

BLOOD CELL COUNTING USING WATERSHED ALGORITHM

A project report submitted to Jawaharlal Nehru Technological University,
Gurajada, Vizianagaram.

BACHELOR OF TECHNOLOGY

In

ELECTRONICS AND COMMUNICATION ENGINEERING

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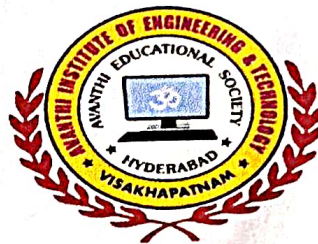
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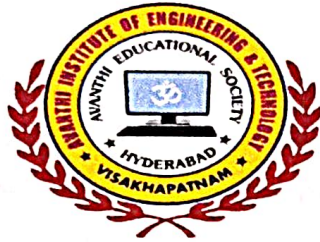
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CERTIFICATE

This is to certify that the project work entitled **"BLOOD CELLS COUNTING USING WATERSHED ALGORITHM"** is being submitted for the partial fulfilment of requirements for the award of Bachelor of Technology in Electronics & Communication Engineering is a bonafide work done by **B.Y.NAMRATHA SRI (20811A0412)**, **G.VENU MADHAV (20811A0421)**, **P.LAVANYA (20811A044)**, **N.SUDHAKAR (20811A0445)**, **B.DIVYA SRI (18811A0403)** under the guidance during year 2023 - 2024 and it has been found suitable for acceptance according to the requirements of the university.

INTERNAL GUIDE

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ABSTRACT

Traditionally, blood cell counting is done manually using a haemocytometer or through automated analyzers, both methods having their own drawbacks such as time consumption, laboriousness, and cost. The manual method is prone to errors due to cell overlap and visual inconsistency, while automated analyzers cannot detect variations in cell shape and irregularities. To overcome these challenges, we are proposing a DIP-based method that enhances accuracy and reduces the time and cost associated with blood cell analysis. The process begins with the acquisition of blood sample images using microscope and camera. These images are then processed to remove noise and extract specific color planes corresponding to RBCs and WBCs. The RBCs and WBCs are counted using watershed algorithm using their shape and size. This paper reports an impressive accuracy of 94% for RBC and 92% for WBC counts when compared to the manual counting. This showcasing the potential of this method in medical diagnostics. The system also includes a MatLab based APP module that allows users to upload images and receive immediate feedback on blood cell counts.