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9940 572 462



6381 907 438



ijircce@gmail.com



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# Predict the Rainfall Using an Ensemble and Machine Learning

**Prof. Subhangi Suryavanshi, Jay Bayas, Omkar Patil, Snehal Waghmare, Sonal Gokte**

Department of Computer Engineering, DR. D. Y. Patil Institute of Technology, Pune, Maharashtra, India

**ABSTRACT:** Predicting rainfall is one of the difficult and uncertain activities that has a major impact on human society. Proactively reducing human and financial loss can be aided by accurate and timely projections. Humans have been attempting to predict the weather since the beginning of time. Thanks to technological developments and proper procedures and equipment, weather forecasting has only recently become more scientific and dependable. A weather forecasting system is simply an automated system that analyses a variety of meteorological characteristics and predicts the likelihood of rain and other variables based on a database of various weather conditions. In this study, we look at a machine learning techniques have applied for weather prediction. This study proposed the ensemble machine learning techniques to improve the weather forecasting accuracy .

**KEYWORDS:** Atmospheric and Oceanic Physics (physics.ao-ph); Machine Learning (stat.ML)

## I. INTRODUCTION

Rainfall forecasting is very important because heavy and irregular rainfall can have many impacts like destruction of crops and farms, damage of property so a better forecasting model is essential for an early warning that can minimize risks to life and property and also managing the agricultural farms in better way. This prediction mainly helps farmers and also water resources can be utilized efficiently. Rainfall prediction is a challenging task and the results should be accurate. There are many hardware devices for predicting rainfall by using the weather conditions like temperature, humidity, pressure. These traditional methods cannot work in an efficient way so by using machine learning techniques we can produce accurate results. We can just do it by having the historical data analysis of rainfall and can predict the rainfall for future seasons. We can apply many techniques like classification, regression according to the requirements and also we can calculate the error between the actual and prediction and also the accuracy. Different techniques produce different accuracies so it is important to choose the right algorithm and model it according to the requirements.



**II. LITERATURE SURVEY**

No.	Sr. Title	Author	Description
1	Rain Attenuation Along Terrestrial Millimeter Wave Links: A New Prediction Method Based on Supervised Machine Learning	SPIROS N. LIVIERATOS	Learning means finding patterns from previous experience in the attempt to deal with unknown situations. Learning comes as the result of repeatedly observing meaningful indicators that affect the problem each time in hand. When computers (machines) are involved,
2	Machine Learning based Rainfall Prediction	B.Suganya2 , .KingsyGrac	Rainfall prediction is the one of the important technique to predict the climatic conditions in any country. This paper proposes a rainfall prediction model using Multiple Linear Regression (MLR) for Indian dataset
3	Portable Autonomous Rain Prediction Model Using Machine Learning Algorithm	VaradAbhyankar , Dr. S.Vidhya	In this paper we propose to create an Arduino based weather forecasting system using various sensors. The objective of this paper is to present to you a portable weather monitoring and rain forecasting system
4	Rainfall Prediction Using Machine Learning & Deep Learning Techniques	Nagulla Bhavana,Ponduru Bhavya	In India, Agriculture is the key point for survival. For agriculture, rainfall is most important. These days rainfall prediction has become a major problem. Prediction of rainfall gives awareness to people and know in advance about rainfall to take certain precautions to protect their crop from rainfall.

### III. PROBLEM DEFINITION

Climate is a important aspect of human life. So, the Prediction should accurate as much as possible. In this paper we try to deal with the prediction of the rainfall which is also a major aspect of human life and which provide the major resource of human life which is Fresh Water. Fresh water is always a crucial resource of human survival – not only for the drinking purposes but also for farming, washing and many other purposes.

Now climate change is the biggest issue all over the world. Peoples are working on to detect the patterns in climate change as it affects the economy in production to infrastructure. So as in rainfall also making prediction of rainfall is a challenging task with a good accuracy rate. Making prediction on rainfall cannot be done by the traditional way, so scientist is using machine learning and deep learning to find out the pattern for rainfall prediction.

### IV. ARCHITECTURE DIAGRAM

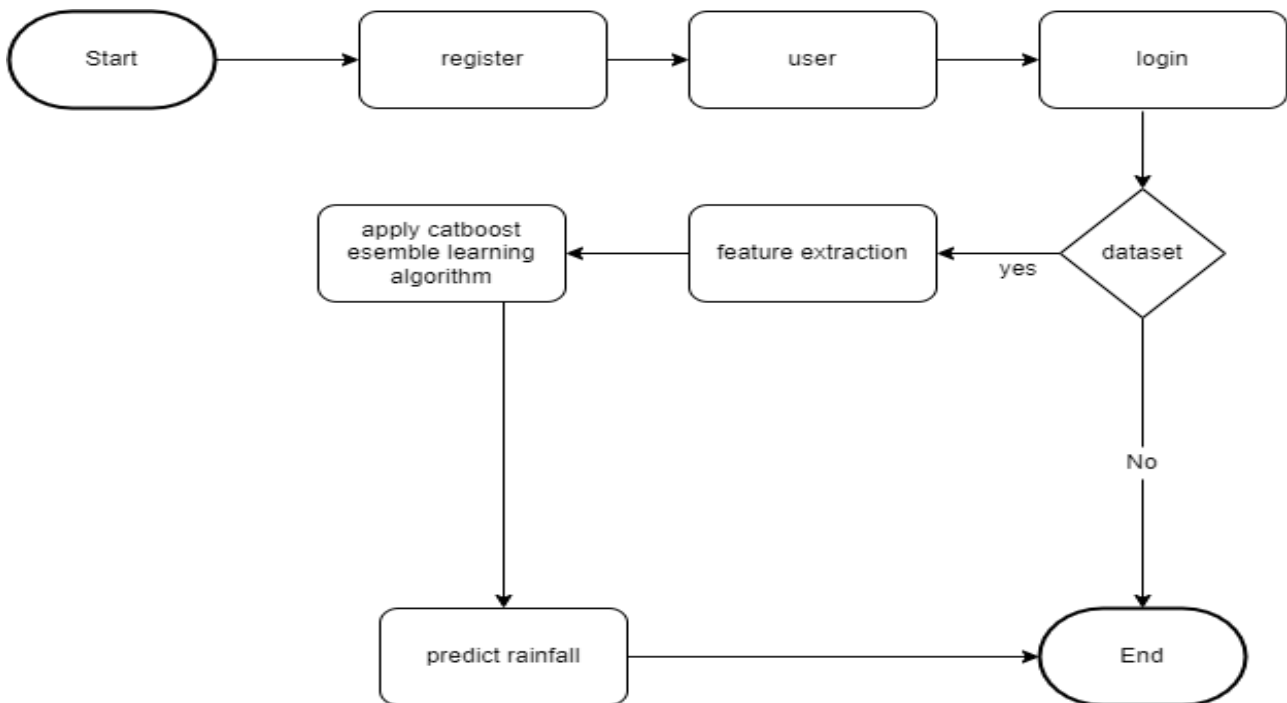


Fig 1. Architecture Diagram

### V. ALGORITHM DESCRIPTION

**Step 1:** Collect the rainfall dataset from the open repository data.gov.in with no. of multiple features.

**Step 2:** Data Cleaning, Data Pre-processing and feature selection.

**Step 3:** Output will be algorithm with the optimized result.

### VI. CONCLUSION

Monsoon prediction is clearly of great importance for India. Two types of rainfall predictions can be done, They are - Long term predictions: Predict rainfall over few weeks/months in advance. - Short term predictions: Predict rainfall a few days in advance in specific locations. Indian meteorological department provides forecasting data required for project. In this project we are planning to work on long term predictions of rainfall. The main motive of the project is to predict the amount of rainfall in a particular division or state well in advance. We predict the amount of rainfall using past data.



#### REFERENCES

1. Mosavi, A., Ozturk, P., & Chau, K. W. (2018). Flood prediction using machine learning models: Literature review. *Water (Switzerland)*, 10(11). <https://doi.org/10.3390/w10111536>
2. Janani, B; Sebastian, P. (2014). Analysis on the weather forecasting and techniques. *International Journal of Advanced Research in Computer Engineering & Technology*, 3(1), 59–61. <http://ijarcet.org/wp-content/uploads/IJARCET-VOL-3-ISSUE-1-59-61.pdf>
3. Chaudhari, M. S., & Choudhari, N. K. (2017). Open Access Study of Various Rainfall Estimation & Prediction Techniques Using Data Mining. *American Journal of Engineering Research (AJER)*, 7, 137– 139. [http://www.ajer.org/papers/v6\(07\)/Q0607137139.pdf](http://www.ajer.org/papers/v6(07)/Q0607137139.pdf)
4. Aakash Parmar, Kinjal Mistree, M. S. (2017). Machine Learning Techniques for rainfall prediction: A Review. *International Conference on Innovations in Information Embedded and Communication Systems (ICIIECS)*.
5. Wahyuni, E. G. Fauzan, L. M. F. Abriyani, F. Muchlis, N. F., & Ulfa, M. (2018). Rainfall prediction with backpropagation method. *Journal of Physics: Conference Series*, 983(1). <https://doi.org/10.1088/1742-6596/983/1/012059>
9. Zeyi Chao, Fangling Pu, Yuke Yin Ling, B. and X. (2018). Research on real-time local rainfall prediction based on MEMS sensors. *Journal of Sensors*, 2018. <https://doi.org/10.1155/2018/6184713>





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