# Problem-Solution Fit canvas

## Advanced Blood Cell Classification Using Deep Learning

### 1. END USERS | 01

**END USERS** | **1**

Doctors, Pathologists, Lab Technicians, and Medical Researchers who require rapid and accurate blood cell analysis.

### 2. CURRENT LIMITATIONS | 02

Manual blood cell analysis is labor-intensive, error-prone, and time-consuming. Existing automated methods lack accuracy and flexibility to classify diverse blood cells beyond RBCs, WBCs, and Platelets.



### 3. PROBLEMS / PAINS | 03

Slow and error-prone manual analysis of blood cells is leading to delayed and inconsistent diagnoses in medical labs.

### 4. ROOT CAUSE | 04

High variability in cell morphology and the need for highly skilled professionals make manual classification difficult and unreliable. Lack of robust automated tools for accurate blood cell analysis.

### 7. BENEFITS | 07

· Improves diagnostic accuracy and speed.

· Reduces workload for lab technicians.

· Enables consistent and reproducible analysis of blood sample.

· Cost-effective and scalable solution for medical labs.

### 5. TRIGGERS TO ACT | 05

· Need for faster and more reliable blood test results.

· Reduce human error, increase diagnostic consistency.

### 6. YOUR SOLUTION | 06

Developed a deep learning model that accurately classifies blood cells (RBCs, WBCs, Platelets) from microscopic images using transfer learning and data augmentation.

### 7. BENEFITS | 07

· Improves diagnostic accuracy and speed.

· Reduces workload for lab technicians.

· Enables consistent and reproducible analysis of blood samples.

### 9. EMOTIONS | 09

· Medical staff feel more confident in diagnostic results.

· Reduced stress and frustration due to fewer errors.

### 8. INTEGRATION / IMPLEMENTATION | 06

· Preprocessing steps including image normalization and augmentation.

· Model training and validation using labeled microscopic blood cell images.

### 10. CHANNELS | 10

· Seamless integration with existing laboratory information systems (LIS)

· Training sessions and workshops for lab staff

· Online demonstrations and publications

**AMALTAMA**