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Innovative Modern Surveying Instrument

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Abstract: *This paper presents the development and implementation of a novel readable surveying staff with a 2 mm least count, designed to improve precision and usability in various fields such as surveying, civil engineering, and construction. Conventional staffs typically have a least count of 5 mm, limiting the accuracy of measurements in projects that require high precision. This new design offers a significant improvement in accuracy, making it ideal for applications requiring fine measurements, such as geodetic surveys, precision construction, and long-term structural monitoring.*

The design of the staff includes meter reading on one face and centimetre reading on another face for enhanced flexibility and user convenience. This dual marking system allows surveyors to take readings from both sides, thereby improving the workflow. Additionally, It has a base plate which provides stability to the staff. The methodology involves designing, prototyping, and testing the staff to ensure optimal accuracy, readability, and durability. By reducing the need for interpolation and minimizing human error, the staff enhances efficiency and reduces rework in field operations. Key benefits include faster workflows, reduced measurement errors, improved project accuracy, and increased competitiveness in high-precision industries..

Keywords: Precise levelling staff, base plate, improved project accuracy