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**Problem Statement: FLOOD MONITORING
AND EARLY WARNING**

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PROBLEM STATEMENT:

In regions susceptible to flooding, a reliable IoT-based flood monitoring and early warning system is essential. Current methods lack real-time accuracy, resulting in inadequate response time. This project aims to create an efficient system that integrates various environmental sensors to collect and analyze data, enabling timely and accurate flood alerts. The system should be cost-effective, scalable, and user-friendly, ensuring community safety and reducing flood-related risks.

DESIGN THINKING :

Design Thinking Approach for Flood monitoring and early warning.

1. Empathize:

- Conduct in-depth interviews, surveys, and observations to understand the experiences, concerns, and behaviors of the local community and authorities in flood-prone areas.
- Gather data on historical flooding incidents, the impact on residents, and the existing limitations of current flood warning systems.
- Identify key stakeholders, including local government agencies, emergency services, and community leaders, to involve them in the project.

2. Define:

- Synthesize the information gathered during the empathy phase to define a detailed problem statement and project goals.
- Identify specific challenges, such as the lack of real-time flood data, limited early warning capabilities, or inadequate community engagement in flood preparedness.
- Create a shared understanding of the project's objectives and constraints among the project team and stakeholders.

3. Ideate:

- Organize brainstorming sessions with a diverse group of team members and stakeholders to generate innovative ideas for your flood monitoring and early warning system.
- Explore various technology options, data sources, and communication methods for collecting and disseminating flood-related information.
- Encourage creative thinking by using ideation techniques such as mind mapping and design workshops.

4. Prototype:

- Develop a prototype or proof of concept for your IoT system. This involves designing and building a small-scale version of the sensor network, data processing algorithms, and alerting mechanisms.
- Test the prototype in a controlled environment to verify its feasibility and functionality.
- Gather feedback from technical experts and potential end-users to refine the prototype.

5. Test:

- Conduct usability testing and field trials of the prototype in real-world conditions, if possible.
- Collect feedback from users, emergency responders, and other stakeholders to identify strengths and weaknesses.
- Use this feedback to make iterative improvements to the system's design and functionality.