

IoT-Based Blood Group Detection System using Microfluidic Sensors and Embedded Processing

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Abstract

Conventional blood detection methods are characterized by the low speed in testing, low sensitivity and specificity for the analyses of samples to be tested; more importantly it takes pollution from potential laborious work because of manual operation, and high risk of contamination, resulting in unreliable and unscalable detection method which falls short at medico-legal level. This work aim offers rapid point-of-care diagnostics, automation, and advanced devices with the greatest potential for sensor technologies that present effective portable testing real-time monitoring to overcome this limitations as it provides a more reliable and faster as standardized detection using an efficient inexpensive technique. Enhancement protocols such sample collection are helpful not only to reduce contamination but also for re-productibility, predominantly in a clinical setting. This proposed method is a IoT-based blood group detection biomarker chip that without employing chemical reagents. It includes a microfluidic system by a code in the microcontroller for antigens A, B detects blood properties also interpreted LCD within seconds. Thus, this as well as Rh factors. The identified blood group is shown on an in an emergency setting, device allows for rapid and portable blood group typing in an emergency setting.

Keywords

IoT-Based Blood Group Detection, Microfluidic Biosensor, Electrical Cell, Embedded System.

