# Spot Picker Robot for Proteomics Applications

In discovering new proteins for developing biomarkers for new diagnostic tests

Proteomics is a well established subject in medical science, which focuses on the library of proteins specific to a given bio-system, the proteome, and understanding of relationships therein. Analysis of 2D gel electrophoresis (2DGE), by imaging and unequivocally identifying the various protein spots is the most important and challenging step in proteomics. The spot picker robot can be seen as an essential tool in proteomics. It accurately locates and identifies the protein spots from 2D gels and picks and transfers the proteins for further analysis, thus enhancing data quality and reliability in the field of proteomics. The application of this robot has helped in discovering new proteins to develop biomarkers for new diagnostic tests. It provides the necessary automation for high throughput analysis. The spot picker robot features non-separable wavelet based novel imaging algorithms, enhanced illumination for detection of faint, irregular and overexposed protein spots in a nonlinear background and a high performance solenoid controlled surgical grade protein spot excision tool.

This robotic system is being developed as low cost substitutes for higher cost imported system and it demonstrates state-of-the-art technology in precise positioning and powerful imaging algorithm in the field of proteomics. The system is installed at RMC, Parel and is under clinical use. The technology has been transferred to a private firm for commercialization in February 2021.
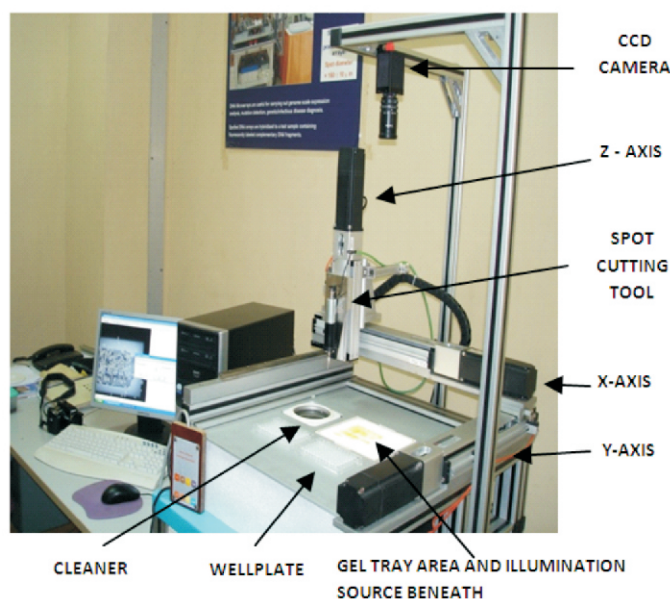
Spot Picker Robot

Protein Spot Cutting Tool

2DGE Image Analysis

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