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(57) Abstract :  
 The present invention discloses a modular arithmetic manipulative device comprising a base frame (101), numeric dials (102), base indicators (103), a microcontroller (105), and conversion display modules (104, 106). The system enables real-time conversion between number systems through tactile inputs and visual outputs. Base-specific caps (103) regulate digit inputs to enforce modular arithmetic rules, while rotary encoders provide digit selection. The device enhances mathematical learning and supports binary, octal, decimal, and hexadecimal conversion tasks through physical interaction.

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