A Mini Project On

DECENTRALIZED FUND MANAGEMENT USING WEB3 AND BLOCKCHAIN

(Submitted in partial fulfillment of the requirements for the award of Deg ree)

BACHELOR OF TECHNOLOGY

in

COMPUTER SCIENCE AND ENGINEERING

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ABSTRACT

This project introduces a blockchain-powered, Web3-based decentralized fund management platform designed for secure, transparent, and efficient financial operations. Leveraging React or Next.js for an intuitive frontend and Metamask for seamless user authentication and wallet integration, the platform empowers users to contribute, allocate, and monitor funds without intermediaries. At its core, smart contracts automate transactions, ensuring they are secure, trustless, and immutable. The blockchain's transparency provides stakeholders with real-time insights into fund activities, fostering trust and accountability while significantly reducing operational costs. Users can view contributions, track fund allocations, and verify transactions through a user-friendly interface, eliminating inefficiencies and potential security risks of centralized systems. This platform redefines traditional fund management by creating a decentralized, tamper-proof ecosystem that enhances stakeholder confidence. It is poised to drive innovation in decentralized finance (DeFi) by streamlining financial operations and paving the way for a trustless and efficient future. By democratizing fund management and creating a trustless ecosystem, this Web3 application lays the groundwork for a future where financial operations are secure, efficient, and accessible to all stakeholders, paving the way for widespread adoption in decentralized finance (DeFi) and other industries.

EXISTING SYSTEMS

Smart Contract-Based Funds

- Funds are managed through self-executing smart contracts.
- Reduces manual intervention and operational costs.
- Example: **Set Protocol, Enzyme Finance**

Decentralized Autonomous Organizations (DAOs)

- Community-driven fund management using governance tokens.
- Voting mechanisms determine fund allocations.
- Example: **MakerDAO, Uniswap Treasury, Aave DAO**

Automated Portfolio Management

- Uses decentralized asset allocation strategies.
- Portfolio balancing and risk management with DeFi tools.
- Example: **Balancer, Index Coop**

Yield Farming & Liquidity Pools

- Funds are deployed into DeFi lending and liquidity pools.
- Generates returns through interest, trading fees, or staking.
- Example: **Yearn Finance, Curve Finance**

Tokenized Investment Funds

- Traditional funds are represented as blockchain-based tokens.
- Investors can trade fund shares like cryptocurrencies.
- Example: **Synthetix, TokenSets**

DISADVANTAGES

- Smart contracts risk
- Regulatory uncertainty
- Liquidity Issues
- High Gas Fees & Scalability

ADVANTAGES

- Transparency & Security
- Lower Costs
- Automation with Smart Contracts
- Global Accessibility
- Enhanced Liquidity

PROPOSED SYSTEMS

To improve Decentralized Fund Management (DFM), **smart contract security** can be strengthened with audits, multi-signature wallets, and bug bounties. **Regulatory compliance** can be integrated using on-chain KYC/AML solutions. **Liquidity optimization** via cross-chain bridges and dynamic pools ensures better fund accessibility. **Layer 2 scaling** (Polygon, Arbitrum) reduces gas fees, while **DAO governance** can be improved with quadratic voting and delegated decision-making. Lastly, **AI-powered portfolio managers** and **user-friendly interfaces** enhance accessibility. These solutions make DFM **more secure, scalable, and user-friendly**, driving DeFi adoption.

HARDWARE REQUIREMENTS

- **Device & Processing Power** – A **PC, laptop, or server** with at least an **Intel i7 / AMD Ryzen 7+** for smooth execution of smart contracts, DeFi platforms, and analytics.
- **RAM & Storage** – Minimum **16GB RAM** and **512GB SSD+** for handling large datasets, blockchain transactions, and DeFi dashboards efficiently.
- **Network & Internet Speed** – A **high-speed broadband (1 Gbps+ for nodes)** ensures seamless fund transactions and blockchain synchronization.
- **Security & Wallets** – Use **hardware wallets (Ledger, Trezor)** and **cold storage** for secure fund management, preventing hacks and unauthorized access.
- **Scalability & Cloud Support** – For large-scale fund management, **cloud services (AWS, Google Cloud, or decentralized hosting)** provide flexibility and high availability.

SOFTWARE REQUIREMENTS

- **Operating System:** Windows 10/11, macOS, or Linux (Ubuntu recommended for nodes).
- **Web3 Wallets:** MetaMask, Ledger Live, Trust Wallet for secure transactions.
- **Blockchain Clients:** Geth (Ethereum), Parity, or Erigon for running nodes.
- **Development Tools:** Node.js, Hardhat, Truffle, Solidity for smart contract deployment.
- **Cloud & Security:** AWS, Google Cloud, IPFS, VPN, and firewall for secure hosting.