

UM TECHNOTHON 2025



# DISASTER DETECTION & RESPONSE SYSTEM

Precision Detection, Proactive Protection.

<https://youtu.be/XtD6CZWPkhA>

PRESENTED BY:

**SUPERIDOL SMILE**

DATE:

**14 MAY 2025**





# EXECUTIVE SUMMARY

Our project introduces a smart Disaster Detection & Response System that combines AI, IoT sensors, and blockchain to deliver real-time disaster alerts, automate financial aid distribution, and ensure transparent donation tracking. By addressing slow coordination, delayed warnings, and lack of trust in relief efforts, this solution empowers communities to respond faster and more effectively positioning Malaysia as a regional leader in disaster resilience.





# INTRODUCTION

- ASEAN comprises over 680 million people, many living in high-risk zones vulnerable to climate and seismic disasters.
- Disaster frequency and intensity are rising due to climate change
- Frequent flash floods impact countries like Malaysia and Thailand.
- Many NGOs and local responders lack access to real-time disaster intelligence, delaying response.
- Blockchain and data technologies offer proven solutions for traceability, automation, and data integrity.





# PROBLEM STATEMENT

01

SLOW COORDINATION  
BETWEEN THE  
GOVERNMENT AND NGOS  
DELAYS EFFECTIVE  
RESPONSE.

02

DELAYED DISASTER  
WARNING LEAVE  
COMMUNITY  
UNPREPARED

03

LACK OF  
TRANSPARENCY IN  
DONATIONS  
DISCOURSES PUBLIC  
CONTRIBUTION

04

FINANCIAL  
ASSISTANCE FOR  
RELIEF SUPPLIES  
ARRIVE TOO LATE FOR  
THE DISASTER VICTIMS

# OBJECTIVE

01

ESTABLISH EARTHQUAKE &  
FLASH-FLOOD DETECTION SYSTEM  
THAT DELIVERS TIMELY ALERTS,  
GIVING COMMUNITIES TIME TO  
PREPARE & RESPOND.

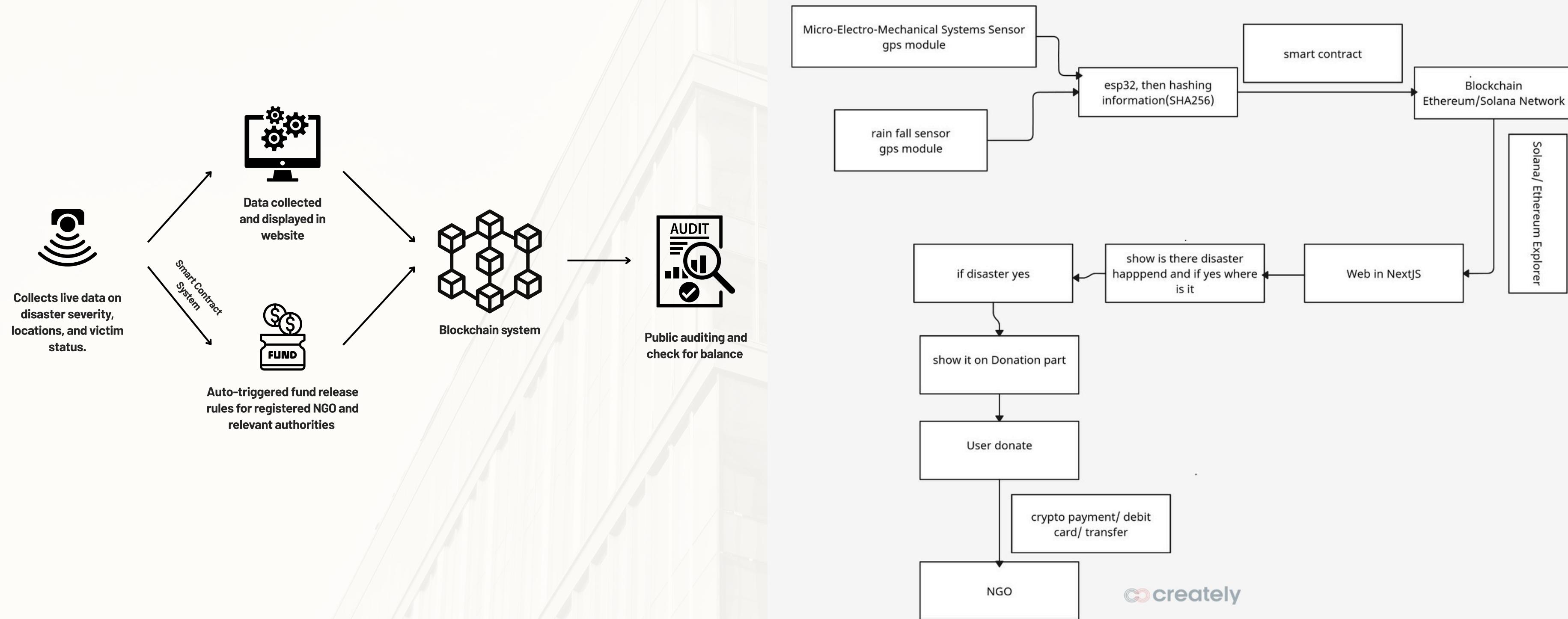
02

BUILD A DONATION PLATFORM THAT  
ELIMINATE SLOW HANDOFFS  
BETWEEN GOVERNMENT & NGOS

03

DEVELOP A TRANSPARENT,  
END-TO-END DONATION  
PLATFORM THAT CONNECTS  
DONORS DIRECTLY  
BENEFICIARIES

# SOLUTION OVERVIEW



# FEATURES OVERVIEW



## Donation Details

Select a disaster to support

**Sumatra Earthquake**  
West Sumatra, Indonesia  
25,304 affected

**Philippe Flash Flood**  
Mindanao, Philippines  
15,067 affected

**Klang Valley Flash Flood**  
Klang Valley, Malaysia  
11,794 affected

**General Disaster Relief Fund**  
Nationwide  
All affected areas

Donation amount

\$10    \$25    **\$50**    \$100    \$250    \$500

\$ Custom amount

Your information

Your name \_\_\_\_\_ Your email \_\_\_\_\_

Make my donation anonymous

Payment method

Credit Card    Crypto    Bank Transfer

**Donate \$50.00**

## Active Disasters

**Sumatra Earthquake** Critical  
West Sumatra, Indonesia  
25,302 affected

**Mekong Flash Flood** High  
Mekong Delta, Vietnam  
17,914 affected

**Philippe Flash Flood** High  
Mindanao, Philippines  
15,294 affected

**Klang Valley Flash Flood** High  
Klang Valley, Malaysia  
11,893 affected

## Disaster Map

Leaflet © OpenStreetMap contributors

## Disaster Details

### Sumatra Earthquake

Type: Earthquake Critical Severity

Date Reported: May 12, 2025

Location: West Sumatra, Indonesia

Estimated Victims: 25,302 people

Status: Active - Aid Distribution In Progress

Description: A 7.2 magnitude earthquake has struck West Sumatra, causing widespread damage to infrastructure and triggering landslides in mountainous areas.

#### Affected Areas

Padang    Bukittinggi    Solok

**View Detailed Reports & Aid Distribution**



# UNIQUENESS OF SOLUTION

01

ADOPTING BLOCKCHAIN TECHNOLOGY SIGNIFICANTLY IMPROVES THE TRANSPARENCY AND TRACEABILITY OF FINANCIAL TRANSACTIONS INVOLVING AUTHORITIES.

03

NATIONWIDE ACCESS TO DONATION CHANNELS FOR DISASTER-AFFECTED AREAS.

02

AUTOMATING FINANCIAL AID DISTRIBUTION TO DISASTER-AFFECTED AREAS ACCELERATES ACCESS TO CRITICAL RESOURCES AND SUPPLIES.

# Disaster Chain Response System

## Execution Strategy

### Phase 4: State-Level Rollout & Monetization

Launch platform in 1-2 states, integrate suppliers and stakeholders, and introduce SaaS model for NGOs and corporates.



### Phase 5: National Expansion & ASEAN Outreach

Scale nationwide and explore ASEAN partnerships, aligning with smart city and disaster resilience agendas.

### Phase 2: Prototype Development

Develop MVP, simulate disaster data, and test core blockchain and smart contract functionalities in a controlled setup.



### Phase 3: Pilot Testing & Validation

Deploy in selected zones with government partners, simulate real scenarios, and refine system based on live feedback.



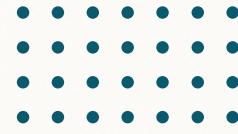
### Phase 1: R&D and Proof of Concept

Build core team, secure funding, and conduct research on disaster patterns and blockchain feasibility.

# CHALLENGES & RISK MITIGATION



Challenges	Risk Mitigation
Government Reluctance to Adopt New Tech	Start with pilot programs in high-risk zones to demonstrate value
Technological resistance from authorities	Offer public-private partnership (PPP) models with co-ownership incentives.
Data reliability during disasters	Integrate multiple trusted data sources: IoT sensors, weather APIs, and manual verification.
Cybersecurity concerns	Use secure blockchain frameworks with audits
Supplier Compliance and Accountability	Include public review mechanisms and government oversight tools.



# CONCLUSION

Malaysia's recurring flash floods and increasing earthquake hazards in ASEAN region demand a modern, resilient disaster management solution.

An integrated software-hardware platform that merges predictive AI, IoT sensing, and transparent blockchain-based coordination.

It ensures timely disaster warnings, efficient aid logistics, and public trust restoration.

Malaysia can lead Southeast Asia in smart, scalable disaster response innovation.