DISPRO(Disaster Protection System) System Requirements & Architecture Document

1. Project Overview

The Disaster Protection System (DISPRO) is an intelligent alert & advisory platform that collects data from multiple external systems,
analyzes the risk level of disasters, and provides real-time alerts along with user-specific safety instructions (Do's and Don'ts) through a user interface.

The goal of DISPRO is to:
• Predict or detect disasters
• Evaluate how dangerous the disaster is for a specific building/user
• Provide safety guidelines to users
• Suggest emergency support/resources nearby

2. Main Purpose of the System

DISPRO acts as a central controller that connects to multiple information sources and safety systems. It performs the following:

• Collects user, building, weather, news, geo-data, sensors
• Stores the collected data
• Analyzes disaster risk & vulnerability
• Generates Alerts and Safety Recommendations
• Shows results on UI (Do's and Don'ts)

3. External Systems Connected

DISPRO will interact with the following systems/software sources:

A. User Interface (UI System)

The UI is the user-facing application (Web / Mobile) where users enter their details, view disaster alerts, and receive Do's and Don'ts.

Input from UI:
• User address

• GPS location
• Building details form

Output to UI:
• Disaster warning status
• Risk percentage/severity level
• Customized Do's and Don'ts
• Nearest emergency resources

B. Building Detail System

This system collects building-specific information so DISPRO can determine whether a structure is safe in a disaster.

Data collected:
• User address
• User GPS coordinates
• Building location
• Number of stories/floors
• Soil type
• Structure type
• Other vulnerability parameters

Why needed?
This helps identify whether a building can withstand earthquakes, floods, storms, landslides, etc.

C. Weather Forecasting Site/System

The system fetches upcoming weather conditions to detect disasters before they happen.

Provides:
• Rainfall prediction (flood risk)
• Wind speed (cyclone/tornado)
• Temperature spikes (heatwave)
• Storm possibility

Main use:
Disaster prediction and early alerts.

D. NDMA / Local News Site

DISPRO uses verified disaster-related alerts from trusted sources like NDMA, government portals, and regional/local news outlets.

Provides:
• Active disaster announcements
• Alerts already issued by authorities
• Disaster occurring in nearby region

E. Geographic Location System

Uses GPS and map/geospatial data to locate hazards, vulnerability, and resources around the user's building.

Provides:
• Possible disasters based on region
• Hazard zones nearby (fault lines, river banks)
• Vulnerability mapping around building
• Nearest emergency teams/resources (police, hospitals, fire station, rescue teams)

F. Disaster Alert System (Sensors / Home Safety Layer)

This system provides real-time alerts from sensors and safety checks.

Includes:
• Fire alarm system (house fire detection)
• City pollution monitoring (AQI)
• Earthquake detection input
• House vulnerability check

Use:
Immediate detection of danger, even without forecasts.

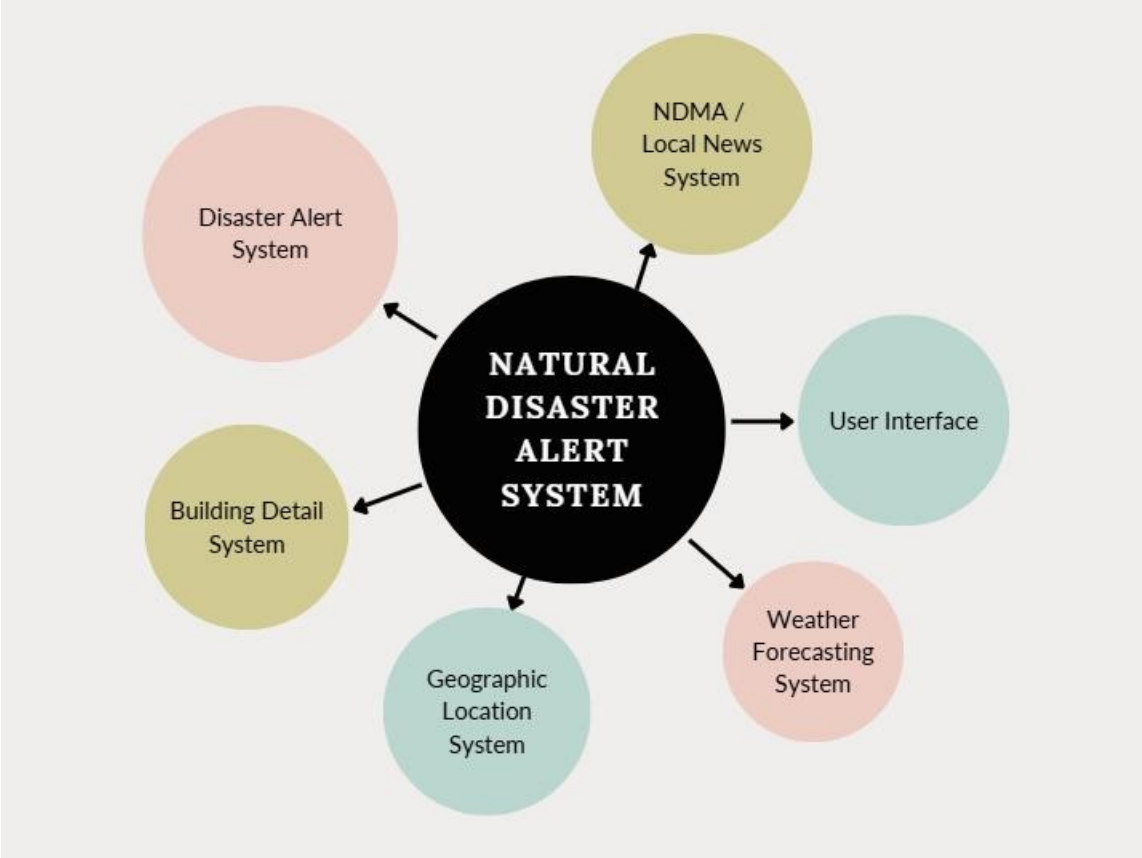
4. Internal DISPRO Core System

This is the main platform that coordinates everything.

Core Tasks:
1) Data Collection
2) Data Storage
3) Risk Analysis Engine
4) Vulnerability Assessment (Building + Geo)
5) Recommendation Engine (Do's and Don'ts)

6) Alert Generation Module
7) Output Display (dashboard + alert view on UI)

5. Block Diagram



6. System Output (What DISPRO Shows to User)

For every user request / time interval, DISPRO will output:
• Disaster type detected/predicted
• Risk severity: Low / Medium / High / Critical
• Building safety rating
• Vulnerability factors involved
• Do's and Don'ts
• Emergency teams/resources near user

7. Final Expected Result

The system will provide:
• Personalized disaster alerts
• Risk level prediction based on real-time + predicted input

• Safety guidance
• Nearby resources for emergency
• Preventive instructions before disaster occurs

Short Summary for Team

DISPRO connects to multiple data sources (weather, NDMA, news, geo maps, building details, home sensors), collects everything into one system,
analyzes danger, then shows alerts and safety instructions on the UI.