

(12) PATENT APPLICATION PUBLICATION

(21) Application No.202311062546 A

(19) INDIA

(22) Date of filing of Application :18/09/2023

(43) Publication Date : 13/10/2023

(54) Title of the invention : PORTABLE SUBSTANCE ANALYSIS USING COMPUTER VISION, SPECTROSCOPY, AND ARTIFICIAL INTELLIGENCE

(51) International classification :G06N0020000000, G06F0003048200, G01J0003020000, G01N0021250000, G16H0050200000  
(86) International Application No :NA  
Filing Date :NA  
(87) International Publication No : NA  
(61) Patent of Addition to Application Number :NA  
Filing Date :NA  
(62) Divisional to Application Number :NA  
Filing Date :NA

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(57) Abstract :

The portable substance analysis device (100) presents a comprehensive solution, comprising a high-resolution camera (102) for capturing intricate substance images, a spectrometer (104) adept at measuring spectral signatures through the analysis of reflected or transmitted light, and an adjustable light source (106) capable of emitting tailored wavelengths to optimize spectroscopic analysis conditions. The processing unit (108) harnesses advanced techniques to extract meaningful attributes from captured images, facilitating visual analysis by identifying features like color, texture, or shape. Facilitating accurate substance identification, the device employs both machine learning (114) and AI algorithms (112), ensuring precise classification of unknown samples. With a user-friendly interface (116) fostering intuitive interactions, streamlined analysis initiation, and visualized outcomes.

No. of Pages : 26 No. of Claims : 10