

AYASH BERA

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EDUCATION

Techno Main Salt Lake

Bachelor of Technology in Information Technology

2023 – present

Kolkata, India

Technical Skills

Languages: Solidity, Rust, Python, C++, JavaScript, TypeScript, SQL

Technologies: Git, Linux, Docker, Bash, PostgreSQL, IPFS, HSM

Libraries/Frameworks: Web3.js, Next.js, ChainLink, Ethers.js, i18n.js, leaflet.js, React, Express.js, FastAPI, Node.js

Blockchain & Cybersecurity: Ethereum, Solidity, BLS keys, EVM, smart contracts, multi-chain development, cryptographic protocols, Avalanche, Citrea

Experience

PayZoll - Global Blockchain Payroll Platform

Frontend, Smart Contracts

Research Analyst:

Feb - Apr 2025

- Designed security system using PostgreSQL with pgcrypto for encrypted database storage
- Implemented Hardware Security Module (HSM) for secure key storage
- Utilized Shamir's Secret Sharing to split sensitive data into shards
- Leveraged IPFS for distributed storage of encrypted data
- Integrated Polygon blockchain for storing verification hashes
- Applied AES-256-CBC encryption and SHA-256 hashing algorithms
- Architected smart contract infrastructure including factory contracts, registry contracts, verification contracts, paymaster contracts, and access control systems
- Designed cross-chain functionality using Stargate protocol for transfers across blockchains
- Developed token conversion system from various blockchains to stablecoins on Binance Smart Chain
- Created fiat off-ramping support for seamless conversion to traditional currencies

Full Stack Developer:

Mar - Apr 2025

- Developed the complete frontend web application using Next.js and TypeScript, creating an intuitive and responsive user interface for global payroll management
- Implemented comprehensive smart contract system in Solidity including registry factories, verification contracts, and paymaster contracts for fund distribution
- Built cross-chain functionality using Stargate protocol to enable token transfers across multiple blockchains
- Integrated Chainlink price feeds to fetch real-time token pricing for accurate currency conversion
- Created smart contract system for role-based access control with proper authority delegation
- Implemented automated department and employee management systems with proper verification workflows

Projects

Judicio | *Node.js, JavaScript, MongoDB* | [Repository](#)

- Unfolded a project for SIH1702 at Smart India Hackathon 2023 with team TechTonic (Team ID 4454). Built an innovative bail management application tailored for the Indian judiciary. Judicio streamlines and automates bail requests by leveraging a centralized, responsive database, delivering quick and efficient bail recommendations. Designed to reduce court delays and improve judicial efficiency.
- Utilized Leaflet.js to implement an interactive map feature, allowing users to locate nearby lawyers and judicial courts efficiently.
- Integrated the i18n model for seamless translation of the platform into popular Indian languages, enhancing accessibility for a diverse user base.

Predictora | *Solidity, Web3.js, Remix, Ethereum* | [Repository](#)

- Developed a prediction market with a reputation system that rewards users for correct predictions and continued participation
- wrote the smart contracts and deployed it on Remix .
- Designed and implemented a game-theoretic reputation scoring system that rewards contrarian predictions up to 5x, with fee discounts up to 50% and voting multipliers up to 3x based on user's accumulated points.
- Built and deployed smart contracts with Chai testing framework for comprehensive assertions, utilizing Remix IDE for development lifecycle.

- Developed **Zenith**, an AI-powered WorkOS for SSDLC-compliant product development, integrating collaboration, code analysis, and sprint planning into a unified SaaS platform.
- Built a real-time, role-based chat interface with persistent memory per room, secured via JWT and powered by **Socket.IO**.
- Integrated a GitHub bot that reviews pull requests, flags anti-patterns, and suggests LLM-generated fixes using the **Gemini API**.
- Designed an AI dashboard to analyze uploaded project documents, extract context, auto-assign story points, and generate sprint plans.
- Implemented **Delta Branch Detection** to identify branch deviations and dynamically adjust task estimations.
- Created the **AI Canvas**, which decomposes high-level epics into subtasks with estimated durations and interdependencies.

Accomplishments

- Grand Finalist at **Smart India Hackathon 2024**. Our team worked on problem statement SIH1702 by the Department of justice for a bail reckoner system [Judicio] that tracks individuals on bail, ensuring they meet court conditions, such as attending hearings and reducing the risk of absconding.
- Finalist at **ETHIndia 2024**. Our team developed a prediction market with a reputation system on the Citrea blockchain, enabling trust and accountability in decentralized forecasting