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(51) International classification	:G01N 33/49, A61B 5/15, A61B 5/157, G01N 35/00, A61B 5/145	(71)Name of Applicant : <b>1)Chitkara University</b> Address of Applicant :Chandigarh-Patiala National Highway, Village Jhansla, Rajpura, Punjab - 140401, India. Rajpura Punjab India
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(57) Abstract :

An automated blood gas analysis and integrated clinical monitoring system, comprising a blood collection unit 101, a biodegradable eco-cartridge 102 for collecting arterial or venous blood samples from a patient, an identification 103 to automatically seal, label the collected sample, and prepare the sample for automated handling, a robotic gripping means 104 to transfer the collected blood sample to a housing 105 and prepare the sample by performing mixing, temperature conditioning, and selective separation of plasma or whole blood depending on analysis requirements, a core blood gas analyser 106 to detect physiological parameters including pH, partial pressure of carbon dioxide (pCO<sub>2</sub>), partial pressure of oxygen (pO<sub>2</sub>), bicarbonate (HCO<sub>3</sub><sup>-</sup>), electrolytes including sodium (Na<sup>+</sup>), potassium (K<sup>+</sup>), and calcium (Ca<sup>2+</sup>), along with lactate and glucose levels, and an embedded processing module to process multi-parameter physiological data to generate predictive clinical insights, identify abnormal physiological trends.

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