motherson

Intelligent Blood Analyzer.
A New Frontier in Healthcare

Overview

The project is aimed to design and develop a blood sample analyzer system that uses intelligent machine vision techniques to identify and count blood cells. The system would be composed of an embedded device coupled with programmer/user interface units and would be able to provide accurate results for a variety of blood tests, including blood group identification, white blood cell (WBC) count, red blood cell (RBC) count, and platelet count.

Specific Project Functions

The following are some of the specific project functions that were implemented:

01
Development and remediation of tertiary hardware, GUI, focus, blood cell counting (WBC, RBC & Platelet)

02
Blood smear application integration to report for RBC, WBC, and Platelets

03
PC counting application to facilitate the development of AI-ML algorithm, imaging subsystem

04
Implementation of the moto control processor using embedded software programming and perform software verification & validation

Client & Industry

A leading medical device company based in India

Expertise

The project team has a wide range of expertise in the areas of embedded systems, mechanical engineering, machine vision, and software development. The team was able to leverage this expertise to design and develop a system that was both accurate and affordable.

Solution Approach

- Inhouse PCB Board design and development

- Mechanical design & analysis of the complete product enclosure, movement of 3-axis using Arduino controller, new metallic precision stage design using 40x objective

- Embedded C and Python for AI-ML algorithm development

Benefits Delivered

The blood sample analyzer developed by Motherson Technology services has the potential to revolutionize blood sample analysis. It is easier to use, and more accurate than traditional blood sample analyzers. This makes it a valuable tool for providing blood sample analysis in remote and resource-limited settings.
The team of researchers is currently working to improve the accuracy and functionality of the analyzer. Once the analyzer is ready for manufacturing, Motherson Technology will take up the production process at one of its sites. With further development, the blood sample analyzer has the potential to make blood sample analysis more accessible and affordable to people all over the world.

Proud to be part of.