FLOOD FORECASTING USING MACHINE LEARNING ALGORITHM

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Abstract - *Flood prediction capability find out about of rainfall patterns, catchment characteristics, and river hydrographs to predict the future average frequency of incidence of flood events. The most important goal of this Project to create an tremendous system for flood prediction and taking fundamental precautions to keep the human beings from the floods. Flooding is the most frequent herbal catastrophe on the planet, affecting millions of humans and causing every yr – of which 20 percentage are in India. So, this product builds Flood prediction machine Based on ML. In this prediction mannequin is developed the usage of rainfall data to predict the incidence of floods due to rainfall. The model predicts whether or not "flood might also show up or not" based on the rainfall range for particular locations. The dataset is educated with quite a number algorithms like K-Nearest Neighbours, XGBoost etc. This section describes the related works of flood predictions and how computer getting to know methods are higher than common methods. The current method in this mission have a positive waft and also SVM is used for model development. But it requires giant reminiscence and end result is no longer accurate and also it has a drawback of extra computation memory, time consuming, challenging to handle. In this system, we enforce a Machine Learning algorithms like K-Nearest Neighbours, XGBoost for getting insights from the complicated patterns in the data. This approach is computationally cheaper because of its simple architecture.*

***Key Words*: Machine Learning, Supervised Learning Algorithm, KNN, Floods, XGBoost Algorithm.**

1. INTRODUCTION

Every year, India is the topmost flood-prone catastrophe place in the world. Mostly water logging in urban cities takes place in low-lying areas. Moreover, the enlarge in water logging is due to some indispensable points such as floor runoff, relative altitude, and now not sufficient route of the water to drainage So, flood forecasting is necessary at these places. In a current year, there had been many parts of international locations which are inclined to flood like Assam, Bihar, Goa, Odisha, Pune, Maharashtra, Tamil Nadu, Karnataka, Kerala, and Gujarat. In the 12 months 2015 rainfall, Chennai acquired 1049 millimeters (mm) of rainfall in November. Since 1918, 1088 mm of precipitation was the satisfactory recorded in November. Between October and December, the average rainfall in Kanchipuram district is 64 cm. It acquired the heaviest rainfall of 181.5 cm, which is 183% greater in opposition to average precipitation. In the Tiruvallur district, the average rainfall is 59 cm however recorded 146 cm of rain. There was an awful lot lookup for prediction of flood ahead, but now not many strategies provide the estimate with high accuracy. The flood prediction analysis majorly uses Machine Learning (ML). There are many methods in desktop gaining knowledge of to predict the trouble with higher accuracy. In this work, have proposed to estimate the flash flood to stop places that are inclined to flood risk. The strategy is to the institution of the ML algorithm model. It comprises the flood element to estimate quick term prediction in an city region with higher accuracy.

2. EXISTING SYSTEM

The increasing boom of computer learning, laptop strategies divided into standard methods and desktop learning methods. This section describes the related works of flood predictions and how machine learning methods are better than traditional methods. The existing method in this project have a certain flow and also SVM is used for model development. But it requires large memory and result is not accurate.

2.1 Disadvantages

- ✓ It has More Computation memory.
- ✓ It takes more time to get the accurate result.
- ✓ It is very Difficult to handle.

3. PROPOSED SYSTEM

In proposed system, we implement a Machine Learning algorithms for getting insights from the complex patterns in the data. This technique is computationally inexpensive because of its simple architecture.

3.1 Advantages

- When comparing to the existing system proposed system performs High accuracy.

- It consumes less time when compared to the existing system.

- When comparing to the existing system proposed system has Computationally inexpensive.
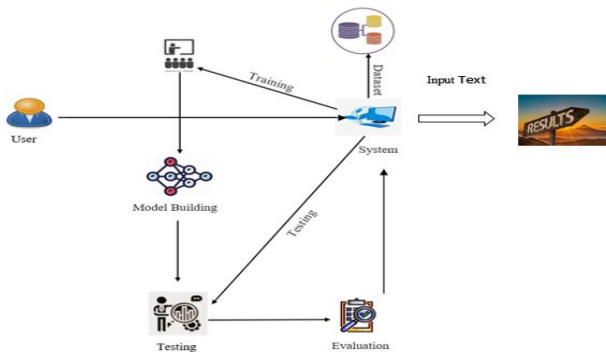
- It is easy to implement

Fig 3: Block Diagram System Architecture

4. IMPLEMENTATION

4.1 User

Upload

User has ability to upload the dataset for the model building.

Model Selection

User should selects the machine learning model for training.

Prediction

User needs to enter input in order to detect the desire output

View Results

User has ability to view the results generated by the system.

4.2 System

Take the dataset

System works with the dataset provided to it for model building.

Preprocessing

In preprocessing step system works with to impute any disorders in the data set and extract the features.

Model Training

In training phase system generates the model from the dataset by using python modules.

Generate Results

System generates the detection results from the model whether the there is a chance of floods occurring or not.
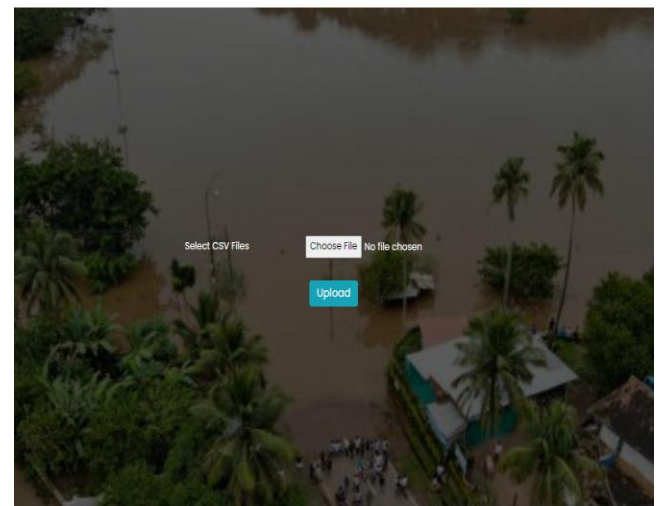
5. SCREENSHOTS
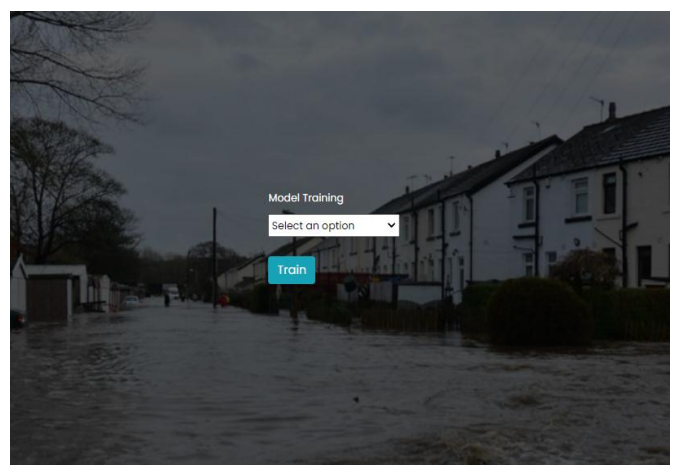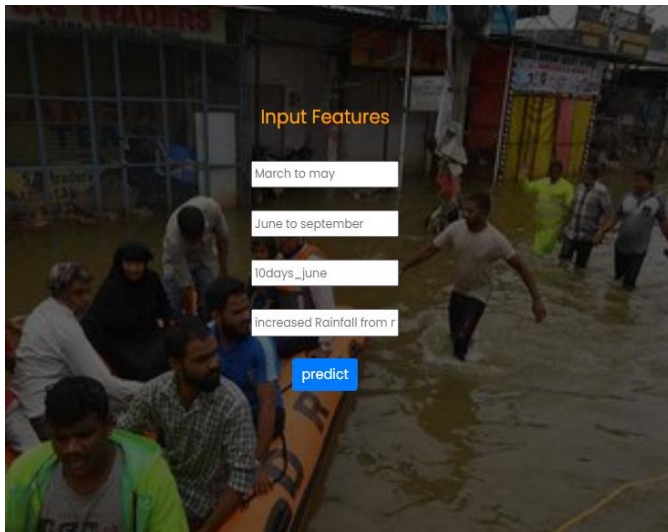

Fig 5.1: Home

Fig 5.2: Upload File

Fig 5.3: Model Training

Fig 5.4: Prediction page with Input Features

6. CONCLUSION

We have successfully developed a system to predict whether the floods will occur or not in this application. This is created in a user-friendly environment with Python programming and Flask. The system is likely to gather data from the user in order to predict whether there is a chance of flood occurring or not.

7. FUTURE ENHANCEMENTS:

In the future scope, We intend to investigate prediction approach with the revised data set and employ the most accurate and relevant machine learning algorithms for detection.

8. REFERENCES

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