

(12) PATENT APPLICATION PUBLICATION

(21) Application No.202611029203 A

(19) INDIA

(22) Date of filing of Application :11/03/2026

(43) Publication Date : 08/05/2026

(54) Title of the invention : WEARABLE QUANTUM-ENABLED METABOLIC MONITORING DEVICE

(51) International classification	:A61B 5/00, A61B 5/1455, G01R 33/032, A61B 5/01, 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 (72)Name of Inventor : <b>1)Dr. Raj Gaurang Tiwari</b> <b>2)Saarvi Tiwari</b> <b>3)Akshat Tiwari</b>
(31) Priority Document No	:NA	
(32) Priority Date	:NA	
(33) Name of priority country	:NA	
(86) International Application No	:	
Filing Date	:01/01/1900	
(87) International Publication No	: NA	
(61) Patent of Addition to Application Number	:NA	
Filing Date	:NA	
(62) Divisional to Application Number	:NA	
Filing Date	:NA	

(57) Abstract :

A wearable quantum-enabled metabolic monitoring device, comprising a flexible wearable body 101 to be removably mounted over a user's skin surface, a quantum sensing array 102 to generate quantum superposition states responsive to local magnetic fields produced by nuclear spins of metabolites present within the user's body, one or more laser sources 103 and photodetectors 104 to excite the NV centers and measure fluorescence intensity variations corresponding to phase shifts induced by metabolite-specific magnetic field interactions, a quantum thermometers 105 to maintain operating temperature within a predefined tolerance range to preserve quantum coherence of the NV centers, a hybrid processing unit 106 to separate overlapping metabolite signals, perform pattern recognition, and classify metabolic states of the user, and a display module 107, a haptic feedback module 108, and a communication module to present real-time metabolic status information and personalized feedback to the user.

No. of Pages : 23 No. of Claims : 10