# Nitte Meenakshi Institute of Technology

(AN AUTONOMOUS INSTITUTION AFFILIATED TO VISVESVARAYA TECHNOLOGICAL UNIVERSITY, BELGAUM)
PB No. 6429, Yelahanka, Bangalore 560-064, Karnataka
Telephone: 080- 22167800, 22167860, Fax: 080 - 22167805

## Department of Computer Science and Engineering


| Project Abstracts 2019-20 | |
|---|---|
| **1.Department:CSE** | |
| **2.Year:2020** | **3.Semester : 8** |
| **4. Student Name**<br>**5. USN** | 1. Aishwarya Kulkarni 1NT16CS007<br>2. Shivangi Negi 1NT16CS104<br>3. Sumedha Raghu 1NT16CS117 |
| **6. Name of the Project Guide** | Dr. Vijaya Shetty |
| **7. Domain** | Environment Conservation |
| **8. Title/Topic of the Project** | Water Table Analysis using Machine Learning (ML) |

**9. Abstract(Not more than 100-150words)**


Groundwater has always been the primary water resource in arid and semi-arid areas. Monitoring water table fluctuations is essential for predicting the groundwater levels to outline the future needs. In this study, a detailed analysis is carried out on the prediction of groundwater levels in Karnataka. Nonlinear data-driven models (i.e.; random forest (RF) and gradient boosting (GB)) along with a variant of standard RNNs, Long Short-Term Memory (LSTM) was proposed to predict groundwater level variations. The prediction ability of these models was probed and evaluated using yearly groundwater level data scraped together from observation wells located in various districts across Karnataka in India. The statistical parameters: correlation coefficient (R), Mean Square Error (MSE), accuracy, precision, recall, f1 score, and support were used to assess the performance of these models. These evaluation measures emphasize the capability of these models to keep up with the shift in groundwater levels. The results reveal that our proposed model worked better using the GB algorithm, resulting into good accuracy and less MSE.

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| **10. Objectives** | The main objectives of our project are:<br>1. Given the groundwater level data for observation wells, to predict the missing groundwater level data.<br>2. Given the previous years' groundwater level data to predict future groundwater level data.<br>3. Using different algorithms along with selected groundwater dataset, to achieve more accuracy of prediction than the existing system.<br>4. Using previous years' rainfall data along with groundwater level data, to make better predictions. |
| **11. Deliverables** | 1. Determine groundwater levels in various districts across Karnataka.<br>2. Analysis of groundwater level data to provide accurate information for groundwater level management.<br>3. Measurement and analysis of groundwater level helps in maintaining groundwater availability. |
| **12. Status of the Project (Kindly provide correct status of the project)** | |

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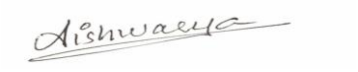
|---|---|---|---|---|---|
| **a. Publication Status** | Ongoing | **b. Productized** | No | **c. Patent Filed** | No |
| **d. Plagiarism Check** | Yes | **e. Best project status Describe** | Done | | |

**Signature of the Students**

1. Aishwarya Kulkarni :



2. Shivangi Negi :

3. Sumedha Raghu :

**Signature of the Guide**

**Signature of the Head**