Managing Respiratory Disease with Wearable Devices

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**ABSTRACT**

- Small, inexpensive microprocessors and sensors enable wearable devices
- Provide patients and physicians with real-time environmental and physiological data
- Data fusion enables improved assessment and disease management

**MOTIVATION**

Respiratory Diseases
- Asthma
- Chronic obstructive pulmonary disease (COPD)
- Chronic Bronchitis
Stressors
- Allergens - i.e. pollen
- Irritants - i.e. cigarettes
Who is affected worldwide?
- over 235 million people
- over 3 million deaths

**PROBLEM STATEMENT**

AirCare Preventative Measure
- Map showing real-time data on air quality
- Data gathered from public with wearables
- Info access from app

**METHODS: SENSOR PROTOTYPE**

Environmental Sensors: Initial Prototype
- Temperature sensor
- Ozone Sensor
- Microprocessor
- Dust sensor

**METHODS: EXPERIMENTAL SETUP**

Comparison of our sensors and commercial sensor: Overnight Run

**INITIAL RESULTS**

Comparison of our sensors and commercial sensor: Overnight Run

- Devices read similar values of ozone consistently

**REFERENCES**

Blain Christen, Jennifer. (June 8, 2017). Particulate matter (PM10 and PM2.5).

Sensor Signal and Information Processing Center
http://sensip.asu.edu

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