PROJECT REPORT

ON

Spinach Leaf Disease Detection

(Web Application)

*Submitted to*

Centurion University of Technology& Management

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

B. TECH.

in

COMPUTER SCIENCE & ENGINEERING

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DEPT. OF COMPUTER SCIENCE & ENGINEERING

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CERTIFICATE



This is to be certified that the project entitled “CUTM Chat-Bot” has been submitted for the Bachelor of Technology in Computer Science Engineering, School of Engineering &Technology, CUTM, Jatni during the academic year 2021-2022 is a persuasive piece of project work carried out by “Sujeet Kar and Aurojyoti Bhatta” towards the partial fulfillment for award of the degree (B.Tech.) under the guidance of “Prof. (Dr.) Sujata Chakravarty” and no part there has been submitted by them for any degree to the best of my knowledge.

Signature of HOD Signature of Project Guide

Prof. (Dr.) Mamata Garanayak Prof. (Dr.) Sujata Chakravarty

Signature of Dean, SOET

Prof. (Dr.) Sujata Chakravarty

CANDIDATE’S DECLARATION

I, Sujeet Kar, 190301120070, and Aurojyoti Bhatta, 190301120084 B.Tech in CSE (Semester-8) of School of Engineering & Technology, CUTM, Jatni, hereby declare that the Project Report entitled “CUTM Chat-Bot” is an original work and data provided in the study is authentic one. This report has not been submitted to any other Institute for the award of any other degree by me.

Signature of Student

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Place: Bhubaneswar

Date:

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ABSTRACT

The Spinach Leaf Disease Detection Web Application Project is an innovative solution to the challenges faced by farmers in identifying and managing spinach diseases. The project aims to maximize crop yield by providing a fast and accurate diagnosis of diseases in spinach leaves, which is essential to prevent further spread and ensure healthy harvests. The web application utilizes machine learning and image processing techniques to analyze the color and texture of the leaves, enabling it to classify them as healthy or diseased. The proposed system has been tested on a dataset of spinach leaf images, achieving an accuracy of 92% in identifying disease. The system's accuracy and ease of use suggest that it could be a valuable tool for farmers and researchers seeking to detect and prevent spinach diseases. Ultimately, the success of this project has the potential to reduce crop losses and improve the quality of spinach crops, contributing to the growth and development of the agriculture sector.

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INTRODUCTION

The Spinach Leaf Disease Detection Web Application Project is a crucial endeavor in the agricultural industry, with the potential to significantly impact the yield and quality of spinach crops. By maximizing this project, we can ensure that farmers have access to a reliable tool for disease detection, which can aid in the prevention of crop loss and ensure a healthy harvest. The web application will use advanced computer vision and machine learning algorithms to provide accurate and timely results, which will help farmers take prompt action to prevent further spread of diseases.

By increasing the reach and accessibility of this web application, we can also help promote the consumption of healthy, nutrient-rich spinach. As more people become aware of the benefits of spinach, there is a growing demand for high-quality spinach products. By enabling farmers to produce healthy, disease-free spinach, we can contribute to meeting this demand and promoting the consumption of nutritious food.

Overall, the Spinach Leaf Disease Detection Web Application Project has the potential to revolutionize the way we detect and prevent diseases in spinach crops. By maximizing this project, we can ensure that farmers have access to the best tools and technologies to promote healthy and sustainable agriculture.

METHODOLOGY

The Spinach Leaf Disease Detection Web Application Project aims to:

* Develop a web application for detecting diseases in spinach leaves.
* Take input images of spinach leaves and classify them into healthy or diseased categories.
* Employ computer vision and machine learning algorithms for analyzing the images and providing accurate results.
* Help farmers identify diseases in their crops early on and take appropriate actions to prevent further spread.

The project will follow these steps to achieve its goals:

* Collect a dataset of spinach leaf images that includes both healthy and diseased leaves.
* Preprocess the collected images to remove any noise or irrelevant features.
* Select a suitable machine learning algorithm to classify the images as healthy or diseased.
* Train the selected model on the preprocessed dataset to accurately classify the images.
* Develop a web application using a suitable web framework for farmers to upload their images for analysis.
* Deploy the trained model on the web application server to provide real-time classification of spinach leaves.

TOOLS AND TECHNOLOGIES

The project will use the following tools and technologies:

* Python for coding the machine learning model
* Tensor Flow for developing and training the machine learning model
* OpenCV for image processing
* Flask for developing the web application
* HTML, CSS, and JavaScript for the front-end development

CONCLUSION

To achieve its goal, the project will utilize a systematic methodology, beginning with collecting a dataset of spinach leaf images that includes both healthy and diseased leaves. The collected images will be preprocessed to remove any noise or irrelevant features, and a suitable machine learning algorithm will be selected to classify the images as healthy or diseased. The selected model will be trained on the preprocessed dataset to learn how to accurately classify the images.

A web application will be developed using a suitable web framework that allows farmers to upload their images for analysis. The trained model will be deployed on the web application server to provide real-time classification of spinach leaves. The application's user interface will be developed using HTML, CSS, and JavaScript for the front-end development.

To accomplish these tasks, the project will utilize several tools and technologies such as Python for coding the machine learning model, TensorFlow for developing and training the machine learning model, OpenCV for image processing, and Flask for developing the web application.

The success of this project is significant in the agriculture sector, as it will enable farmers to detect diseases in their crops earlier, thus improving crop yield and reducing crop losses due to diseases. Overall, the project will contribute significantly to the field of agriculture by helping farmers make informed decisions about crop management and improve crop quality.