Title: Oxygen Conserving device

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KEYWORDS: Oxygen conserve, microcontroller, Solenoid Valve, Oxygen therapy
DOMAIN: Electronics

SUMMARY:

The technology is a plug-and-play device that can be integrated into the existing oxygen delivery systems to minimize oxygen during long-term oxygen therapy. It is done by synchronizing the oxygen supply with the patient's breathing pattern. The device significantly enhances the efficiency of oxygen delivery, ensuring oxygen is supplied precisely when needed. This compact device features a sensor that detects breathing patterns and signals the microcontroller to regulate oxygen flow from the source. An indicator provides visual signals to medical professionals or patients, ensuring effective monitoring. Its efficient design and ability to conserve oxygen enhance patient comfort, making it an ideal solution for oxygen therapy. It is easy to operate in diverse healthcare settings.

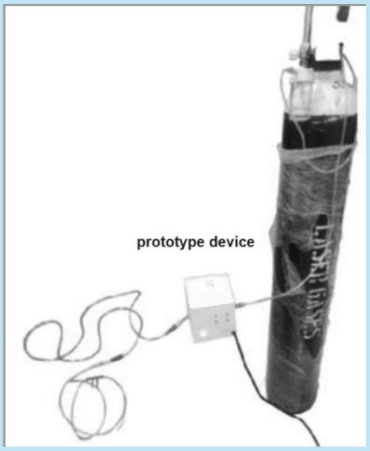

Figure A: Integration of the device with oxygen cylinder

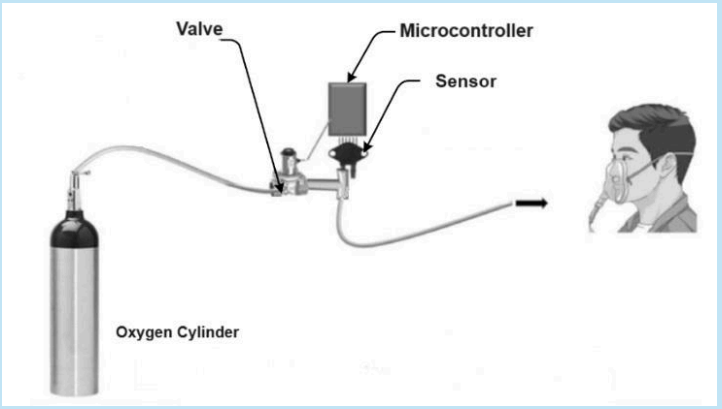

Figure B: Schematic drawing of the device and its component integrated to oxygen cylinder

ADVANTAGES:

1. Minimizes oxygen wastage during exhalation or periods of non-inhalation.
2. Compatible with various oxygen source devices and delivering tools.
3. Reduces medical costs associated with frequent oxygen cylinder refills.
4. Customizable to meet different patient needs, respiratory conditions, and prescribed oxygen flow rates.

APPLICATION: The device can be incorporated into current oxygen delivery setups to save oxygen and provide organized regulation.

SCALE OF DEVELOPMENT: A functional prototype is integrated with an oxygen cylinder and tested lab scale.

TECHNOLOGY READINESS LEVEL: TRL 4

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