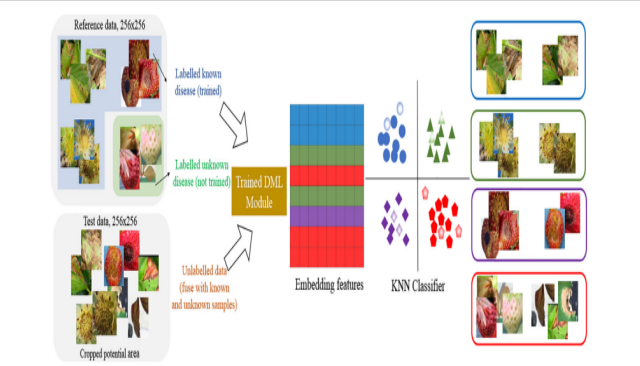
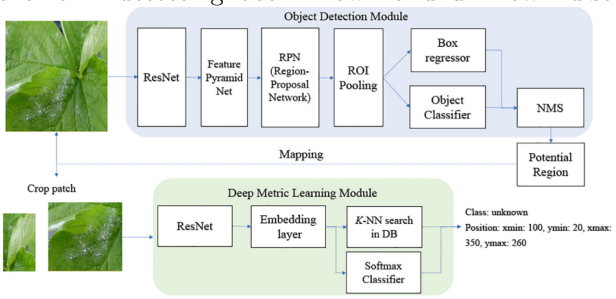
Department of Computer Science and Engineering
Bangladesh University of Business and Technology (BUBT)

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 # 9 (Title)
Title / Question (What is problem statement?)	Strawberry Disease Detection Using Deep Metric Learning and Unknowns
Objectives / Goal (What is looking for?)	In this study, a strawberry disease detection method that can identify both recognized and unidentified diseases in the actual field is proposed. The suggested method includes two stages: object detection with known disease classes and a post-filtering stage. It is based on deep metric learning-based classifiers. The objective is to increase the efficiency of detecting recognized diseases and to offer high accuracy for both known and unidentified diseases. The ultimate goal is to use this system to recognize illness-like signs brought on by any type of plant condition or disease.
Methodology / Theory (How to find the solution?)	
Software Tools (What program/software is used for design, coding and simulation?)	Python, TensorFlow, Keras, OpenCV, sci-kit-learn, NumPy, Laptop, vscode , Jupyter Notebook
Test / Experiment How to test and characterize the design/prototype?	We need to train the object detection and DML-based softmax classifier using known samples of strawberry diseases. Then, we will use known and known unknown samples to construct the K-NN classifier. Finally, we have to use metrics like accuracy, precision, and recall to evaluate the performance of the proposed scheme in detecting both known and unknown diseases. 
Simulation/Test Data (What parameters are determined?)	9,139 Image Data
Result / Conclusion (What was the final result?)	
Obstacles/Challenges (List the methodological obstacles if authors mentioned in the article)	No Obstacles found
Terminology (List the common basic words frequently used in this research field)	deep metric learning, unknown disease detection, strawberry disease detection, K-nearest neighbor, open set recognition.[ii]

Review Judgment (Briefly compare the objectives and results of all the articles you reviewed)	• "Identification of sunflower seeds with deep convolutional neural networks. Journal of Food Measurement and Characterization" had accuracy of 95% in distinguishing between healthy and diseased leaves of sunflowers using DCNN. • "Deep Learning-Based Tomato Plant Disease Detection Using Multiple Data Augmentation Techniques" had 99.36% of accuracy using ResNet50 and data augmentation techniques such as rotation, zoom.
Review Outcome (Make a decision how to use/refer the obtained knowledge to prepare a separate and new methodology for your own research project)	For my future study in plant disease detection, particularly for identifying unidentified illnesses, the suggested scheme can be a beneficial resource. In order to create more sophisticated and precise models for identifying plant illnesses, I can expand upon its pipeline and methodology and apply them to additional plant species.