**Project Planning Phase**

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| Date | 30 june2025 |
| Team ID | LTVIP2025TMID59822 |
| Project Name | Hematovision: Advanced Blood Cell Classification Using Transfer Learning |
| Maximum Marks | 4 Marks |

The Project Planning Phase outlines the roadmap, timeline, resources, and risk management strategies required to ensure the successful execution of the Hematovision project. Careful planning is critical to meet goals within the allocated time and with efficient resource utilization.

**Goals & Objectives**

* Develop an AI-based tool for accurate blood cell classification.
* Utilize transfer learning to build an efficient model with limited data.
* Design a user-friendly web interface for uploading images and viewing results.
* Ensure the system is scalable, reliable, and easy to use in medical or academic environments.

**Project Timeline**

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| **Phase** | **Duration** | **Key Deliverables** |
| Requirement Gathering | 1 week | Use cases, empathy map, user needs |
| Data Collection & Preprocessing | 1 week | Labeled dataset, cleaned image set |
| Model Development & Training | 2 weeks | Trained .h5 model using transfer learning |
| Backend & API Integration | 1 week | Flask API, image handler, prediction API |
| Frontend Development | 1 week | Upload interface, result display |
| Testing & Debugging | 1 week | Unit tests, integration tests, model validation |
| Final Deployment & Demo | 1 week | Fully integrated and functional system |

Total Duration: Approximately 7 weeks

**Tools & Technologies**

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| **Component** | **Tool/Technology** |
| Programming | Python, HTML/CSS, JavaScript |
| Frameworks | Flask, TensorFlow, Keras |
| Model | MobileNetV2 / VGG16 (Transfer Learning) |
| IDE | VS Code, Jupyter Notebook |
| Version Control | Git / GitHub |
| Dataset | Blood Cell Image Dataset (LISC or BCCD) |

**Team Roles (if applicable)**

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| **Role** | **Responsibility** |
| ML Developer | Model training, transfer learning |
| Backend Developer | API development, model integration |
| Frontend Developer | UI design and interaction |
| Tester/QA | Validate model and application |
| Project Manager | Oversee planning and deadlines |

**Risk Management**

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| **Risk** | **Mitigation Strategy** |
| Insufficient training data | Use data augmentation, synthetic sampling |
| Overfitting of model | Apply dropout, validation checks |
| Poor prediction accuracy | Fine-tune pre-trained layers, try multiple models |
| Integration delays | Develop modules in parallel where possible |
| Deployment issues | Use local deployment before cloud/online setup |