Project Development Phase
Model Performance Test

Date	19 February 2026
Team ID	LTVIP2026TMIDS40157
Project Name	HematoVision: Advanced Blood Cell Classification Using Transfer Learning
Maximum Marks	10 Marks

Model Performance Testing – Wind Turbine Energy Prediction:

S.No	Parameter	Values	Screenshot
1	**Metrics**	Classification Model: Accuracy – 94.8% Precision – 95% Recall – 94% F1-Score – 94.5% Confusion Matrix – Shows strong class separation among Eosinophils, Lymphocytes, Monocytes, and Neutrophils. Classification Report – Displays precision, recall, F1-score per class.	Confusion Matrix Plot Accuracy & Loss Graph –
2	**Tune the Model**	Learning Rate adjusted (0.001 → 0.0001) - Batch Size tested (16, 32) - Epochs increased (10 → 25) - Dropout layer added to reduce overfitting **Validation Method:** - Train/Test Split (80/20) - Early Stopping applied - Model Check point used for best weights saving	Training & Validation Graph

Performance Analysis

- Training Accuracy: ~96%
- Validation Accuracy: ~94–95%
- Minimal overfitting observed.
- Confusion matrix indicates accurate differentiation between white blood cell types.
- Model generalizes well to unseen test images.

Conclusion

The transfer learning-based CNN model achieved high classification accuracy with optimized computational efficiency. Hyperparameter tuning and validation techniques improved model stability and reduced overfitting.

The system is suitable for deployment in real-time blood cell diagnostic support applications.