PROJECT TITLE: NATURAL DISASTER PREDICTION AND RESPONSE IN SOUTH SUDAN

CARTEGORY: Computer Vision

Full Names	Index No.
Allan John Salesio-Modular contributor and allgorith designer	17-CIT-033
Dhieu kiir Yoll-software archtecture designer	17-CCS-061
Gai Bernado Beliu-Leader and code reviewer	16-CCS-055

Refinement of Idea and Problem Articulation:

The project aims to develop an AI and deep learning-computer vision based system for predicting and responding to natural disasters in South Sudan. The primary focus is on creating a predictive model that can accurately forecast disasters like floods, droughts, and famines, and facilitate efficient response mechanisms, data will be obtined from google satelite imagery. The problem being addressed is the lack of advanced, reliable, and timely disaster prediction and response systems in South Sudan, which exacerbates the humanitarian crises during natural calamities.

Division of Responsibilities

Allan John Salesio: Responsible for developing and fine-tuning the predictive algorithms. This includes data analysis, model creation, and testing the algorithms for accuracy and reliability.

Dhieu Kiir Yoll: Tasked with designing the software architecture. This involves planning the system structure, ensuring scalability, and integrating various components of the project.

Gai Bernado Beliu: As the project leader, Gai will oversee the overall project progress, conduct code reviews, and ensure that the project milestones are met. He will also liaise with stakeholders and coordinate team efforts.

System Architecture and Information Flow

- **Inputs:** Historical data on weather patterns, geographical information, past disaster impacts, and real-time environmental data.

- **Processing:** The AI model processes this data to identify patterns and predict potential disasters. The software architecture ensures seamless integration of data sources and processing modules.
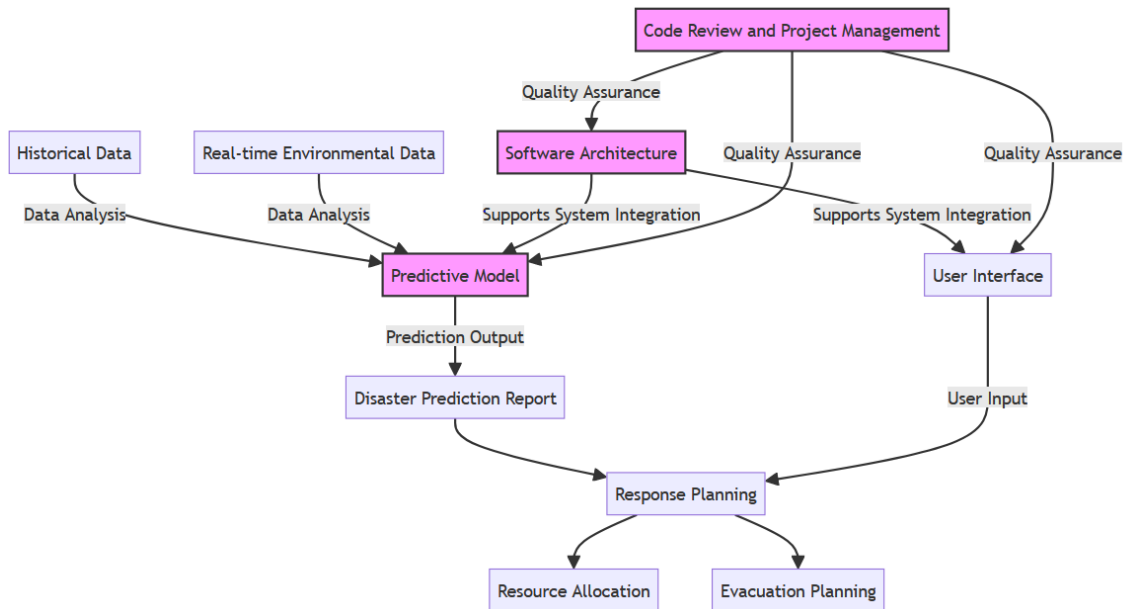- **Outputs:** Predictive reports on potential disasters, severity, and suggested response actions.
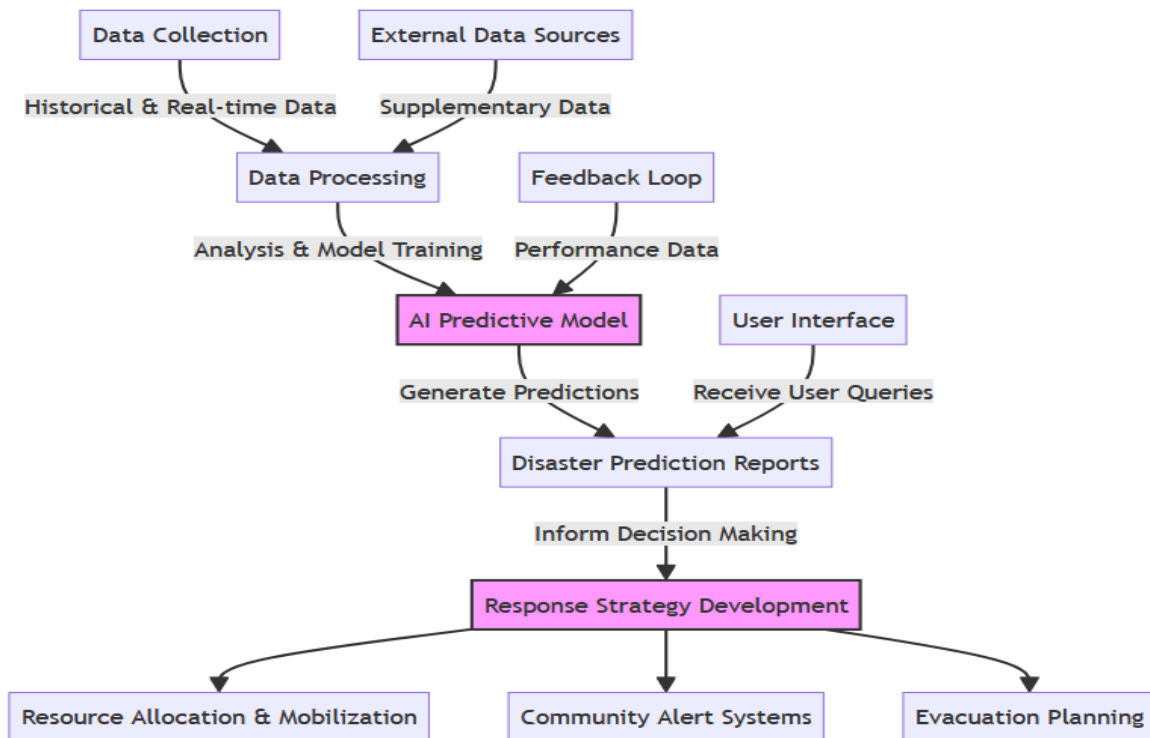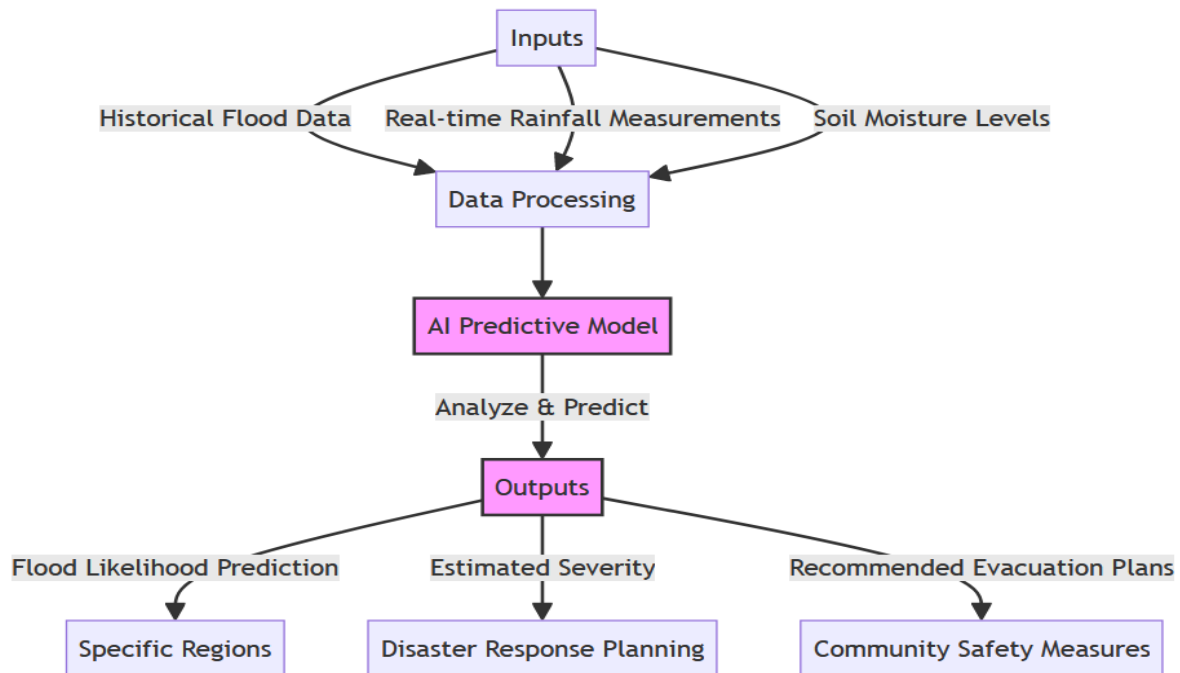

Figure 1: Figure showing system Archotecture

Figure 2: Information flow

Examples of Inputs and Outputs

- **Inputs:** Historical flood data, real-time rainfall measurements, soil moisture levels.
- **Outputs:** Prediction of flood likelihood in specific regions, estimated severity, and recommended evacuation plans.

Work Done So Far:

- Initial data collection and analysis to identify relevant variables for the predictive model.
- Preliminary design of the software architecture.
- Setting up a basic project management structure and communication channels.

GitHub Repository Creation

A GitHub repository titled "Natural-Disaster-Prediction-South-Sudan" was created. This repository will serve as the central hub for all documentation, code, and updates related to the project. All team members were invited to this repository to ensure collaborative development and progress tracking.

Github Link

https://github.com/gaibernado/Natural-Disaster-Prediction-and-Response-in-South-Sudan