ABSTRACT

The development of environmental research waters in Indonesia requires an efficient sediment core scanner for various field conditions. Existing tools such as the Multi-Sensor Core Logger (MSCL) have limitations, such as large size, high cost, and low mobility. This study designs an adjustable core base position feature on the sediment core scanner (Sediment Track-PS 1) as a solution that can accommodate various sample sizes and weights, as well as support macro and micro imaging using a smartphone camera. This system allows for precise adjustment of the sample holder position. The research method used is a Mixed Method, combining qualitative and quantitative approaches. The qualitative approach was conducted through literature reviews, observations, interviews with BRIN researchers, and documentation. The quantitative approach involved operational analysis of each iteration and validation of functional and design aspects with users. The design process includes problem identification, needs analysis, concept design, four prototype iterations, and user validation on the final prototype. The design outcomes are expected to provide a flexible, affordable, and research-appropriate alternative for domestic sediment scanning tools.

Keywords*: Sediment core scanner, Adjustable, Core base, Mix Method*