Department of Computer Science and Engineering
Bangladesh University of Business and Technology (BUBT)

CSE 498: Literature Review Records

Student's Id and Name	**Name:** Bm.Shadman Sakib Mahee and **ID:** 19201103123
Capstone Project Title	Mango Fruit Disease Detection
Supervisor Name & Designation	**Name:** M. M. Fazle Rabbi & **Designation:** Assistant Professor, Department of CSE, BUBT
Course Teacher's Name & Designation	**Name:** Khan Md. Hasib & **Designation:** Assistant Professor, Department of CSE, BUBT

Aspects	Paper # 1 (Title)
Title / Question (What is problem statement?)	Transforming Crop Plant Disease Identification through Convolutional Neural Networks
Objectives / Goal (What is looking for?)	The primary goal of this project is to develop a robust and precise system for identifying diseases in crop plants using Convolutional Neural Networks (CNNs). The project aims to leverage the capabilities of deep learning algorithms and image processing techniques to create a model that can accurately classify crop plant images and detect the presence of any diseases. This system can be of great help to farmers and agricultural experts in identifying diseases at an early stage and taking the necessary actions to prevent their spread. By doing so, the proposed system can ultimately improve crop yield and minimize losses.
Methodology / Theory (How to find the solution?)	The project was categorized into three stages. • Data Collection and Preprocessing, • Convolutional Neural Network Architecture, and • Model Evaluation and Validation
Software Tools (What program/software is used for design, coding and simulation?)	Python, TensorFlow, Keras, OpenCV, sci-kit-learn, NumPy, Graphics processing unit (GPU), Jupyter Notebook
Test / Experiment How to test and characterize the design/prototype?	The model training process involved using 80% of the data set for training and adjusting internal parameters to minimize the loss function. Testing was done on the remaining 20% of the data set using metrics like accuracy, recall, and F1 score.
Simulation/Test Data (What parameters are determined?)	In This Paper there is almost 1774 Images
Result / Conclusion (What was the final result?)	The results showed that all three models (DenseNet-201, ResNet-50, and Inception-v3) successfully identified and classified diseases in crop plants. The DenseNet-201 and Inception-v3 models achieved the highest accuracy rate of 98%, making them viable alternatives for disease identification in crop plants. The performance of the models varied depending on the volume and quality of the dataset, and other factors. Overall, the models demonstrated optimal performance and accuracy in identifying and classifying crop plant diseases.
Obstacles/Challenges (List the methodological obstacles if authors mentioned in the article)	There was no Challenges Found
Terminology (List the common basic words frequently used in this research field)	CNN; identification; models; pathogen; plant; classification; machine learning

Review Judgment (Briefly compare the objectives and results of all the articles you reviewed)	• "Deep learning-based crop disease recognition using convolutional neural networks" had accuracy of 99.35% in distinguishing between healthy and diseased leaves. • "Identification of plant diseases using machine learning techniques: A review" had 91% of accuracy
Review Outcome (Make a decision how to use/refer the obtained knowledge to prepare a separate and new methodology for your own research project)	This paper can help me for further research in this area, this paper can identify research gaps and challenges. The paper describes the dataset, preprocessing steps, and model architecture used for crop disease identification. This information can be used for me as a guide for developing my own crop disease identification models.