Ideation Phase

Brainstorm & Idea Prioritization Template

Date	20 January 2026
Team ID	LTVIP2026TMIDS76912
Project Name	HematoVision: Advanced Blood Cell Classification Using Transfer Learning
Maximum Marks	4 Marks

Brainstorm & Idea Prioritization

Brainstorming for HematoVision focused on improving accuracy, efficiency, and real-world usability of automated blood cell classification. Ideas included using transfer learning with pre-trained CNN models like VGG16 or ResNet, applying data preprocessing and augmentation techniques to improve generalization, and evaluating performance using precision, recall, F1-score, and confusion matrix. Deployment through a Flask-based web application for real-time image upload and prediction was also considered. After generating multiple ideas, prioritization was based on impact and feasibility, with core elements such as transfer learning, proper augmentation, model evaluation, and Flask integration marked as high priority, while advanced features like cloud deployment and model optimization were treated as future enhancements.

Step-1: Team Gathering, Collaboration and Select the Problem Statement

1

Define your problem statement

Manual blood cell classification is slow, skill-dependent, and prone to errors, delaying accurate diagnosis. An automated, high-accuracy system is needed to classify blood cells efficiently and support faster clinical decisions.

5 minutes

PROBLEM

How might we [Slow, error-prone classification]?

Key rules of brainstorming

To run an smooth and productive session

- Stay in topic.
- Defer judgment.
- Go for volume.
- Encourage wild ideas.
- Listen to others.
- If possible, be visual.

2

Brainstorm

- **AI-based blood cell classification model** – Use transfer learning to automatically identify eosinophils, lymphocytes, monocytes, and neutrophils.
- **Real-time diagnostic support system** – Integrate the model with lab imaging tools to assist pathologists during analysis.
- **Telemedicine blood analysis platform** – Enable remote upload and automated classification of blood smear images.
- **Interactive medical training tool** – Provide students with instant feedback on blood cell identification using AI.

10 minutes

TIP

You can select a sticky note and hit the pencil [switch to sketch] icon to start drawing!

Balaji Reddi

Automated blood cell classification using AI	Reduce manual errors in microscopy analysis	Real-time diagnostic assistance for pathologists	Transfer learning to improve accuracy	Faster report generation from blood samples	Remote blood analysis for telemedicine
Low-cost solution for small clinic	Educational tool for lab technicians/ students	Dataset expansion for better model training	Integration with hospital lab systems	Improve early disease detection support	Scalable tool for healthcare institutions

3

Group ideas

The ideas are grouped into AI development, healthcare diagnostics, telemedicine access, and medical training. These areas guide how HematoVision will be built and used in real-world applications.

20 minutes

TIP

Add customizable tags to sticky notes to make it easier to find, browse, organize, and categorize important ideas as themes within your mural.

AI & Technical Development

- Automated blood cell classification using AI
- Transfer learning for higher accuracy
- Dataset expansion and model training
- Integration with lab imaging systems

Healthcare & Diagnostics

- Real-time diagnostic support for pathologists
- Faster blood test report generation
- Reduce manual microscopy errors
- Early disease detection support

Telemedicine & Accessibility

- Remote blood smear image analysis
- Cloud-based classification system
- Support for rural and low-resource clinics
- Scalable deployment across hospitals

Education & Training

- Interactive learning tool for students
- Practice platform for lab technicians
- Instant feedback on cell identification
- Simulation-based medical training use

4

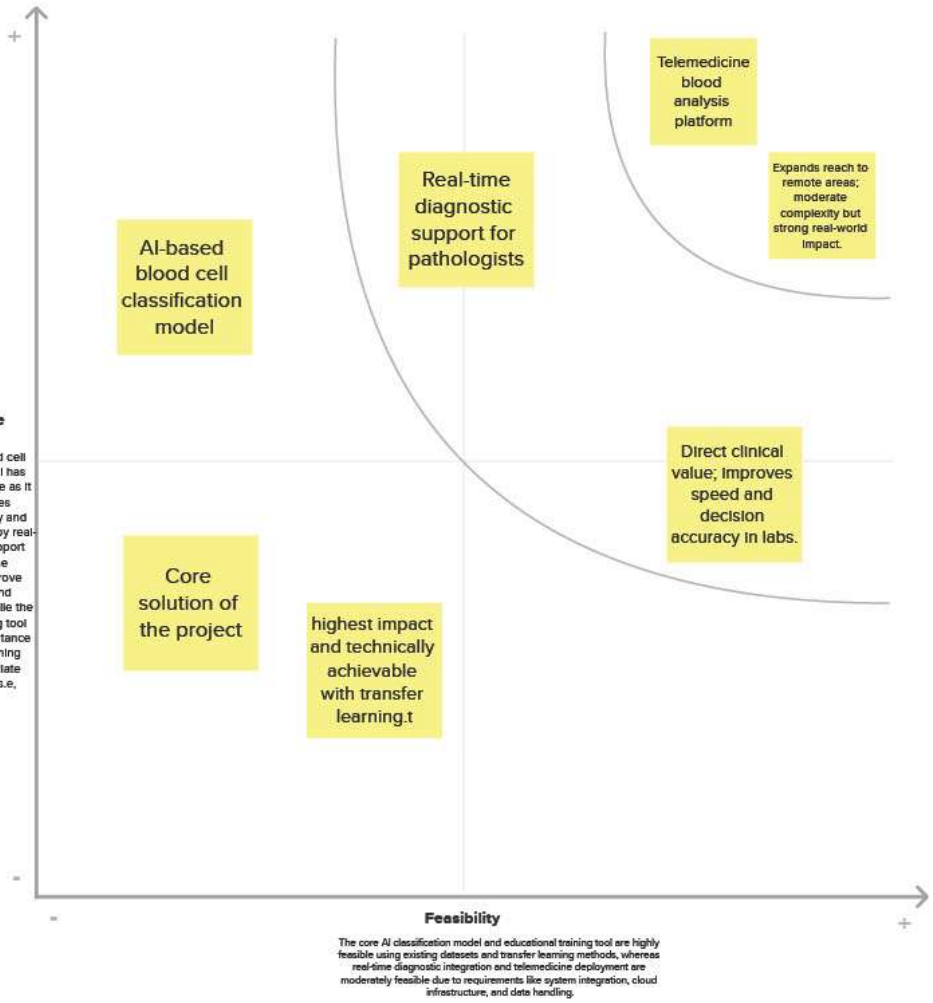
Prioritize

Educational training tool for students/technicians
Useful for learning and adoption; lower urgency compared to diagnostic use but easy to implement.

⏱ 20 minutes

TIP

Participants can use their cursors to point at where sticky notes should go on the grid. The facilitator can confirm the spot by using the laser pointer holding the **H key** on the keyboard.



Importance

The AI-based blood cell classification model has very high importance as it directly addresses diagnostic accuracy and efficiency, followed by real-time diagnostic support and telemedicine platforms that improve clinical access and decision-making, while the educational training tool has moderate importance as it supports learning rather than immediate medical diagnosis.e,

The core AI classification model and educational training tool are highly feasible using existing datasets and transfer learning methods, whereas real-time diagnostic integration and telemedicine deployment are moderately feasible due to requirements like system integration, cloud infrastructure, and data handling.