Disaster Warning Device

November 7, 2025

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Abstract

Core Background

- Natural disasters like floods, cyclones, earthquakes, and tsunamis cause major damage.
- Early warning helps to reduce loss of life and property.
- This project uses digital logic to detect possible disasters automatically.
- It works on simple sensor-like binary inputs representing environment factors.

Project Working

- The system takes 8-bit input (2 bits each for Rainfall, Seismic, Wind, and Sea Level).
- Each 2-bit code shows the level: Low, Medium, High, or Very High.
- Comparators, AND/OR/XOR gates, and decoders process these inputs.
- Logic equations decide which disaster condition matches the given inputs.
- A priority encoder and multiplexer ensure only one LED glows at a time.
- The output is a glowing LED showing one disaster: Flood, Cyclone, Earthquake, or Tsunami.

Applications & Educational Value

- The LEDs act as warning indicators for different conditions.
- The design is simple, low-cost, and based on basic logic ICs.
- It can be used in educational labs to learn digital system design concepts.
- The project demonstrates practical use of comparators, encoders, and multiplexers in safety systems.

References

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