Model Optimization and Tuning Phase Report

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| Date | 22 June 2025 |
| Team ID | SWTID1749918275 |
| Project Title | Bulls Eye Target Detection using Transfer Learning |
| Maximum Marks | 10 Marks |

**Model Optimization and Tuning Phase:**

The Model Optimization and Tuning Phase involves refining machine learning models for peak performance. It includes optimized model code, fine-tuning hyperparameters, comparing performance metrics, and justifying the final model selection for enhanced predictive accuracy and efficiency.

**Hyperparameter Tuning Documentation:**

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| Model | Tuned Hyperparameters | Optimal Values |
| MobileNetV2 | optimizer, dense units, epochs | Adam, 128, 20 |

**Performance Metrics Comparison Report :**

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| --- | --- | --- |
| Model | Baseline Metric | Optimized Metric |
| MobileNetV2 | 66.7% Accuracy | 75% Accuracy |

**Final Model Selection Justification (2 Marks):**

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| --- | --- |
| MobileNetV2 | MobileNetV2 was selected for its lightweight architecture, higher accuracy after tuning, and excellent performance on image classification tasks with limited data. Its efficiency and generalization ability make it ideal for our bullseye detection task. |