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**Team Name : Cloud**

**Project Name : Cloud Drone (IOT base)**

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**Course title :** [Scientific Research and Methodology](https://classroom.google.com/u/3/c/NzEwMzA4NDkwMjQ4)

**Course Code :**418

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**Cloud Drones for Flood Impact Assessment**

**Introduction :**

Floods are a major natural disaster causing significant loss of life, property, and environmental damage. Traditional flood monitoring systems often lack real-time data and predictive capabilities, leading to delayed responses and increased damage. Despite the development of various technologies and systems using artificial intelligence (AI) to solve the problems related to disasters, difficult challenges still remain [1].

A disaster seriously affects human lives and property. Furthermore, it can cause critical damage to the country in which it occurs [2]. Various studies have been proposed to prevent damage or predict

disasters. Representatively, future atmospheric conditions are predicted using modeling

and supercomputers. Disaster occurrence may also be predicted using AI technology

based on previous disaster datasets [3–7]. When a disaster occurs, attempts to predict fu-

ture situations are carried out through learning using various features, such as estimation

of damage to property and buildings as well as economic damage [8–10].The Smart IoT Flood Monitoring System aims to provide real-time monitoring and early warning of flood conditions using IoT technology. This system integrates various sensors and data analytics to predict and mitigate flood risks effectively.

Abstract :

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**Research and Methodology :**

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| --- | --- | --- | --- | --- | --- |
| **Ref.** | **Problem area** | **Data type** | **Data size** | **Data Sources** | **Availability** |
| **1** | **Flood monitoring System** | **Here, Used to Real-time sensor data (water level, rainfall)** | **50MB/day** | **IoT sensors, weather stations, satellite imagery (NASA GFMS)** | **Publicly available, but requires an API connection** |
| **2** | **Prediction of flood risk using IoT and GIS mapping** | **River flow data, elevation models, rainfall, soil moisture** | **Large datasets (100MB-1GB/day)** | **IoT river level sensors, GIS mapping data (DEM), remote sensing** | **Publicly available GIS and satellite data.** |

**References:**

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| --- | --- | --- | --- | --- | --- |
| **Ref.** | **Methods/**  **Techniques** | **Results/**  **Outcomes** | **Research gap/ limitation or drawbacks** | **Future Direction/ Future work** | **Opinion/Comments/ Feedback** |
| 1 | IoT sensors (water level, rainfall) & NASA GFMS | Achieved **real-time flood detection** with 85% accuracy in flood-prone areas. | Limited sensor coverage in remote regions | **Expand sensor networks** in rural areas. Utilize low-cost, solar-powered sensors. | **usefulness of real-time alerts**, |
| 2 | **GIS mapping integrated with IoT data** for flood risk visualization. | **interactive flood risk maps** with high accuracy, enabling quicker disaster response. | **consistent internet connection** for real-time updates. | Explore **offline solutions** for areas with limited connectivity. | local authorities on **ease of use** for decision-making. |

**References :**

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**Literature Review :**

**Need to time for work.**

**Dataset and Processing:** We use to Nasa EarthData for flood dataset.This data set is used to predict flood in different area.

**Result and Discussion :**

**Need to time for work**

**Conclusion :**

**Need to time for work**

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