OXYGEN CONSERVING DEVICE

(Theme: Control & Embedded Systems)

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ABSTRACT

Subsidiary oxygen is usually given to awake, sedated patients so as to decrease the depth of oxygen desaturation caused by periods of respiratory depression and airway obstruction. Oxygen delivered during patient exhalation is usually vented to the air and wasted, providing a chance for oxygen conservation by shutting the flow when the patient is exhaling. This oxygen may be conserved by closing the valve of oxygen supply during exhalation and opening it during inhalation. By implementing this, we will overcome the oxygen demand. Here we describe an easy, open source, manufacturable oxygen conservation device to be used with dual-port nasal cannula that can extend the lifetime of current oxygen supply by almost two to three times, which we hope will help towards coping with the ongoing crisis like covid-19. Additional features can also be built on top of the current implementation. Examples include logging of respiratory rate and other respiratory parameters, Bluetooth interface for easy accessing and flow meter to measure the amount of oxygen consumption. Oxygen delivered during patient exhalation is usually vented to the atmospheric air and wasted, providing a chance for oxygen conservation by shutting the flow when the patient is exhaling. Thus, we are able to overcome the oxygen demand.

Keywords: Partial pressure, Oxygen demand, Differential pressure sensor