WHITE PAPER

Integrated Biometric Mask for Pre-Symptomatic Detection of Viruses and Other Diseases

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SYSTEM COMPONENTS

- Reusable Mask-sensor Device
- Replaceable Filtration System
- Integrated Biometric Sensors
- Artificial Intelligence of Things (AIoT), Edge Computing
- Mobile Notifications Software
- Real-time Analytics
- Cognitive Processing
- Secure Internet of Things (IoT) Cloud Platform

BIOMETRIC DETECTION

- Breathing patterns
- Blood oxygen saturation levels
- Body temperature
- Proximity measurement
- Heartrate
- Biofluid measurement
- Pathogenesis identification
- Audible symptoms
- Infectious virus detection

...And more

EMERGENCY DEPARTMENT

OVER 139.0M EMERGENCY DEPARTMENT VISITS

- Number of injury-related visits: 40.0 million
- Number of emergency department visits resulting in hospital admission: 14.5 million
- Percent of visits with patient seen in greater than 15 minutes: 59.6%
- Percent of visits resulting in hospital admission: 10.4%

BIOMETRIC MASK SYSTEM

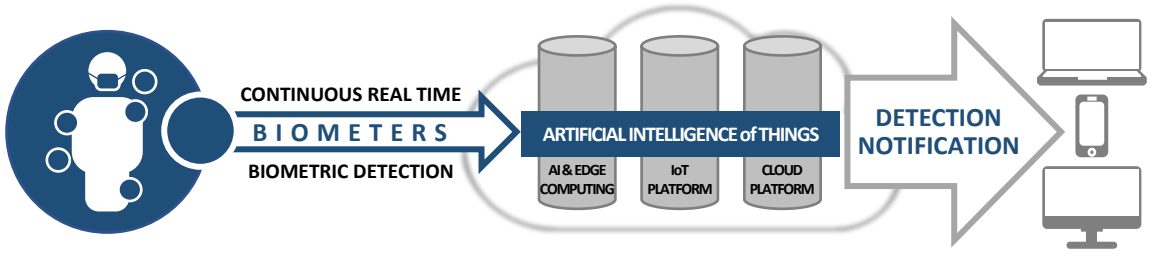
- ✓ Continuous pre-symptomatic detection
- ✓ Personal protection
- ✓ Health insights
- ✓ Notification of health events

AN INNOVATION BREAKTHROUGH

The system includes a reusable mask-sensor system that simultaneously provides pre-symptomatic detection and personal protection, monitoring and notifications in both symptomatic and asymptomatic individuals. The continuous biometric detection uses biometric data and logical algorithms to provide near real-time insight. The integrated mask can be sterilized and reused. The system also includes a replaceable module, compliant with CDC standards.

PATENT PENDING INTEGRATED SYSTEM

The integrated mask system performs biometric data collection to establish the basis for functionality of the device and greater understanding of diseases - including viruses - in symptomatic and asymptomatic carriers. Output is translated in preparation of additional diagnostics in determining the next level of care required. In addition to pre-symptomatic detection, this integrated mask system's wireless capability will provide contactless pre-triage and patient insights while simultaneously protecting front-line health care providers, saving time and potentially, saving lives.



THREE WAYS ARTIFICIAL INTELLIGENCE OF THINGS (AIOT) WILL CHANGE HEALTH CARE

"AIoT is faster, less expensive, and more accurate... AI and IoT will be an accelerant - not a threat - to health professionals".

FASTER DETECTION | Real-time continuous biometric monitoring can provide early detection of critical health conditions. Early detection of symptoms - even pre-symptoms - followed by prompt response can mitigate or eliminate health condition escalation, including spread of viruses such as SARS CoV-2 or those likely encountered in the future. The biometric data collection is based on epidemiologic, virologic and other biometers that are present in viruses and diseases of both asymptomatic and pre-symptomatic carriers. Biometric data reflecting respiration/airflow, heart rate, body temperature, blood oxygen saturation, biofluid measurement and audible meters will be collected and evaluated.

LESS EXPENSIVE TRIAGE | The biometric mask system facilitates contactless pre-triage based on patient biometers. ER patients awaiting triage exhibiting severe symptoms such as shortness of breath, irregular heart rate and other pronounced life-threatening symptoms typically receive priority care. The biometric mask system would detect less obvious symptoms, precursors to potentially catastrophic or life-threatening events and proactively notify healthcare staff of symptom severity. This solution would streamline the assignment of patients to appropriate care in addition to minimizing the workload of overstretched healthcare personnel and infrastructure, especially common in emergency departments.

MORE ACCURATE SYMPTOM DETECTION | Biomarkers in the composition biofluids such as sweat, can detect a number diseases such as cystic fibrosis, due to the loss of sodium. Biomarkers in sweat can be used to identify symptomatic trends of viruses and other diseases that affect electrolytes such as potassium and sodium and metabolites like glucose.

USING A HIGHLY SECURE IOT CLOUD COMPUTING PLATFORM | Ensures the wearer's personal data is protected and only provided to those with authorized permissions. The biometric data is processed from the integrated mask-sensor "At the Edge". This means that this data is processed real-time in close proximity to the data source for maximum efficiency. This technology is processed on a secured cloud-based IOT platform to eliminate security risk associated with wearable sensor technology.