**ABSTRACT**

For milk quality analysis, several contaminants like water, whey, and urea are utilized, along with some other dangerous equipment. Although these instruments are precise, they are difficult to use in the field, expensive, and need time-consuming expert processes to obtain a reading. The literature includes reports on portable sensors-based instruments that study direct/indirect transduction events. For detecting milk contaminants, 1 conductive sensor with selective sensing films are most frequently utilized, however these sensors need calibration and exhibit drift over time. A simple functional detecting system that is quick, accurate, sensitive, and cost-effective is required. In this paper, an accurate and straightforward functioning prototype model of an across-conductance sensor for milk is presented together with its theory. In order to determine the portability of milk, machine learning is implemented by using algorithm.

**KEYWORDS**: AC Cross Conductance Sensor, Adulteration, Milk, Response characteristics, Algorithms.