

(12) PATENT APPLICATION PUBLICATION

(21) Application No.202511095607 A

(19) INDIA

(22) Date of filing of Application :05/10/2025

(43) Publication Date : 05/12/2025

(54) Title of the invention : A DEVICE FOR LOW-POWER EDGE COMPUTING IN COMMUNICATION MODULES

(51) International classification	:B60W0050000000, B60W0030140000, G06F0003060000, H02J0007350000, H04W0052020000	(71) Name of Applicant : 1)NOIDA INSTITUTE OF ENGINEERING & TECHNOLOGY Address of Applicant :19, Knowledge Park-II, Institutional Area, Greater Noida – 201306, Uttar Pradesh, India. Uttar Pradesh India
(31) Priority Document No	:NA	(72) Name of Inventor :
(32) Priority Date	:NA	1)Dr. PAVAN KUMAR SHUKLA
(33) Name of priority country	:NA	2)KANIKA JINDAL
(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 :

The invention discloses a device for low-power edge computing in communication modules comprising an energy-aware processing unit (101), adaptive energy management subsystem (102), communication interface (103), memory unit (104), and sensor integration module (105). The system enables real-time, energy-efficient data processing through task prioritization and adaptive power control. Incorporating hybrid memory, compression-based communication, and renewable energy harvesting, the invention achieves improved latency, reliability, and sustainability for diverse communication applications such as IoT, 5G, and smart city infrastructures.

No. of Pages : 15 No. of Claims : 6