

# MindGTC

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## 1. About This Case Study

**MindGTC** is a next-generation **crypto wallet and Web3 platform** designed to simplify digital asset management, trading, and decentralized interactions.

It enables users to **securely store, send, receive, and manage cryptocurrencies**, while also providing access to **DeFi, token swaps, and blockchain-based utilities**—all within a seamless and user-friendly interface. Its core value proposition

revolves around innovative security features, including a proprietary key recovery system and a hybrid hot/cold mode, all while maintaining a "no KYC" privacy policy.

The platform underwent a security audit by CertiK and received a **BBB rating with a score of 78.22**.

The platform is available across:

- Web (Chrome Extension)
  - Mobile (Android App)
  - Dashboard
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## 2. Problem Statement

- Managing crypto assets across multiple platforms is complex and fragmented:
- Scalable & Secure Blockchain
- Decentralized & Trustless
- Integrated DeFi & Web3 Ecosystem
- User-Centric Innovation

**Goal:** Build a **secure, intuitive, and unified crypto ecosystem** that simplifies Web3 interactions for both beginners and advanced users.

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## 3. Solution Overview

MindGTC provides a **centralized interface for decentralized ecosystems**, enabling users to:

- Manage multiple tokens and wallets
- Execute transactions with minimal friction
- Interact with blockchain networks securely
- Track portfolios in real time
- Eradicate the device barrier by providing consistent services across all platforms.

It bridges the gap between **usability and decentralization**.

## 4. Key Features

### 4.1 Hybrid Hot/Cold System

Unlike standard wallets (either hot or cold), MindGTC allows users to switch modes instantly. In "cold mode," the wallet blocks all HTTPS, RPC, and socket connections, effectively turning the device into an offline air-gapped wallet. This allows users to keep funds safe without needing a separate hardware device.

### 4.2 Triple Recovery System & Shamir's Secret Sharing (SSS)

This is the wallet's flagship feature, audited by CertiK. Instead of a single seed phrase point-of-failure, the private key is split into 3 encrypted shards:

- Shard 1: Stored on the user's local device.
- Shards 2 & 3: Stored encrypted on the IPFS (InterPlanetary File System) decentralized network.
- Recovery Logic: The user only needs any 2 of the 3 shards to reconstruct the key. This can be triggered via email and password.
- Security Claim: Neither MindGTC nor any single attacker can access the full key, as no single location holds all shards.

### 4.3 Wallet Management

- Create and manage multiple wallets
- Secure private key and seed phrase handling
- View token balances and transaction history
- QR-based wallet address sharing

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### 4.4 Send & Receive Crypto

- Easy token transfers across supported networks
  - Real-time gas fee estimation
  - Address validation and error prevention
  - Transaction status tracking
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#### **4.5 Token Swaps & DeFi Integration**

- Swap tokens directly within the app
  - Integrated liquidity pools and DEX functionality
  - Slippage control and price impact visibility
  - Seamless DeFi interaction
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#### **4.6 Cross-Platform Experience**

- Chrome Extension for browser-based Web3 access
  - Android app for mobile-first users
  - Consistent UI/UX across devices
  - Real-time sync between platforms
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#### **4.7 Security & Authentication**

- Encrypted private key storage
  - Secure login and wallet protection
  - Backup & recovery mechanisms
  - Protection against unauthorized access
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#### **4.8 Portfolio Tracking & Insights**

- Real-time portfolio valuation
- Token-wise breakdown
- Performance tracking

- Market insights and trends
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## 5. User Journey

### 1. Onboarding

We have 1 method for wallet creation, and 3 methods to recover the wallet that are below:

- **Split Key Recovery:** Uses any 2 out of the 3 shards generated during wallet creation
- **Secret Phrase Recovery:** Uses a 12-word mnemonic phrase to restore the wallet
- **Private Key Recovery:** Uses a private key to recover the wallet for a specific blockchain

### 2. Wallet Setup

- Add tokens and configure preferences

### 3. Asset Management

- View balances and track portfolio

### 4. Transactions

- Send, receive, or swap tokens

### 5. Advanced Usage

- Interact with DeFi protocols and Web3 apps
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## 6. Architecture & Technology Stack

### Frontend

- ReactJS
- Redux
- Tailwind CSS
- Axios

### Backend

- Node.js (Express)

### **Blockchain & Services**

- Web3 integrations
- Smart contract interactions
- Token APIs

### **Infrastructure**

- AWS (EC2, S3)

### **Mobile App**

- Expo
  - React Native
  - Zustand
  - Nitro Module
  - Google Play Integrity
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## **7. Challenges & Solutions**

### **1. Security vs Usability**

- Challenge: Making crypto safe yet simple
- Solution: Abstracted complex cryptographic operations with intuitive UI

### **2. Transaction Reliability**

- Challenge: Handling failed or pending blockchain transactions
- Solution: Real-time status tracking and retry mechanisms

### **3. Cross-Platform Consistency**

- Challenge: Maintaining uniform experience
  - Solution: Shared design system and reusable components
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## **8. Impact**

- Simplified crypto onboarding for new users

- Reduced dependency on multiple platforms
  - Improved transaction success and usability
  - Enabled seamless Web3 adoption
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## 9. Conclusion

MindGTC successfully delivers a **secure, scalable, and user-friendly crypto wallet ecosystem**.

By combining **intuitive design with powerful blockchain capabilities**, it empowers users to confidently manage digital assets and interact with the decentralized world—without needing deep technical expertise.