Patent Search

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Abstract:

SYSTEM FOR REALTIME MILK ADULTERATION DETECTION ABSTRACT A system (100) for realtime milk adulteration detection is disclosed. The system (100) comprises a identifier tag (102) to extrapolate details of a milk bearing animal and a spectroscopy sensor (104) to acquire near infrared spectral data from a milk sample. A proces (106) communicatively connected to the spectroscopy sensor (104). The system (100) is configured to receive the acquired near infrared spectral data from the milk sa remove noise and normalize intensity variations in the acquired spectral data; execute a multioutput regression model to estimate milk composition parameters from preprocessed spectral data; deploy an artificial intelligence based classification model to detect the presence of adulterants in the milk sample; generate a digital reco the digital record to a machine-readable quick response code. The system (100) is handy, portable, and ready to use. Claims: 10, Figures: 6 Figure 1 is selected.

Complete Specification

Description:BACKGROUND

Field of Invention

[001] Embodiments of the present invention generally relate to a milk tester and particularly to a system for realtime milk adulteration detection.

Description of Related Art

[002] Milk quality varies due to factors such as animal health, feed conditions, seasonal shifts, and supply chain handling. Adulterants such as water, urea, starch detergent enter the milk supply for cost escalation or volume gain. This creates a major health concern for consumers and reduces trust across the dairy supply net Farmers and small vendors face difficulty in assuring purity because immediate composition verification at the point of collection remains limited or unavailable. Conventional milk quality evaluation usually relies on laboratory instruments such as Fourier Transform Infrared analyzers, ultrasonic analyzers, and chemical reage based procedures. These methods estimate key nutritional parameters and detect common adulterants. However, these systems generally operate at centralized c centers or laboratory environments. They follow fixed calibration curves and depend on stable conditions and trained personnel.

[003] Such existing arrangements do not allow cow wise or batchwise evaluation at a farm level, and do not support realtime decision capability. The delay betwe sample collection and result availability leads to uncertainty in pricing, quality assurance, and traceability. High equipment cost, lack of portability, and absence of transparent data access further limit adoption in rural dairy networks.

[004] There is thus a need for an improved and advanced system for realtime milk adulteration detection that can administer the aforementioned limitations in efficient manner

View Application Status

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