

Project Development Phase Model Performance Test

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| Date | 23 June 2025 |
| Team ID | LTVIP2025TMID43572 |
| Project Name | Pollen's Profiling: Automated Classification of Pollen Grains |
| Maximum Marks | 10 Marks |

Model Performance Testing:

| S.No. | Parameter | Values | Screenshot |
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| 1. | Model Summary | Transfer Learning with VGG16 <ul style="list-style-type: none"> Input Size: 224x224 Pre-trained on ImageNet Frozen base layers, added custom Dense layers Optimizer: Adam Loss: Categorical Crossentropy | <pre> Epoch: 1/600 Loss: 1.8219 Accuracy: 0.3040 val_loss: 2.8629 val_accuracy: 0.4807 Epoch: 2/600 Loss: 1.1579 Accuracy: 0.6187 val_loss: 2.5824 val_accuracy: 0.5153 Epoch: 3/600 Loss: 0.8170 Accuracy: 0.7054 val_loss: 2.5598 val_accuracy: 0.5288 Epoch: 4/600 Loss: 0.5540 Accuracy: 0.7584 val_loss: 2.3623 val_accuracy: 0.5864 Epoch: 5/600 Loss: 0.4039 Accuracy: 0.7757 val_loss: 2.4006 val_accuracy: 0.5281 Epoch: 6/600 Loss: 0.2421 Accuracy: 0.8125 val_loss: 2.3379 val_accuracy: 0.5252 </pre> |
| 2. | Accuracy | Training Accuracy: ~86.7% (from last epochs of graph) Validation Accuracy: ~84.3% (based on final values, not 94.3%) | |
| 3. | Fine Tunning Result(if Done) | After unfreezing and fine-tuning: Validation Accuracy: ~85.8%–86.0% (approximate peak seen in accuracy graph) | |