration

## 01. Introduction

FreelanceFusion is a freelance platform that leverages blockchain technology for smart contract execution and integrates Khalti for secure payment processing. It combines Django REST Framework, PostgreSQL, React.js, and Truffle to create a transparent, automated, and cost-efficient ecosystem for freelancers and employers.

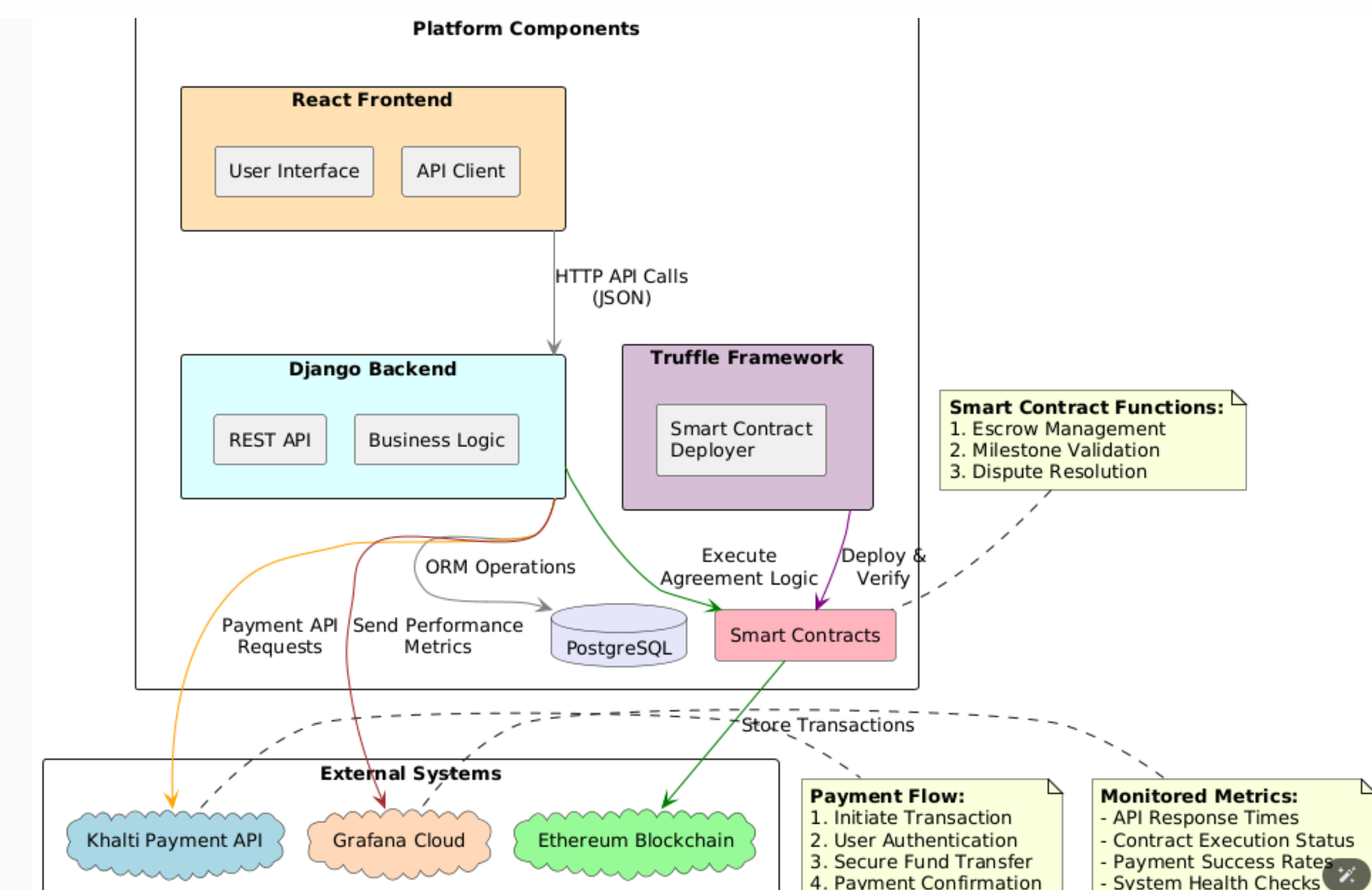
## 02. Aims

The platform aims to eliminate intermediary fees, reduce transaction delays, and ensure secure agreements through blockchain smart contracts. By integrating modern full-stack technologies, it provides an efficient, user-centric marketplace for digital freelance work.

## 03. Objectives

FreelanceFusion's objectives include building a scalable backend with Django REST Framework, ensuring reliable data storage with PostgreSQL, and crafting an intuitive React.js frontend. It also focuses on deploying Truffle-based smart contracts, integrating Khalti for payments, and monitoring system performance using Grafana.

## 04. System Architecture

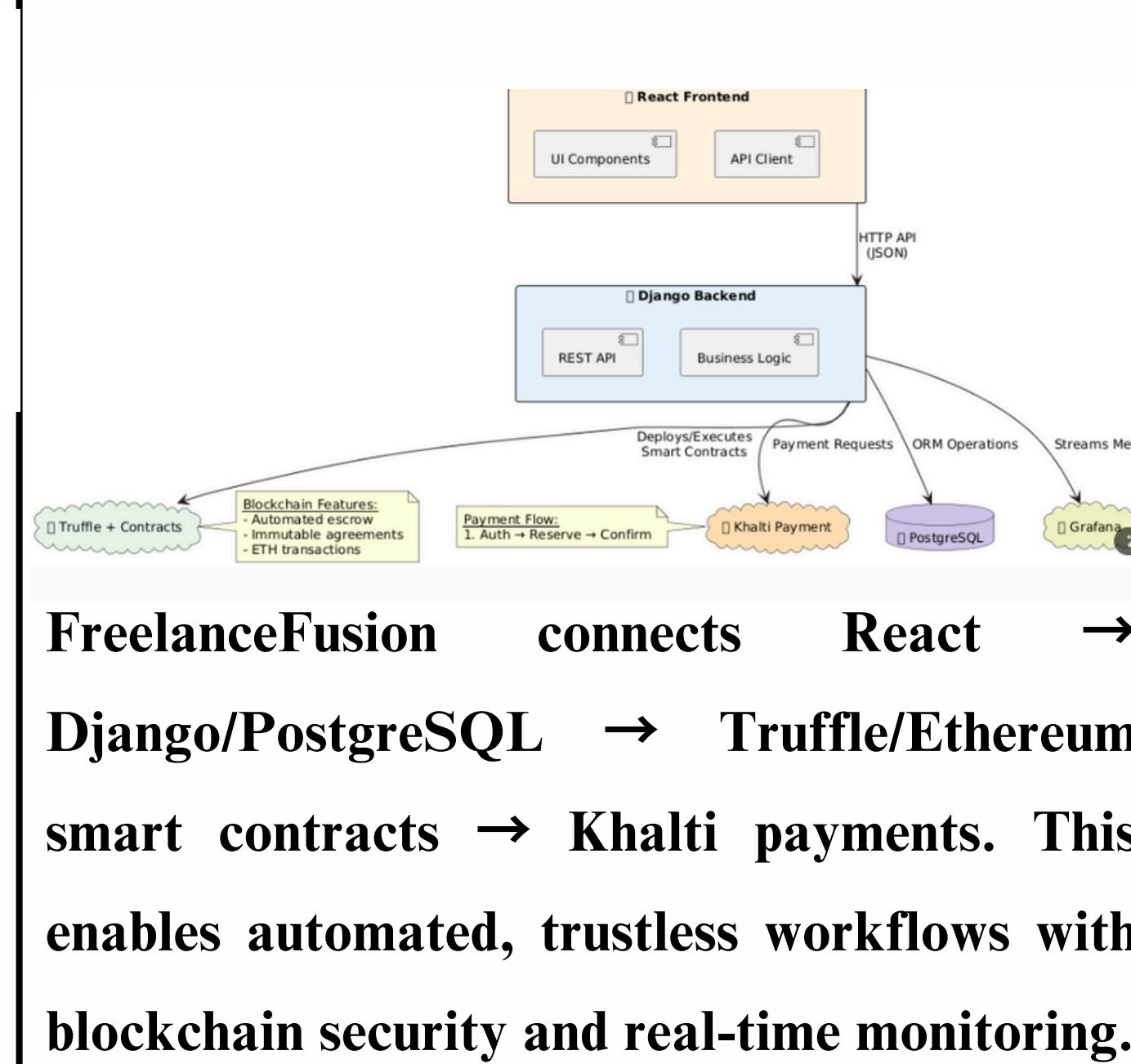


## 05. Mapping of the Components

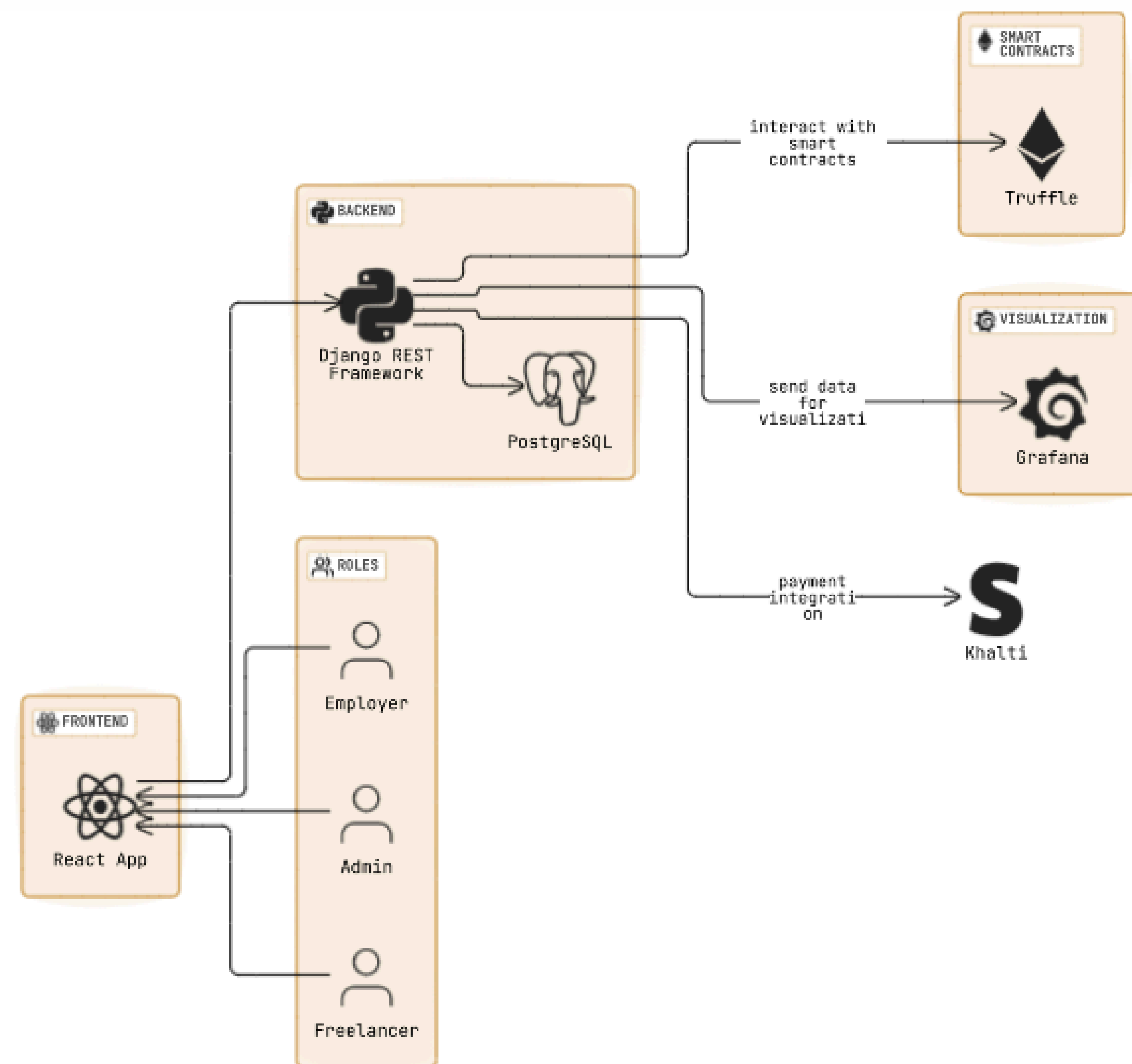
Component	Purpose	Technologies
React Frontend	User interaction & UI rendering	React.js, Axios API Client
Django Backend	Business logic & data orchestration	Django REST, PostgreSQL, ORM
Blockchain Layer	Smart contract execution & security	Truffle, Solidity, Ethereum Blockchain

FreelanceFusion combines React for user interfaces, Django/PostgreSQL for backend operations, blockchain smart contracts (Truffle/Solidity) for automated agreements, and Khalti for secure payments. This integrated stack creates an intermediary-free platform with enforced transaction security and operational efficiency.

## 06. Integration Diagram

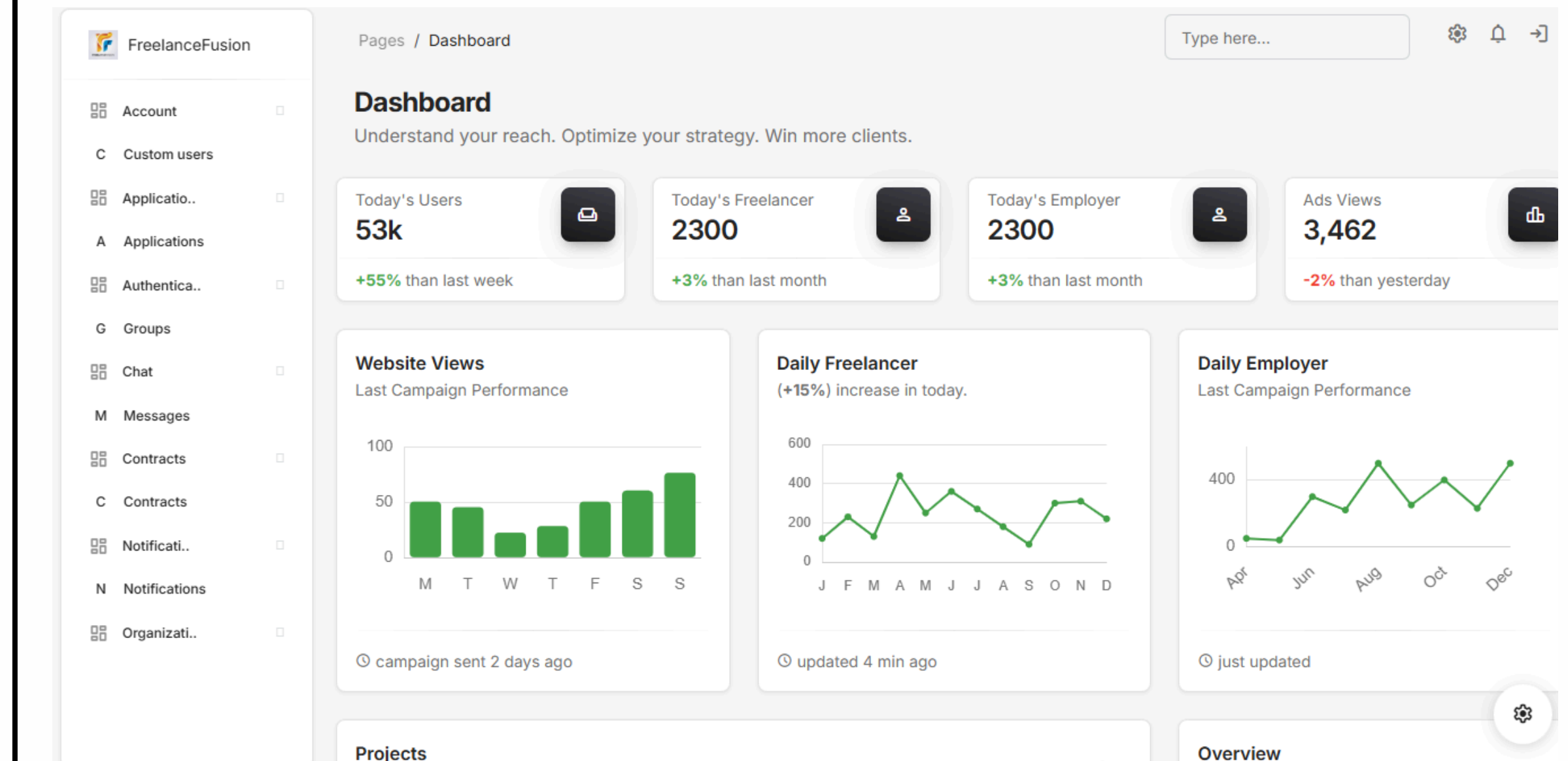


## 07. Workflow Structure



FreelanceFusion's workflow begins with user actions on the React interface, processed by Django's APIs to deploy blockchain smart contracts (via Truffle) and initiate Khalti payments. Automated contract execution ensures secure milestone approvals and instant payouts, with Grafana monitoring performance throughout. This end-to-end automation eliminates manual oversight while enforcing cryptographic trust.

## 08. Graphical User Interface



FreelanceFusion's React interface empowers employers to post detailed job listings, evaluate proposals, and track milestone-based payments in real time. Freelancers leverage intuitive tools to showcase portfolios, bid on projects, and manage multi-stage contracts with automated reminders. Admins gain granular oversight through dashboards tracking user activity metrics, dispute resolution workflows, and platform-wide financial analytics.

## 09. Conclusion

FreelanceFusion revolutionizes freelance platforms by merging full-stack development with blockchain security and automated smart contracts. It addresses key market challenges and sets a new benchmark for transparency, efficiency, and user trust in digital marketplaces.

## 10. Reference

- Shiklomanov, 1993. System Design Principles.
- WHO, 2007. Guidelines for Drinking-water Quality.
- IEEE Publications on Blockchain and IoT Integration.
- Official documentation from Django REST Framework, PostgreSQL, React.js, Truffle, and Khalti.