(12) PATENT APPLICATION PUBLICATION

(19) INDIA

(22) Date of filing of Application :18/07/2025

(21) Application No.202511068548 A

(43) Publication Date : 08/08/2025

(54) Title of the invention : AN AI-ENABLED DIGITAL CAVENDISH BALANCE FOR GRAVITATIONAL CONSTANT MEASUREMENT

(51) International classification	:G01V0007100000, B66C0013460000, B25J0009000000, B66C0013400000, F03G0007100000
(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)Dr. ANURAG TYAGI
Address of Applicant :Department of Physics, Noida Institute of Engineering & Technology, Greater Noida. Greater Noida ---------- ----------

(57) Abstract :
The present invention relates to an AI-enabled digital Cavendish balance (100) for precise measurement of the gravitational constant. It comprises a torsion bar (101) suspended by a wire (102), test masses (103), and movable source masses (106). Angular displacement is tracked using a rotary encoder (104) and laser interferometer (105). An AI module (108) processes real-time data, compensates for environmental disturbances via sensors (112), and displays results through an interface (110), offering high accuracy, automation, and repeatability in gravitational experiments.

No. of Pages : 13 No. of Claims : 5