UMHACKATHON 2025

CHARITY DONATION SYSTEM

TEAM: DATA SQUAD

DOMAIN 1 – SECURITIES COMMISSION MALAYSIA

TASK

PATRICK TAI KIE JUNG

WebApp Development

BRENDON WONG TIING SHENG

Blockchain Techonology

GOH SIN HUA

WebApp Development

WONG NENG HORNG

AI Model Training

BRYAN CHO JI

Blockchain Techonology

PROBLEM STATEMENT

- How can we ensure full transparency in donation collection and fund disbursement?
- How can we automate and optimize the donation distribution process to ensure it reaches those most in need?
- How can we make the charity system more accessible and inclusive for underserved or unbanked communities?

TECHNOLOGIES & APPROACHES

01 Blockchain & Smart Contracts

02 Mobile & Digital Payment Solutions

03 Artificial Intelligence & Machine Learning

04 Crowdfunding & Impact Investing Platforms

05 Data Analytics & Visualization Tools

06 Cloud & API Integration

BLOCKCHAIN & SMART CONTRACTS

PURPOSE: Build an unalterable and verifiable donation record to enhance public trust

Our implementation:

- Use Ethereum Sepolia testnet to store all donation and spending activities on-chain.
- Every donation and fund disbursement is written into a public smart contract
- All transactions are immutable and auditable

MOBILE & DIGITAL PAYMENT SOLUTIONS

PURPOSE: Offer user-friendly donation experience with popular Malaysian payment methods.

Our implementation:

- Use HitPay Sandbox API to integrate the following payment methods:
    - FPX transfer
    - Credit/debit card
    - Touch n GO

ARTIFICIAL INTELLIGENCE & MACHINE LEARNING

PURPOSE: Automatically identify those who need help the most and improve resource allocation efficiency.

Our implementation:

- Use Random Forest Classifier model

  Features

  - Age
  - Income
  - Family size
  - OKU status
  - Amount request

→ Low, Medium, High priority

CROWDFUNDING & IMPACT INVESTING PLATFORMS

PURPOSE: Let the public participate in supporting campaign, ensure transparent

Our implementation:

- Peer-to-peer
- Admin initiates Campaign
- Anyone can donate
- Each donation goes into a blockchain
- The use of funds available for everyone to view

DATA ANALYTICS & VISUALIZATION TOOLS

PURPOSE: Improve system transparency and enhance donor trust.

Our implementation:

- Calling API in real time to refresh data
- Dashboard displays the total amount daily donations
- Real-time rankings

CLOUD & API INTEGRATION

PURPOSE: Make the system scalable, secure, and accessible from multiple

Our implementation:

- Support cross-platform (Web / Mobile Browser)

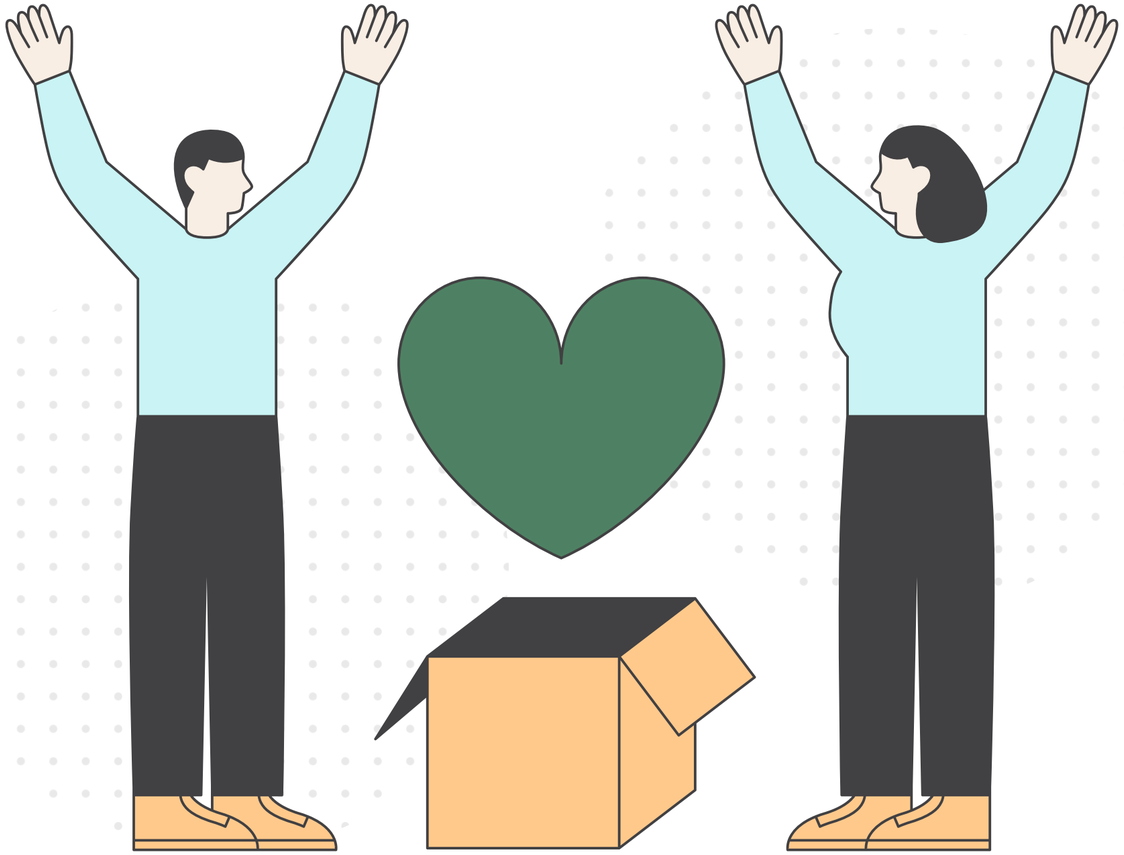
Azure Cloud

- Host AI Model API (Flask)
- Host Blockchain Functions
- Host Payment Webhook

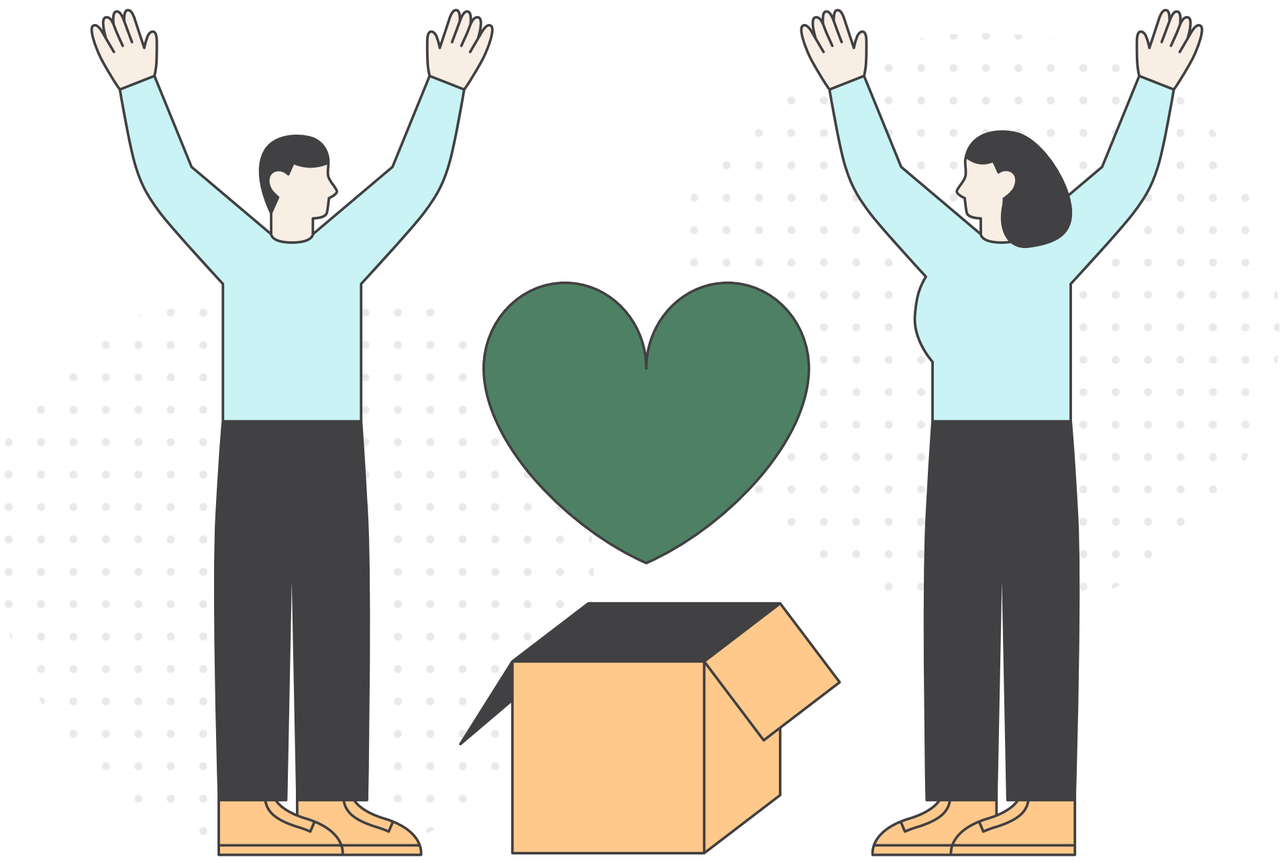
AWS Cloud

- Host React Web Application
- User Authentication

BUSINESS MODEL



DEMO



THE FUTURE

AI Identity Verification

- Face Action Auth: Blink / turn head for real-time ID check
- IC Match: Prevent identity fraud by comparing ID photo & user

Auto Document Checking

- OCR scans payslips & bills
- Extracts income info to boost audit speed & accuracy

Smart AI Assistant

- Built-in LLM-RAG chatbot answers all user questions instantly
- Supports Manglish/Malay tone for better user experience

Blockchain + AI Prediction

- Use donation records and disaster data to train AI
- Prediction Which areas are more likely to need assistance in the future

Smart Donation Plans

- Set up auto monthly donations (e.g. RM100/month) for urgent cases

Revenue Model

- 3% service fee (separate from donation) to cover platform costs