# Supervisor’s Recommendation

I hereby recommend that this project under my supervision by Kushal Raj Sharma and Ashish Gyawali entitled **Plant Disease Detection** in partial fulfillment of requirements for the degree of B.Sc. Computer Science and Information Technology are processed for evaluation.

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Er. Prakash Poudel   
Project Supervisor  
Nepathya College  
Tilottama-5, Rupandehi

# Letter of Approval

After a thorough analysis of the project, we are pleased to inform that the project “PLANT DISEASE DETECTION USING CNN WITH PYTORCH” prepared by Kushal Raj Sharma and Ashish Gyawali in partial fulfillment of the requirements for the degree of B.Sc. in Computer Science and Information Technology has been well studied. In our opinion it is satisfactory in the scope and quality as a project for the required degree.

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External Examiner Er. Prakash Poudel

Tribhuvan University Project Supervisor

Nepathya College

…………………… …………………..

Mr. Ananta Pandey Mr. Sanjeev Bhandari

Head of Department (HOD) Principal

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# Acknowledgement

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It gives us immense pleasure to express our deepest sense of gratitude and sincere thanks to our highly respected teachers, guardians, specially thanks to our principal Mr. Sanjeev Bhandari, Head of Department Mr. Ananta Pandey and esteemed guide Er. Prakash Poudel ‘Jigyashu’ for their valuable guidance, and encouragement in making this project possible. Their constructive suggestions regarding this project work and consistent support are sincerely acknowledged.

We would also like to express our sincere thanks to all our friends and all those who supported us directly or indirectly during this project work and make this project a successful one.

# Abstract

Crop diseases are a noteworthy risk to sustenance security; however, their quick distinguishing proof stays troublesome in numerous parts of the world because of the non-attendance of the important foundation. The emergence of accurate techniques in the field of leaf-based image classification has shown impressive results. This paper makes use of Sequential in identifying between healthy and diseased leaves from the data sets created. Our proposed paper includes various phases of implementation namely dataset creation, feature extraction, training the classifier, and classification. The created datasets of diseased and healthy leaves are collectively trained under Sequential Model to classify the diseased and healthy images. For extracting features of an image, we use Histogram of an Oriented Gradient (HOG). Overall, using Machine learning to train the large data sets available publicly gives us a clear way to detect the disease present in plants on a colossal scale.

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# List of Abbreviations

CNN: Convolutional Neural Network

CV: Computer Vision

GLCM: Gray Level Co-occurrence Matrix

GPU: Graphics Processing Unit

HOG: Histogram of Oriented Gradients

KNN: K-Nearest Neighbour

ML: Machine Learning

ReLU: Rectified Linear Unit

SVM: Support Vector Machine