# “PREDICTION OF DAILY REFERENCE EVAPOTRANSPIRATION USING MACHINE LEARNING skuhydhiuaghsidug MODEL”

**PROJECT REPORT**

Submitted in partial fulfilment of the requirements for the award of

**Bachelor of Engineering**

**in**

**Computer Science and Engineering Submitted to**

Visvesvaraya Technological University

Belagavi, Karnataka, 590 014



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**2023-24**

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## DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING

**CERTIFICATE**

Certified that the major project work entitled **“Prediction of Daily Reference Evapotranspiration Using Machine Learning Model”**is a bonafide work carried out by **Ms. Pooja Wadekar (2KE20CS052), Ms. Pooja Belgaumkar (2KE20CS054), Ms. Vaishnavi Dubey (2KE20CS113) and Mr. K D Sandeep (2KE20CS121)** in partial fulfilment for the award of degree of **Bachelor of Engineering** in **VIII Semester, Computer Science and Engineering** of **Visvesvaraya Technological University**, Belagavi, during the year **2023-24**. It is certified that all corrections/suggestions indicated for internal assessment have been incorporated in the report deposited in the department library. The major project report has been approved as it satisfies the academic requirements in respect of major project work prescribed for the said degree.

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**1.**

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## CERTIFICATE FROM THE GUIDE

This is to certify that the project work entitled “**Prediction of Daily Reference Evapotranspiration Using Machine Learning Model**” is carried out by the students **Ms. Pooja Wadekar (2KE20CS052), Ms. Pooja Belgaumkar (2KE20CS054), Ms. Vaishnavi Dubey (2KE20CS113) and Mr. K D Sandeep (2KE20CS121)**, under my direct supervision for the award of degree of Bachelor of Engineering in “**COMPUTER SCIENCE AND ENGINEERING**” of VTU, Belagavi, Karnataka.

To the best of my / our knowledge and belief,

1. The work is carried out by the candidates only.
2. The work is not taken in its original form, from any other thesis or project reports.
3. The work is up to the desire standard both in technical content and the write up.
4. Plagiarism percentage is 13%.

Date:

Prof. Malathi S.Y

Guide

The project work as mentioned above is hereby recommended and forwarded for Examination and evaluation.

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**DECLARATION**

We**, Ms. Pooja Anil Wadekar (2KE20CS052), Ms. Pooja P Belgaumkar (2KE20CS054), Ms. Vaishnavi Dubey (2KE20CS113) and Mr. K D Sandeep (2KE20CS121)**, students of VIII Semester B.E., K.L.E. Institute of Technology, Hubballi, hereby declare that the project work has been carried out by us and submitted in partial fulfillment of the requirements for the VIII Semester degree of **Bachelor of Engineering in Computer Science Engineering** of Visvesvaraya Technological University, Belagavi during academic year 2023-2024.

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## ABSTRACT

*This project aims to develop a machine learning-based model for accurate estimation and prediction of evapotranspiration, a critical component of the water cycle. Evapotranspiration plays a pivotal role in water resource management, agricultural planning, and ecological studies. Traditional methods for estimating evapotranspiration often rely on complex physical models, which may have limitations in capturing the intricate relationships within the data. In this study, we explore the application of machine learning techniques, with a specific focus on the K-Nearest Neighbors (KNN) algorithm, to enhance the accuracy and efficiency of evapotranspiration predictions. The project involves the collection and preprocessing of comprehensive datasets, incorporating meteorological variables, soil moisture content, and historical evapotranspiration measurements.*

*The potential applications of the developed machine learning model include water resource management, precision agriculture, and climate change impact assessment. The model's ability to provide real-time evapotranspiration estimates can aid decision-makers in optimizing irrigation schedules, predicting drought conditions, and making informed land use planning decisions. This project contributes to the growing body of research on the integration of machine learning in hydrological studies, providing a data-driven approach to understanding and predicting evapotranspiration dynamics. The findings of this research have practical implications for sustainable water management practices and environmental conservation efforts.*

*Keywords: Evapotranspiration, Machine Learning, K-Nearest Neighbors, Artificial Neural Networks, Long Short-Term Memory, Hydrological Modeling, Agricultural Planning, Climate Modeling, Predictive Accuracy, Computational Efficiency.*

## INDEX

**Ch. No. Content Page.no.**

1. **INTRODUCTION**

* 1. Overview 03
  2. Need of Evapotranspiration 04
  3. Where it can be installed 05
  4. Benefits 07
  5. Who are competitors in market 08
  6. Objectives 11
  7. Literature Survey 11
  8. Motivation and Problem Definition 14
  9. Objectives Full filled 15
  10. Scope and Limitations 17
  11. Relevance and Type 19
  12. Organization of the Report 20

1. **METHODOLOGY**

* 1. Requirements of Prediction of Evapotranspiration 24
  2. Design of Prediction of Evapotranspiration 35
  3. Data Structures 37
  4. Algorithms Adopted 39
  5. Hardware and Software Requirements 49
  6. Steps Carried Out 51

1. **RESULTS**

3.1 KNN Model 54

3.2 LSTM Model 55

3.3 ANN Model 56

3.4 Test Scenario 1 57

3.5 Test Scenario 2 58

3.6 Test Scenario 3 58

3.7 Test Scenario 4 58

3.8 Test Scenario 5 58

3.9 Test Scenario 6 59

3.10 Test Scenario 7 59

3.11 Test Scenario 8 59

1. **CONCLUSION AND FUTURE SCOPE**

4.1 Conclusion 61

4.2 Future Scope 62

**BIBLIOGRAPHY** 64

**List of Figures**

**Figure No. Figure Name Page No.**

1.1 Illustration of Evapotranspiration process in Nature 01

1.2 Evapotranspiration process in Nature 03

2.1 Steps involved in ML process 23

2.2 Architectural Design 36

2.3 KNN test data identification 41

2.4 ANN algorithm workflow 43

2.5 LSTM algorithm workflow 46

3.1 KNN Model Result 54

3.2 LSTM Model Result 55

3.3 ANN Model Result 56

3.4 Accuracy of Three Models 57

**List of Tables**

**Table No. Name Page No.**

1.1 Literature Survey 13

2.1 Difference Between Models 49