VISVESVARAYA TECHNOLOGICAL UNIVERSITY, BELAGAVI – 590 018

Mini Project Report On

"APPLYING RANDOM FOREST ALGORITHM FOR MANGROVE MAPPING UTILIZING MULTI-TEMPORAL AND MULTI-SOURCE REMOTE SENSING IMAGERY FOR NETHRAVATHI RIVER"

A report submitted in partial fulfillment of the requirement for

MINI PROJECT (21AIMP67)

In

Artificial Intelligence & Machine Learning

Submitted By

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DEPARTMENT OF ARTIFICIAL INTELLIGENCE & MACHINE LEARNING

ALVA'S INSTITUTE OF ENGINEERING & TECHNOLOGY MIJAR,

(Unit of Alva's Education Foundation ®, Moodbidri)
Affiliated to Visvesvaraya Technological University, Belagavi,
Approved by AICTE, New Delhi, Recognized by Government of Karnataka.
Accredited by NACC with A+ Grade
Shobavana Campus, Mijar, Moodbidri, D.K., Karnataka
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ALVA'S INSTITUTE OF ENGINEERING AND TECHNOLOGY
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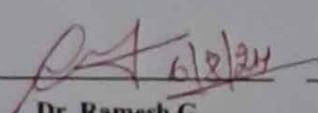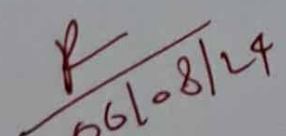**DEPARTMENT OF ARTIFICIAL INTELLIGENCE AND MACHINE LEARNING**

CERTIFICATE

This is to certify that the Mini Project entitled **"APPLYING RANDOM FOREST ALGORITHM FOR MANGROVE MAPPING UTILIZING MULTI-TEMPORAL AND MULTI-SOURCE REMOTE SENSING IMAGERY FOR NETHRAVATHI RIVER"** has been successfully completed by
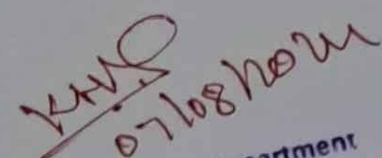
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The Bonafide students of the Department of Artificial Intelligence and Machine Learning, Alva's Institute of Engineering and Technology in the **DEPARTMENT OF ARTIFICIAL INTELLIGENCE AND MACHINE LEARNING** of the VISVESVARAYA TECHNOLOGICAL UNIVERSITY, BELAGAVI during the year 2023–2024. It is certified that all corrections/suggestions indicated for Internal Assessment have been incorporated in the report deposited in the departmental library. The Mini Project report has been approved as it satisfies the academic requirements in respect of the Mini Project work prescribed for the Bachelor of Engineering Degree.

Dr. Ramesh G	**Dr. Pradeep Nazareth**	**Prof. Harish Kunder**
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ABSTRACT

The project "Applying Random Forest Algorithm for Mangrove Mapping Utilizing Multi-Temporal and Multi-Source Remote Sensing Imagery for Nethravathi River" aims to create a system that accurately maps and monitors mangrove forests. Using satellite images from 2024, the project applies a random forest algorithm within Google Earth Engine to classify different land types. The goal is to handle complex patterns and use diverse datasets for better mapping. the process involves collecting and processing satellite images, drawing polygons for different land types like mangroves, water, and buildings, and prioritizing mangrove areas because they are ecologically important. The random forest algorithm is used to classify these areas, and it shows high accuracy. the accuracy assessment indicates an overall accuracy of 92.769%, meaning the system is reliable in identifying mangrove areas. The results produce a detailed map showing where mangroves are located along the Nethravathi River, providing useful information for conservation efforts.