Optical Multiparameter Platform for the Quality Monitoring of Liquids

Background and challenges

Laboratory Measurement
- Sample retrieval
- High equipment cost
- Time consuming

Real time monitoring
- Cheap implementation price
- Wiring avoidance
- Scalable
- Information centralized

Low-cost optical platform to quantify the quality of liquids
- Remote
- Simultaneously Real time Measurement
- Turbidity
- Refractive Index
- Color

Description and main innovation

Sensor development and characterization

Turbidity and color sensing prototype

Optical components and subsystems

Laboratory Measurement ➔ Real time monitoring

Turbidity Measurement

Color Measurement

Remote & Real-time measurements

Sensor development and characterization

Turbidity and color sensing prototype

Refractive Index Sensing Prototype

Data fusion algorithm implementation

Achievements

Remote & Real-time measurements

Turbidity Measurement

Color Measurement

Data fusion algorithm implementation

Trained regressions and sensor accuracy

Input data ➔ Color estimation ➔ 8-dimensional turbidity values ➔ Weighed arithmetic mean and fuzzy logic rules

Convergence ➔ New expected turbidity

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