

### VISVESVARAYA TECHNOLOGICAL UNIVERSITY

Jnana Sangama, Belgaum- 590018

A PROJECT REPORT

ON

**” FLOOD PREDICTION USING RAINFALL ANALYSIS”**

*Submitted in partial fulfilment of the requirements for the award of the degree of*

#### BACHELOR OF ENGINEERING

#### IN

**INFORMATION SCIENCE AND ENGINEERING**

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DEPARTMENT OF INFORMATION SCIENCE AND ENGINEERING

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#### CERTIFICATE

Certified that the project work entitled **Flood prediction using Rainfall Analysis**

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in partial fulfillment for the award of Bachelor of Engineering in Information Science and Engineering of the Visvesvaraya Technological University, Belgaum during the year 2024-2025. It is certified that all corrections/suggestions indicated for internal assessment have been incorporated in the report deposited in the department library. The project report has been approved as it is satisfied the academic requirements in respect of project work prescribed for the said Degree.

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## ABSTRACT

Floods are one of the most destructive natural disasters affecting life, property, and structure. Effective disaster preparedness, resource management, and mitigation planning against fluctuating rainfall and dynamism surrounding climate change necessitated prompt, accurate, and timely forecasts of floods. Flood Prediction Using Rainfall Analysis" is proposed as a new project that shall develop a system of predicting rainfall with good reliability and strength using advanced analytical techniques with aid to assess the risk of flooding.

The system also analyzes large historical datasets of patterns of rainfall in the area. Background data undergoes cleaning and normalization and categorization into useful classifications on some recognized guidelines that make it easy to use or interpret. To train the model well and for evaluation, this dataset is then partitioned between a 70% training set and a 30% testing set. It integrates historical data and presents meteorological inputs to forecast a possible flood risk inside specified locality and over a specified period, mainly during the monsoon season.

Testing and validation confirm the system with support like high precision and safe confirmation from a performance monitoring capacity such as RMSE and MAE with a mixture of confusion matrices for predictions. The other major point in this system is that it has a modular design, and this can lead to further scaling up, adding an additional scaling layer which allows for seamless integration of multiple data sources or predictive models.

This project further develops on existing systems by offering location-specific forecasts from a user-centric angle. After entering the location-specific data, actionable forecasts can be retrieved through intuitive visualizations and reports. This will empower stakeholders to customize their predictions according to the specifics of a region and time frame, thereby enabling authorities, planners, and communities to better manage the risk of flooding.

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