

# Free Flo2: Creating a smart oxygen delivery system to match patient needs

Patients currently regulate their oxygen based on their perceived need or by spot checking their SpO2. However, this can be dangerous as hypoxia can occur without warning or noticeable symptoms. Current SpO2 monitors are bulky and interfere with everyday activities, and oxygen delivery systems are often difficult for patients to control.

The Free Flo2 is a fully integrated system consisting of a continuously monitoring nasal SpO2 sensor, which feeds data into the control loop to adjust the flow controller. This enables delivery of the correct amount of oxygen to the patient at all times.



## Competitors have tried to solve the problem, but none today come close:

**Sensor** the current standard SpO2 sensor is bulky and impedes on the users daily functions. In addition to gain accurate data the user must keep the device motionless, which makes continual use near impossible.

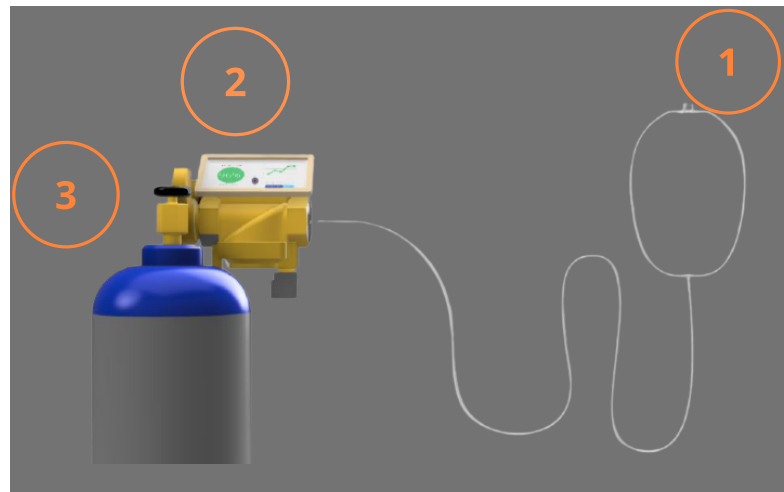
**Control Loop and Flow Controller** there is not yet a commercially available system that takes SpO2 data and outputs the needed flow rate to a self adjusting flow controller. The available system today can only monitor, but none have the power to actually control the flow rate.

**Cost** the current cost of oxygen delivery devices are extremely costly ranging from \$500-\$3000 and even with Medicare coverage patients are still paying 20% of the cost

Dedicated group of Johns Hopkins biomedical students, clinicians, and engineers

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Our device allows patients to directly match their oxygen levels based on daily activity, preventing hypoxic episodes and further organ damage. Through three essential design features, FreeFlo2 will **revamp** current supplemental oxygen care.

### 1 Sensor Array

The sensor array will integrate into standard LTOT equipment and in live time, measure a patient's SpO2, heart rate, and activity level.

### 2 Data Processing

Data from the sensors will be stored and processed for patients and their clinicians to understand prescription effectiveness.

### 3 Automatic Titration

Patient data will be used to deliver the precise oxygen flow to match their current state, preventing hypoxia and ensuring efficient use of oxygen.

Interested? Contact Evan Bender

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