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**DEPARTMENT OF E&TC Engineering**

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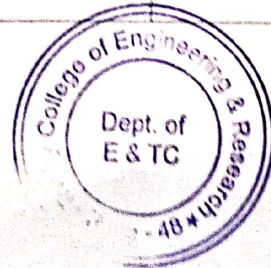
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Sr. No.	Roll No	Names of the Student	Email ID	Contact No	Project Title	Guide	Sponsored/ In-house
1	DS1001	Bhalgat Pritam Amrutlal	pritam003@gmail.com	9028086763	An Impact on environment using MQTT based IOT Model for Sustainable Green solution	Prof. Pratibha Chavan	
2	DS1002	Chavan Anupama Bapusaheb	anupamaghadge8@gmail.com	9657982727	New Trends towards Crop Prediction and Leaf Disease Detection using Machine Learning	Prof. Pratibha Chavan Prof. Pranjali Deshmukh	
3	DS1003	Zore Soniya Suryakant	soniyazore93@gmail.com	9167033703	Sentiment analysis for Disaster Management on Twitter Data (ML and DL Approaches)	Prof. Amol Bhosale Prof. Pratibha Chavan	
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**PG Project Coordinator**  
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**AN IMPACT ON ENVIRONMENT USING  
MQTT BASED IOT MODEL FOR  
SUSTAINABLE GREEN SOLUTIONS**

**A DISSERTATION**

*Submitted by*

**MR. PRITAM BHALGAT**

[Seat No:1275 ]

**UNDER THE GUIDANCE OF**

**PROF. MRS. PRATIBHA CHAVAN**

*in partial fulfillment for the award of the degree of*

**MASTER OF ELECTRONICS ENGINEERING (DIGITAL SYSTEM)**



**DEPARTMENT OF ELECTRONICS ENGINEERING**


**TRINITY COLLEGE OF ENGINEERING AND  
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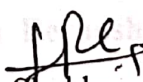
**JUNE 2024**

ACKNOWLEDGEMENT  
**CERTIFICATE**

This is to certify that this dissertation titled “An impact on Environment using MQTT based IoT model for Sustainable Green Solutions” is the work of Mr. Pritam Bhalgat who carried out the Project work under the guidance of Prof. Mrs. Pratibha Chavan during the academic session year 2023 to 2024 and it is hereby approved for the partial fulfillment of the mandatory requirement of Savitribai Phule Pune University, for the award of the Degree of Master of Engineering (Digital Systems), under the faculty of Electronics Engineering of Savitribai Phule Pune University.

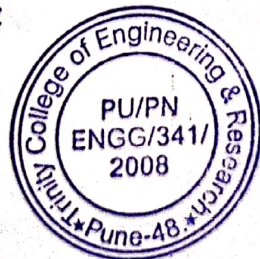
Certified further, that to the best of my knowledge the work reported herein and in the publications by the candidate does not form part of any other dissertation on the basis of which a degree or award was conferred on an earlier occasion of this or any other candidate.

  
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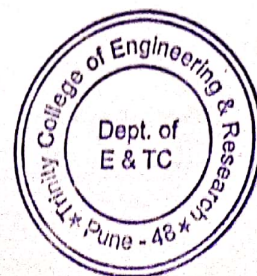
  
External Examiner

## ABSTRACT

A solar pump, remote monitoring system allows to monitor and control solar-powered pumps from a remote site location. An Internet of Things IoT based solar pump controller for the drinking water and agriculture use solar pumping system are put forth in this report. To implement this Internet of Things for solar pumps, various hardware components (sensors, communication modules), and software platforms (cloud platforms, data analysis tools) are required. Implementing Internet of Things (IoT) technology for solar pumps involves connecting the pumps to the Internet to enable remote monitoring, control, and data analysis. It's also significant to study the cost, compatibility, and support of the chosen components and platforms. The aim of this learning is to create a sophisticated and comprehensive IoT design that takes the support of open-source software platform to assess the world's most pertinent problem water scarcity and its impact on the ecosystem and environment. In this system, the entire data is and can be stored and evaluated from a remote location, which ensures the data is safe and secure and lets the consumer make decisions based on the composed and compiled data. Amongst the key components of this system are the water level sensors, the GSM kit, and the web-based data analytics software. This technology is often used in agricultural irrigation projects and water supply applications to optimize water pump efficiency and reduce maintenance costs. IoT systems, the fourth-generation systems infrastructural costs are reduced by implementing IoT through cloud computing. Maintaining as well as integrating these systems is easy compared with others. Currently, this model can be groundbreaking for the solar pump industry for its private sector and government sector tendered projects. The developed model performance is better than the few existing, limited models and the experimental results are validated. Results demonstrate stable and efficient operation without the use of electricity from the grid. Despite challenges, the integration of IoT and solar energy holds promise for reshaping traditional farming, offering efficient solar energy usage for sustainable smart agriculture and positive impact on the environment.

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# **“New Trends towards Crop Prediction and Leaf Disease Detection using Machine Learning”**

**A DISSERTATION**

*Submitted By*

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**[Seat No.: 1269]**

**UNDER THE GUIDANCE OF**

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**&**

**Prof. Mrs. Pratibha Chavan(Co-Guide)**

*in partial fulfillment for the award of the degree of*

**MASTER OF ELECTRONICS ENGINEERING (DIGITAL SYSTEM)**



**TRINITY**

**DEPARTMENT OF ELECTRONICS ENGINEERING**

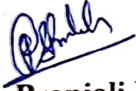
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**June 2024**


## CERTIFICATE

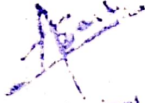
This is to certify that this dissertation titled “**New Trends towards Crop Prediction and Leaf Disease Detection using Machine Learning**” is the work of **Ms. Anupama Chavan** who carried out the Project work under the guidance of **Prof. Ms. Pranjali Deshmukh** and **Prof. Mrs. Pratibha Chavan** during the academic session year 2023 to 2024 and it is hereby approved for the partial fulfillment of the mandatory requirement of Savitribai Phule Pune University, for the award of the Degree of Master of Engineering (Digital Systems), under the faculty of Electronics Engineering of Savitribai Phule Pune University.

Certified further, that to the best of our knowledge the work reported herein and in the publications by the candidate does not form part of any other dissertation on the basis of which a degree or award was conferred on an earlier occasion of this or any other candidate.


  
**Prof. Mrs. Pranjali Deshmukh**  
Project Guide

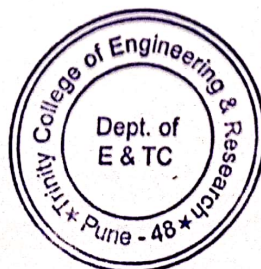
  
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Place : Pune

  
External Examiner



## Abstract

Agriculture as an occupation is backbone for many countries which have been supporting farmers. For decades, farmers have used specific pattern for farming but the changing climate is encouraging the farmers to rethink the pattern established by their forefathers. With progress in computer field and machine learning new techniques are emerging for farming. With same in view the system is proposed for leaf disease detection with prediction of crop which can be planted in specific type of soil and crop yield prediction help of artificial Intelligence algorithm. The system supports two different architectures for detection of leaf disease and prediction of crop. Artificial Intelligence algorithm techniques quantifies the crop yield prediction depending on Variables such as meteorological conditions, soil composition, and moisture levels. The image processing is used for leaf disease detection and remedies suggestion for removal of same. The application is established after careful analysis for both machine learning techniques and image processing algorithms which gives the results for disease detected leaves of tomato, grapes, etc. Based on the outcome of this research model we were able to predict different type of crops through the humidity, temperature and moisture content of soil. Through the comparative analysis on the parameters of accuracy Naïve base, RF, XGBoost models provides 99% , SVM provides 98%, Logistic Regression provides 96.5% and decision tree provides 95.5% accuracy

