Biomedical Engineering

VCU TechTransfer and Ventures
Office of the Vice President for Research and Innovation

Continuity Sensor for Use in Critical Lines and Drains

Detects potentially life-threatening events

Current methods for securing medical tubes with bands can lead to accidental breakage at the connection point, causing premature disconnections. Disconnects can be silent and unnoticed, even with frequent manual checks by nurses. Traditional methods often lack alarms, and undetected dislodgement can trigger life-threatening situations.

Virginia Commonwealth University researchers have developed a simple, inexpensive sensor that attaches to these tubes. The sensor can detect if a tube is disconnected or partially removed and then alerts medical staff immediately with an alarm or message via Bluetooth, Wi-Fi, or patient monitors. Patients and clinical staff will benefit from the sensor's detection of disconnection or partial removal of critical medical lines, reducing response time, improving patient safety, and preventing potentially fatal incidents.

The Technology

The sensor utilizes a circuit design with two key components attached to the medical tube and its collection system. When properly connected, these components create a closed circuit. A small, internal power source continuously monitors the circuit's integrity. If a disconnection or partial removal disrupts the circuit, the sensor triggers an immediate warning signal. This signal can be an audible alarm or a digital notification sent wirelessly through compatible systems. The design offers flexibility, allowing for a simple and cost-effective version or one with remote notification capabilities.

Benefits

- Increased patient safety
- Continuous monitoring
- Timely notifications
- Enhanced patient care

Applications

- Chest tubes
- IV Lines
- Feeding Tubes
- Indwelling drains

Patent Status:

Patent Pending: U.S. and foreign rights are available

License Status:

This technology is available for licensing to industry for further development and commercialization

Category:

Biomedical Engineering

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Contact us about this technology

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