

**VISVESVARAYA TECHNOLOGICAL UNIVERSITY,  
BELAGAVI - 590018**



**Mini Project Report**

**On**

**“CREDIT CARD FRAUD DETECTION”**

**A report submitted in partial fulfillment of the requirements for**

**MINI PROJECT (21AIMP67)**

**In**

**Artificial Intelligence & Machine Learning**

**Submitted by**

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**Under the Guidance of**

**Mr. Shrikanth N G**

**Senior Assistant Professor**



**DEPARTMENT OF ARTIFICIAL INTELLIGENCE & MACHINE LEARNING**

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**Affiliated to Visvesvaraya Technological University, Belagavi,**

**Approved by AICTE, New Delhi, Recognized by Government of Karnataka.**

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**Shobavana Campus, Mijar, Moodbidri, D.K., Karnataka**

**2023 – 2024**

ALVA'S INSTITUTE OF ENGINEERING AND TECHNOLOGY  
MIJAR, MOODBIDRI, D.K. -574225



DEPARTMENT OF ARTIFICIAL INTELLIGENCE AND MACHINE LEARNING

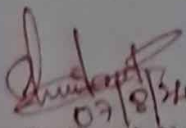
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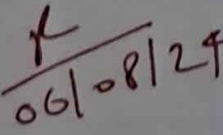
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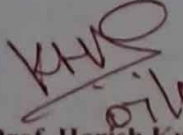
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Mr. Shrikanth N G  
Project Guide

  
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## ABSTRACT

Credit card fraud detection has become increasingly critical in today's digital age, where the sophistication and frequency of fraudulent activities are escalating. Traditional methods based on transaction patterns and behavioral analysis are no longer sufficient to prevent financial losses and protect user information. This project proposes an innovative solution leveraging facial recognition technology to enhance the security of credit card transactions. By integrating machine learning algorithms and real-time face detection, our system ensures that only the legitimate cardholder can authorize transactions, significantly reducing the risk of fraud.

The core of this project is its ability to accurately identify and authenticate the user through facial recognition before allowing any transaction. The system uses a combination of the Haar cascade Frontal Face classifier for face detection and the Local Binary Pattern Histogram (LBPH) classifier for face recognition. Each cardholder's face is captured and stored in a dedicated folder with 2000 images, which are used to train the model for higher accuracy. When a transaction is initiated, the user must enter their credit card number, and the system verifies its validity against a pre-existing dataset. If valid, the camera activates, capturing the user's face and comparing it with the stored images to ensure a match.

To further enhance security, the system implements a stringent attempt limit mechanism. If a user's face is not recognized after three attempts, the card is automatically blocked, preventing further fraudulent attempts. Additionally, the system sends an email alert to the cardholder, notifying them of the failed attempts and potential fraud. This proactive approach secures the transaction process and keeps the cardholder informed, adding an extra layer of security. The proposed system's advantages are manifold, eliminating reliance on easily compromised information such as PINs and passwords, and providing a more secure and user-friendly authentication method. This project represents a significant advancement in the ongoing battle against credit card fraud, offering a robust, scalable, and effective solution to safeguard financial transactions.



**VISVESVARAYA TECHNOLOGICAL UNIVERSITY,  
BELAGAVI - 590018**



**Mini Project Report**

**On**

**“CLASSIFICATION AND DETECTION OF LEAF  
DISEASE”**

**A report submitted in partial fulfillment of the requirements for**

**MINI PROJECT (21AIMP67)**

**In**

**Artificial Intelligence & Machine Learning**

**Submitted by**

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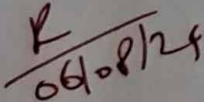
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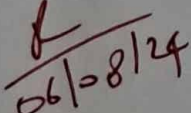
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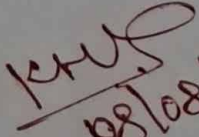
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## **ABSTRACT**

Agriculture is one field which has a high impact on life and economic status of human beings. Improper management leads to loss in quality of agricultural products. Farmers lack the knowledge of diseases and hence affecting their crops causing less production. Kisan call centers are available but do not offer service 24\*7 and sometimes communication is bound to fail. When the farmers are unable to explain disease properly on call, there arises a need to analysis the image of affected area of disease. Though, images and videos of crops provide better view and agro-scientists can provide a better solution to resolve the issues related to healthy crop, the farmers are not yet aware of this. It is to be noted that if the productivity of the crop is not healthy, it poses a high risk to providing good and healthy nutrition. Due to the improvement and development in technology where devices are smart enough to recognize and detect plant diseases. Recognizing illness can prompt faster treatment in order to lessen the negative impacts on harvest.



**VISVESVARAYA TECHNOLOGICAL UNIVERSITY,  
BELAGAVI - 590018**



**Mini Project Report**

**On**

**“GEO INTELLIGENCE FOR MAPPING TREES  
OUTSIDE FOREST”**

**A report submitted in partial fulfillment of the requirements for**

**MINI PROJECT (21AIMP67)**

**In**

**Artificial Intelligence & Machine Learning**

**Submitted by**

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**Shobavana Campus, Mijar, Moodbidri, D.K., Karnataka**

**2023 – 2024**



ALVA'S INSTITUTE OF ENGINEERING AND TECHNOLOGY  
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DEPARTMENT OF ARTIFICIAL INTELLIGENCE AND MACHINE LEARNING

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This is to certify that the Project entitled **"GEO INTELLIGENCE FOR MAPPING TREES OUTSIDE FOREST"** has been successfully completed by

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## ABSTRACT

"Mapping Trees Outside Forests (TOF) in Ankola Taluk, Uttara Kannada, Karnataka using Google Earth Engine (GEE) and Random Forest machine learning algorithm offers an innovative approach that combines high-resolution Sentinel-2A satellite images and advanced spectral enhancement techniques." The proposed method paper presents an unconventional method used in Ankola Taluk, Uttara Kannada, Karnataka for mapping Trees Outside Forests (TOF), with the help of Google Earth Engine (GEE) and Random Forest machine learning algorithm. The process entails using high resolution Sentinel-2A satellite images that are first made to go through a two-stage Reversible Color Transform (RCT) in order to enhance the distinct spectral characteristics of TOF. Firstly, shape file of Ankola Taluk is imported from Karnataka-GIS platform and then FALSE COLOR COMPOSITION is applied on the satellite data to highlight vegetation. Thereafter, the data was clipped to the area of interest and training samples created by creating polygons over specific TOF areas. These areas are classified using Random Forest algorithm where 70% of its sample was taken as training while 30% were testing. The classification results are then assessed for accuracy and extent of TOF calculated. The proposed method approach involves double-level RCT integration and advanced machine learning methods greatly improving detection as well as efficient mapping on TOFs thus gives insights into their distribution and status. High level accuracy has been achieved in TOF mapping through the proposed method that works effectively with small or large-scale natural environments. These findings contribute to sustainable land management and support global initiatives aimed at climate change mitigation efforts such as afforestation among others.

**VISVESVARAYA TECHNOLOGICAL UNIVERSITY,  
BELAGAVI - 590018**



**Mini Project Report**

**On**

**“AUTONOMOUS OBJECT DETECTION”**

**A report submitted in partial fulfillment of the requirements for**

**MINI PROJECT (21AIMP67)**

**In**

**Artificial Intelligence & Machine Learning**

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## ABSTRACT

The development of an autonomous object detection system using YOLOv8 (You Only Look Once version 8), a popular and efficient deep learning model for real-time object detection, is presented in this report. The project covers the entire process, starting with setting up the required software and libraries, preparing a dataset of images, training the YOLOv8 model, evaluating its performance, and finally deploying the model to detect objects in new images.

YOLOv8 is chosen for its speed and accuracy, making it suitable for real-time applications. The dataset preparation involves organizing images and creating annotation files that describe the locations of objects in the images. The training process teaches the model to recognize different objects, and the evaluation step checks how well the model performs.

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**VISVESVARAYA TECHNOLOGICAL UNIVERSITY,  
BELAGAVI - 590018**



**Mini Project Report  
On  
“HAND GESTURE DETECTION”**

A report submitted in partial fulfillment of the requirements for

**MINI PROJECT (21AIMP67)  
In  
Artificial Intelligence & Machine Learning**

Submitted by

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## ABSTRACT

Our project, Hand Gesture Detection for Sign Language Conversion into Text and Audio, is designed to bridge the communication gap for individuals using sign language. By leveraging advanced machine learning techniques and Natural Language Processing (NLP), this system accurately interprets hand gestures and converts them into both text and audio formats. The project employs Convolutional Neural Networks (CNN) for gesture recognition, utilizing OpenCV and Mediapipe for real-time hand tracking and analysis. The integration of the Natural Language Toolkit (NLTK) for tokenizing and tagging inputs, along with the Levenshtein distance algorithm for accurate query matching, ensures high precision in interpretation. Built with Flask, the user-friendly web interface allows seamless interaction, making it accessible for users with varying levels of technical proficiency. This tool aims to enhance communication, providing an essential resource for those relying on sign language for everyday interactions.



VISVESVARAYA TECHNOLOGICAL UNIVERSITY,

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## Mini Project Report

On

## "SECOND HAND CAR PRICE PREDICTION USING ML"

A report submitted in partial fulfillment of the requirements for

MINI PROJECT (21AIMP67)

In

Artificial Intelligence & Machine Learning

Submitted by

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Under the Guidance of

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Senior Assistant Professor



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2023-2024

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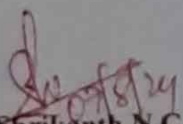
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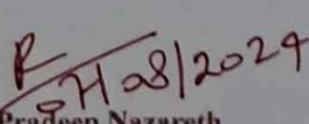
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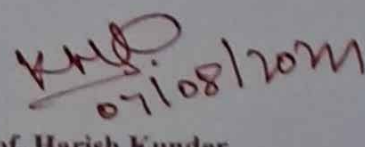
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## ABSTRACT

The Second-Hand Car Price Prediction using Machine Learning project aims to revolutionize the automobile industry by providing a comprehensive solution for accurate price forecasting and streamlined sales operations. In today's fast-paced world, where data-driven decisions are paramount, this project offers an integrated platform that caters to the needs of car dealers, buyers, and market analysts alike.

By leveraging advanced machine learning algorithms, the project ensures precise price predictions, addressing the limitations of traditional pricing methods that often rely on subjective judgments and limited datasets. The platform utilizes various data points such as vehicle age, mileage, condition, brand, model, and market trends to predict prices accurately. This innovative approach enhances transparency, reliability, and efficiency in the second-hand car market, reducing inconsistencies and enabling more accurate valuations.

The project's impact extends beyond individual transactions, providing valuable insights for market analysis and strategic planning. Car dealers can optimize their inventory and pricing strategies, buyers gain confidence in making informed purchasing decisions, and analysts can better understand market dynamics. Ultimately, this project fosters a more efficient, competitive, and data-driven second-hand car market, benefiting all stakeholders involved.

**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**

**SHIVARAJ B PATIL  
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Y JAYAPRAKASH YADAV**

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DEPARTMENT OF ARTIFICIAL INTELLIGENCE AND MACHINE LEARNING

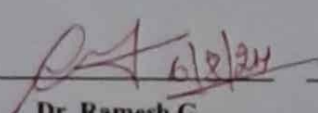
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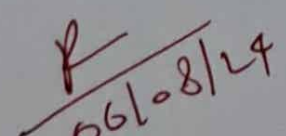
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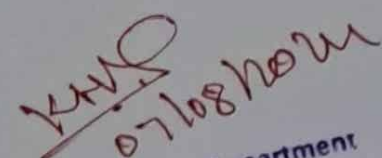
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The Bonafide students of the Department of Artificial Intelligence and Machine Learning, Alva's Institute of Engineering and Technology in the **DEPARTMENT OF ARTIFICIAL INTELLIGENCE AND MACHINE LEARNING** of the VISVESVARAYA TECHNOLOGICAL UNIVERSITY, 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  
Project Guide

  
Dr. Pradeep Nazareth  
Project Coordinator

  
Prof. Harish Kumar  
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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 MODIS, 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%), ensuring 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.

**VISVESVARAYA TECHNOLOGICAL UNIVERSITY,  
BELAGAVI - 590018**



**Mini Project Report  
On  
“SMART IRRIGATION AND CROP RECOMMENDATION”**

**A report submitted in partial fulfillment of the requirements for**

**MINI PROJECT (21AIMP67)  
In  
Artificial Intelligence & Machine Learning**

**Submitted by**

<b>BHAVISH</b>	<b>4AL21AI005</b>
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<b>VISHAL DSOUZA</b>	<b>4AL21AI060</b>
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**Under the Guidance of  
Dr. Pradeep Nazareth  
Associate Professor**



**DEPARTMENT OF ARTIFICIAL INTELLIGENCE & MACHINE LEARNING**

**ALVA'S INSTITUTE OF ENGINEERING & TECHNOLOGY MIJAR,**

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**2023 – 2024**

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**2023 – 2024**





DEPARTMENT OF ARTIFICIAL INTELLIGENCE AND MACHINE LEARNING

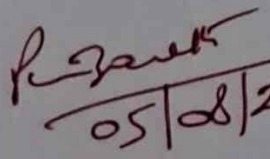
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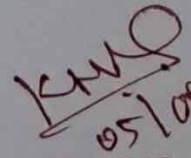
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05/08/2024  
Dr. Pradeep Nazareth  
Project Guide

  
05/08/2024  
Dr. Pradeep Nazareth  
Project Coordinator

  
05/08/2024  
Prof. Harish Kunder  
HOD, Dept. of AIML

## ABSTRACT

We started this project Smart Irrigation and Crop Recommendation System provides precise and timely agricultural guidance to farmers. Utilizing machine learning and data analytics, the system understands user inputs related to field conditions and offers relevant irrigation schedules and crop recommendations. The system employs advanced tokenization and search algorithms to efficiently process and match user queries with its extensive dataset. Built with Flask, it features an intuitive web interface, ensuring ease of use. This tool aims to optimize water usage and crop selection, enhancing agricultural productivity, sustainability, and resilience. By providing immediate and accurate agricultural advice, the system helps improve crop yields and resource efficiency, reducing the burden on farmers and promoting sustainable farming practices

**VISVESVARAYA TECHNOLOGICAL UNIVERSITY,  
BELAGAVI - 590018**



**Mini Project Report  
On  
“INTELLIGENT VIRTUAL ASSISTANT USING API'S”**

**A report submitted in partial fulfillment of the requirements for**

**MINI PROJECT (21AIMP67)**

**In**

**Artificial Intelligence & Machine Learning**

**Submitted by**

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**Under the Guidance of**

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**DEPARTMENT OF ARTIFICIAL INTELLIGENCE & MACHINE LEARNING**

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DEPARTMENT OF ARTIFICIAL INTELLIGENCE AND MACHINE LEARNING

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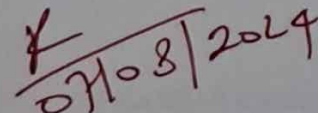
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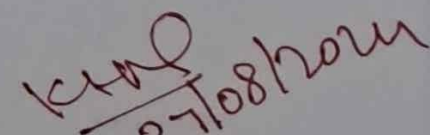
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Project Guide

  
Dr. Pradeep Nazareth  
Project Coordinator

  
Prof. Harish Kunder  
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## ABSTRACT

In an era of rapid technological advancements, virtual assistants have become indispensable tools for enhancing daily productivity and efficiency. This report explores the development and functionality of an intelligent virtual assistant (IVA) that utilizes APIs to tackle everyday problems and streamline various tasks. The IVA is designed to perform a wide range of functions, including conducting Google searches, opening and closing websites, launching applications, providing the latest news updates, checking the weather and time, scheduling daily activities, executing system commands such as locking and shutting down the computer, and translating from English to Tulu. By integrating these features, the IVA simplifies routine tasks and significantly boosts overall productivity, making it a valuable asset in both personal and professional settings.

**VISVESVARAYA TECHNOLOGICAL UNIVERSITY,**

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**Mini Project Report**

**On**

**“AI ROBOT COMPANION FOR PERSONAL ASSISTANCE”**

**A report submitted for**

**MINI PROJECT (21AIMP67)**

**In**

**Artificial Intelligence & Machine Learning**

**Submitted By**

**NIKHITHA H R**

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**PRATHIKSHA E**

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**Under the Guidance of**

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**Senior Assistant Professor**



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DEPARTMENT OF ARTIFICIAL INTELLIGENCE AND MACHINE LEARNING

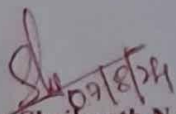
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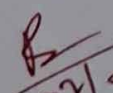
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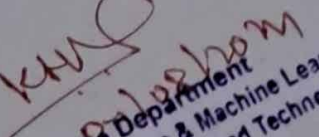
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## ABSTRACT

Loneliness is increasingly recognized as a critical issue affecting both mental and physical well-being, necessitating innovative and effective solutions. This project proposes an advanced AI companion, inspired by the fictional AI Jarvis from Iron Man, specifically designed to combat loneliness by providing consistent companionship, practical assistance with daily tasks, and empathetic emotional support. The AI companion aims to serve as a genuine, interactive entity capable of fostering meaningful connections with its users. Through natural language processing, adaptive learning algorithms, and context-aware interactions, the AI will engage users in conversations, offer reminders and help with daily activities, and respond to emotional cues to provide tailored support. The goal is to create an experience that closely mirrors human interaction, thereby alleviating the feelings of isolation that many individuals face. In addition to offering companionship, the AI will be equipped with features to assist users in managing their routines, enhancing productivity, and maintaining a sense of purpose. Our model could include scheduling appointments, setting reminders, offering motivational prompts, and even engaging in light-hearted banter to uplift the user's mood. The integration of emotional intelligence within the AI's framework is pivotal. By recognizing and responding appropriately to the user's emotional states, the AI can offer comfort and support in a manner that feels personalized and empathetic. The approach not only addresses the immediate need for companionship but also promotes long-term mental well-being by fostering a sense of connection and support.



**VISVESVARAYA TECHNOLOGICAL UNIVERSITY,  
BELAGAVI - 590018**



**Mini Project Report  
On  
“INORGANIC CHEMICAL REACTION PREDICTOR”**

A report submitted in partial fulfillment of the requirements for

**MINI PROJECT (21AIMP67)  
In  
Artificial Intelligence & Machine Learning**

Submitted by

<b>DARSHAN</b>	<b>4AL21AI007</b>
<b>MAHAMMAD SAHIL</b>	<b>4AL21AI020</b>
<b>SHASHANK A PALAN</b>	<b>4AL21AI041</b>
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Under the Guidance of

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DEPARTMENT OF ARTIFICIAL INTELLIGENCE AND MACHINE LEARNING

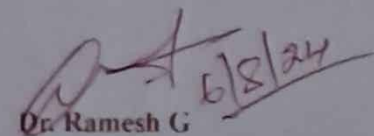
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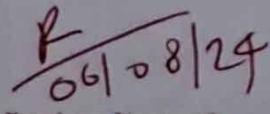
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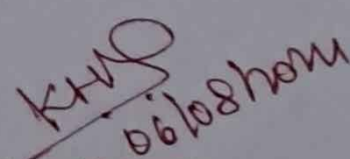
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Prof. Harish Kunder  
HOD, Dept. of AIML

## ABSTRACT

The goal of the Chemical Reaction Predictor project is to use machine learning methods to predict the results of chemical reactions. A model that forecasts the products created from given reactants can be developed by examining a sizable dataset of known reactions. This includes gathering and sanitizing data, identifying key characteristics such as reactant properties and reaction conditions, and creating several prediction models. The project's main goal is to implement algorithms like random forests and support vector machines and thoroughly train them to provide results with 66.67% accuracy. To ensure these models are effective, we assess them using measures like accuracy, precision, recall, and F1 score. After determining the optimal model, we implement it in an intuitive interface that enables users to enter reactants and obtain predictions for the final products.