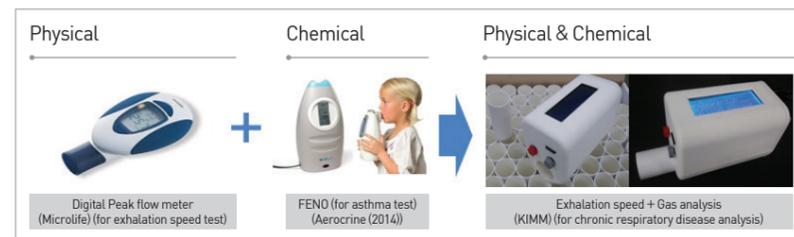


Exhaled Breath Analysis for Chronic Respiratory Disease

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⇒ A single breath analysis technology to analyze the maximum exhalation speed and the concentration of bio gases in the breath at the same time to observe the physical, chemical conditions of the respiratory system for monitoring of asthma and COPD patients



Client / Market

- Bio diagnostic device/in-vitro diagnostic device company
- Medical device manufacturer/seller
- Sensor manufacturer
- Environment monitoring, bio-applied company

Necessity of this Technology

- Difficult to accurately monitor various chronic respiratory diseases with separately conducted maximum exhalation speed test or gas analysis
- Difficult to analyze the gas from the fast flow speed during the maximum exhalation speed test, and difficult to recognize a disease and the progress of a disease using a single gas detection
- Need a correction algorithm using a multi sensor to analyze the gas in the fast flow speed
- Previous technology-based devices and global medical devices are usually expensive

Technical Differentiation

- Can conduct both the maximum exhalation speed and expired gas analysis with a single breath
- Can analyze maximum exhalation speed using single pressure sensor-based system in the inlet-outlet cylinder
- Can analyze the maximum speed, breathing capacity, and expired gases without a pump and filter
- Cheap point-of-care breath analysis system for monitoring chronic respiratory disease that enables application of commercial environmental sensors into a medical device
- Applies a complex correction algorithm that uses a multi sensor to correct the environmental factor and the mixed gas factor
- Developed as a mobile, point-of-care small medical device

DESIRED PARTNERSHIP

Technology Transfer

Licensing

Joint Research

Other

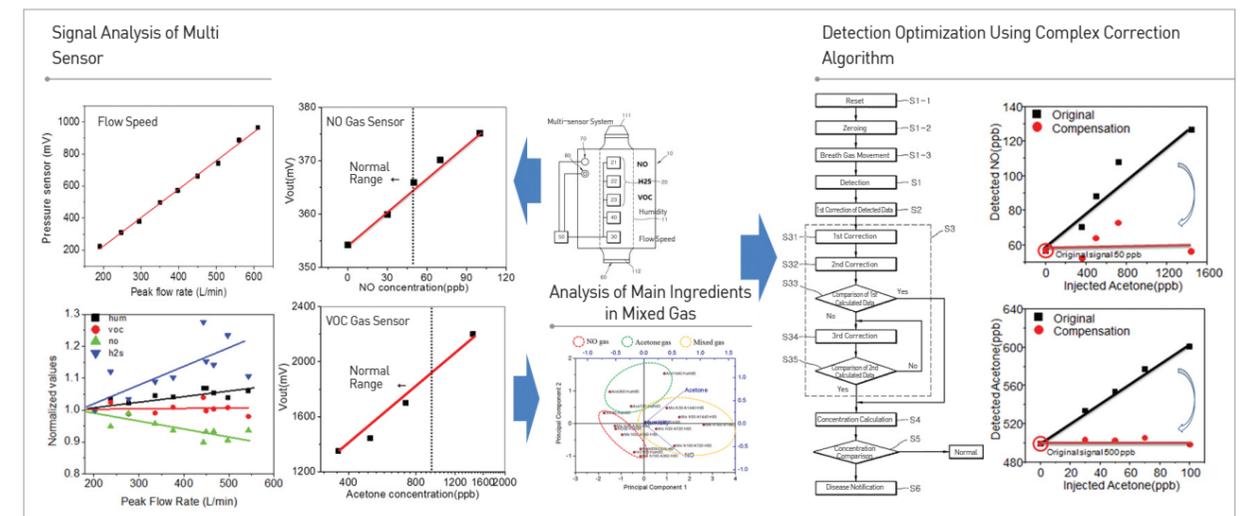


TECHNOLOGY READINESS LEVEL [TRL]



Excellence of Technology

- Can conduct the maximum exhalation speed and expired gas analysis with a single breath
- Can analyze the maximum exhalation speed and the gas in it (Maximum peak flow rate between 150 and 700 L/min, FENO 20 ppb speed, VOC (acetone) 400 ppb speed, injection within 20 sec/measurement within 5 min)
- Optimized detection using a multi sensor and a complex correction algorithm
- Developed as a simple, cheap small point-of-care medical device that does not require sample injection pump or a humidity filter



Current Intellectual Property Right Status

PATENT

- Apparatus and Method for analyzing Breath Gases Using Multi-sensor (KR1817752)
- Analysis Method of Single Breath and Analysis Device of Single Breath (KR2016-015996)
- Analysis Method of Single Breath and Analysis Device of Single Breath (PCT/KR2017/012950)

KNOW-HOW

- Multi gas sensor fabrication, signal measurement technology
- Multi gas sensor assessment technology
- Gas collection, concentration, separation technology
- Multi sensor signal analysis and measurement algorithm technology
- Small medical device design and fabrication technology