Project Aegis - Flood Alert System

Abstract – Project Aegis

Project Aegis is an AI-driven prototype system designed to provide real-time flood awareness and evacuation alerts to vulnerable communities. Named after the mythological *Aegis*—the protective shield of the gods—this project seeks to offer early and context-sensitive warnings in the face of rising hydrological threats. As climate change increases the frequency and severity of flooding, the need for intelligent, scalable, and accessible disaster alert systems has never been more urgent.

At its core, Project Aegis utilizes OpenAI's Agent SDK to orchestrate an autonomous agent capable of reasoning over live environmental data. The system ingests information from public flood monitoring APIs, such as rainfall levels, river discharge rates, and weather alerts, using Multi-Component Program (MCP) infrastructure. Based on predefined risk thresholds and evolving conditions, the agent evaluates flood likelihood and determines the appropriate response on a minute level—ranging from low-risk advisories to high-priority evacuation alerts.

The output of this reasoning is communicated through a lightweight, responsive web interface for the admin side and notification sent to the community, ensuring ease of access on both.

The primary goal is to demonstrate how agentic AI architectures can be integrated into disaster management workflows to improve lead time, contextual precision, and public engagement. By combining real-time data analysis, AI-driven decision-making, and accessible communication channels, **Project Aegis represents a forward-thinking step in the application of artificial intelligence for environmental resilience and community safety.**