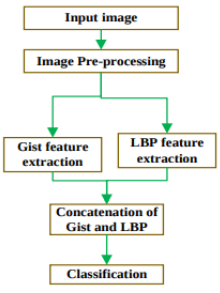
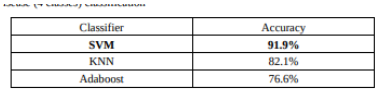
Department of Computer Science and Engineering
Bangladesh University of Business and Technology (BUBT)

CSE 498: Literature Review Records

Student's Id and Name	**Name:** Mustain Murtaza Taib and **ID:** 18193103003
Capstone Project Title	Classification of Leaf Disease Using Global and Local Features
Supervisor Name & Designation	**Name:** Mr.T.M. Amir - Ul - Haque Bhuiyan & **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?)	Classification of Leaf Disease Using Global and Local Features
Objectives / Goal (What is looking for?)	Leaf disease in plants can lead to crop productivity loss, highlighting the importance of timely diagnosis and proper care. This paper presents a computer vision-based method using Gist and LBP features for early disease detection, offering a time-efficient alternative to deep learning approaches. Gist provides a global image description, LBP is resilient to illumination changes and occlusions. Preprocessing and combining Gist and LBP features yield promising results, with SVM outperforming other machine learning algorithms in classifying plant leaf datasets.
Methodology / Theory (How to find the solution?)	Gist Descriptors: Summarize gradient information using Gabor filters at multiple scales, locations, and orientations, resulting in a 128-value Gist feature vector. LBP (Local Binary Patterns): Robust to lighting variations, LBP encodes local structure by comparing 3x3 neighborhood values, generating binary patterns for labeling. SVM (Support Vector Machine): Versatile model for classification and regression, drawing a line or hyperplane to separate classes and maximize the margin between support vectors. KNN (K-Nearest Neighbors): Classifies data points based on proximity to K nearest neighbors. Adaboost: Ensemble method that iteratively trains weak learners on weighted data, transforming them into stronger models.
Software Tools (What program/software is used for design, coding and simulation?)	Google colab, keras,Tensorflow,pandas,numpy,matplot ,os.
Test / Experiment How to test and characterize the design/prototype?	
Simulation/Test Data (What parameters are determined?)	Datasets : Healthy, Bacterial spot, Late blight, Septoria spot, Yellow curved
Result / Conclusion (What was the final result?)	
Obstacles/Challenges (List the methodological obstacles if authors mentioned in the article)	Team didnt find any challenges
Terminology (List the common basic words frequently used in this	Leaf disease, Gist, local binary pattern, machine learning.

Review Judgment (Briefly compare the objectives and results of all the articles you reviewed)	SVM 91.9% KNN 82.1% Adaboost 76.6%.
Review Outcome	This paper didn't use updated model