

(12) PATENT APPLICATION PUBLICATION

(21) Application No.202511068988 A

(19) INDIA

(22) Date of filing of Application :19/07/2025

(43) Publication Date : 08/08/2025

(54) Title of the invention : AN INTERACTIVE TOPOLOGICAL SURFACE MODEL WITH TRANSFORMABLE MANIFOLDS

(51) International classification :G09B0023020000, G06F0001260000, A63B0071060000, G09B0005020000, G09B0023180000

(86) International Application No :NA
Filing Date :NA

(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

(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)NIDHI SHARMA

Address of Applicant :Department of Electronics and Communication Engineering, Noida Institute of Engineering & Technology, Greater Noida. Greater Noida -----

(57) Abstract :

An interactive topological surface model (100) includes transformable manifolds (110), sensor arrays (120), and a microcontroller (130) to visualize real-time deformation data. Modular connectors (140) allow transformation into various topological forms, while a mobile interface (150) displays dynamic configurations. The invention supports tactile, visual, and digital learning, enabling physical understanding of non-orientable and orientable surfaces. It enhances mathematical learning through multisensory engagement and flexible reconfiguration, bridging theoretical topology with practical demonstration and real-time computational feedback.

No. of Pages : 16 No. of Claims : 5