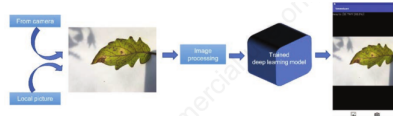


Department of Computer Science and Engineering
Bangladesh University of Business and Technology (BUBT)



CSE 498: Literature Review Records

Student's Id and Name	Name: Mustain Murtaza Taib and ID: 18193103003
Capstone Project Title	Tomato leaf diseases recognition based on deep convolutional neural networks
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?)	Tomato leaf diseases recognition based on deep convolutional neural networks																												
Objectives / Goal (What is looking for?)	work proposes a deep learning-based model for tomato leaf disease identification, utilizing in-house and public image databases. VGG16, Inceptionv3, and Resnet50 architectures were trained and tested, resulting in TomatoGuard, an Android application with 99% test accuracy. TomatoGuard outperforms the widely used Plantix app for general-purpose plant disease detection, addressing the need for practical field applications.																												
Methodology / Theory (How to find the solution?)	Fungi (e.g., early blight, septoria leaf spot, target spot, leaf mould), bacterial spot, late blight (caused by mould), tomato yellow leaf curl virus, and mites cause specific tomato diseases. Image preprocessing enhances data through techniques like rotation, flipping, mirroring, brightness adjustment, and cropping. Augmentation increases dataset diversity, and the data is split into training and testing sets.																												
Software Tools (What program/software is used for design, coding and simulation?)	Google colab, keras,Tensorflow,pandas,numpy,matplotlib ,os.																												
Test / Experiment How to test and characterize the design/prototype?																													
Simulation/Test Data (What parameters are determined?)	Datasets : Bacterial Spot,Early Blight,Healthy,Late Blight, Leaf Mold,Mosaic virus,Septoria Leaf Spot,Two Spotted Spider Mites,Target Spot,Yellow Leaf Curl Virus.																												
Result / Conclusion (What was the final result?)	<p>Table 3. Model convergence result.</p> <table><tr><th>Model</th><th>Min validation loss</th><th>Regular Epoch</th><th>Test accuracy %</th><th>Min validation loss</th><th>Add early stop Epoch</th><th>Test accuracy %</th></tr><tr><td>VGG16</td><td>0.00322</td><td>288</td><td>99.75</td><td>0.00356</td><td>162</td><td>99.62</td></tr><tr><td>Inception_v3</td><td>0.00491</td><td>273</td><td>99.42</td><td>0.00604</td><td>177</td><td>99.75</td></tr><tr><td>Resnet50</td><td>0.00281</td><td>246</td><td>98.92</td><td>0.00779</td><td>108</td><td>99.50</td></tr></table>	Model	Min validation loss	Regular Epoch	Test accuracy %	Min validation loss	Add early stop Epoch	Test accuracy %	VGG16	0.00322	288	99.75	0.00356	162	99.62	Inception_v3	0.00491	273	99.42	0.00604	177	99.75	Resnet50	0.00281	246	98.92	0.00779	108	99.50
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Obstacles/Challenges (List the methodological obstacles if authors mentioned in the article)	Early detection of tomato leaf diseases is crucial for reducing pesticide usage. Transfer learning, particularly fine-tuning, is a commonly used technique where models trained on one task are repurposed for related tasks. Models like VGG16, Inceptionv3, and ResNet50 have shown impressive performance in computer vision tasks such as ImageNet.																												
Terminology (List the common basic words frequently used in this research field)	image augmented; deep learning; image classification; android application.																												

Review Judgment (Briefly compare the objectives and results of all the articles you reviewed)	used VGG16 and get test accuracy 99.62%
Review Outcome	This paper didn't use updated model