WiSys Ref: T150032

Field Portable Smartphone Device for Water Quality Monitoring

Market and Background

Globally, the water testing and analysis market was valued at approximately USD 3.2 billion in 2017 and is expected to generate revenue of around USD 4.5 billion by the end of 2024. Growth is driven by trends such as increasing government regulations for water quality, environmental concerns, and increasing industrialization and urbanization.

Water quality monitoring is often done by scientists at universities or government agencies who either collect samples in the field and transport them to stationary laboratories for analysis or install expensive in-situ sensors for data collection. The long processing time and high cost of these options may serve as barriers to broader application of water quality monitoring, which could address issues with regard to recreation, agriculture, commercial fishing, and more.

Research and Development Status

A University of Wisconsin-Green Bay professor of chemistry has developed a portable, accurate, low cost, smartphone-based analytical device for the field-measurement and geographical mapping of environmentally relevant water quality parameters. The prototype is a colorimeter that includes a visible light source with onboard power, imaging filters, a sample cuvette, and a mounting mechanism for attachment to a smartphone or tablet. An accompanying app is used to record camera images of samples and convert them to numerical absorbance data for analysis.

A preliminary fluorescence experiment has also been conducted. Continued development for measuring fluorescence and turbidity and further app refinement is underway.

Applications

- Water quality monitoring in the field
- Academic research and education – university, high school, middle school
- Industrial wastewater process monitoring
- Beverage industry and healthcare

Key Benefits

- Simple design
- Low additional cost – target price of less than $100
- Compatible with a broad range of smartphones and tablets – uses their high-quality cameras
- GPS mapping capability

Intellectual Property

A U.S. patent has been issued (#10,627,342) for this technology. For more information, please contact our licensing team at licensing@wisys.org.

Development and Commercialization Needs

WiSys is seeking strategic partners interested in further developing this portable water quality measuring technology for application-specific or broader based commercialization.