(12) PATENT APPLICATION PUBLICATION

(19) INDIA

(22) Date of filing of Application :03/07/2025

(21) Application No.202511063738 A

(43) Publication Date : 18/07/2025

(54) Title of the invention : A SECURE KERNEL-LEVEL DEBUGGING DEVICE WITH ROOT ACCESS RESTRICTION

(51) International classification	:G06F0021570000, H04L0009060000, G06F0021530000, G06F0012140000, G06F0021510000
(86) International Application No Filing Date	:NA :NA
(87) International Publication No	: NA
(61) Patent of Addition to Application Number Filing Date	:NA :NA
(62) Divisional to Application Number Filing Date	:NA :NA

(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. ---------- ----------
Name of Applicant : NA
Address of Applicant : NA
(72)**Name of Inventor :**
1)SOVERS SINGH BISHT
Address of Applicant :Department of Computer Science & Engineering (DS), Noida Institute of Engineering & Technology, Greater Noida. Greater Noida ---------- ----------

(57) Abstract :
The present invention discloses a secure kernel-level debugging device (100) that includes a cryptographic session validation unit (102), a root access restriction unit (108), and a dynamic filter module (106). It restricts kernel-level debugging access even from root users, enabling safe diagnostics without compromising system integrity. The system also comprises a secure memory mapping interface (112) and session logger (110) to ensure traceability. The invention ensures authorized and auditable kernel debugging with minimal overhead, applicable across operating systems and embedded platforms.

No. of Pages : 14 No. of Claims : 5