TECHNOLOGY NEED
Anastomotic leaks are a complication of gastrointestinal surgery that occur in approximately 5% of colon or rectal cancer surgeries. They result in catastrophic consequences for the patient, including re-operation, sepsis, critical illness and significant risk of death. Current sensing devices and portable analyzers are attached to the patients at rest and are heavy, too big, and non-implantable, thus restrict the monitoring of patients in motion. Also, existing leak detection methods include evaluating clinical signs and conducting routine blood tests. These methods fail to detect leaks at an early stage, resulting in failure of diagnosis. Therefore, a cost-effective, wireless in vivo monitoring system that can detect a leak immediately and accurately is required to prevent secondary complications, mortality, reduce the need of ileostomy and to increase the quality of life.

INVENTION DESCRIPTION/SOLUTION
A novel portable wireless monitoring system for early detection of anastomotic leaks in a body after gastrointestinal surgery is presented herein. These biosensors are positioned at the target sites to detect and monitor the leaks. The sensing device, upon contact with biochemical agent sends signal to a monitoring device or a transceiver located outside the body immediately. After a pre-selected monitoring time has passed, the biodegradable sensing device can be retrieved or/and left to biodegrade with the patient. These biosensors have improved sensitivity, stability, selectivity and durability. The use of wireless signals allows as the patient to walk around and still have the capability of being monitored. Early detection of anastomotic leaks would allow surgeons to take steps to prevent sepsis and critical illness. It would also reduce the need of temporary ileostomy, increase quality of life and reduce the cost of health service. Thus, this advanced technology is an efficient, cost-effective, convenient and patient friendly leak monitoring system to prevent secondary complications and post-surgery procedures.

APPLICATIONS
- Early detection of anastomotic leaks after gastrointestinal surgery
- Monitoring system to detect leaks at any target sites in a body

KEY BENEFITS
- Wireless Monitoring system which helps in monitoring of patients in motion
- Easily retrievable or/biodegradable sensing device
- Immediate and accurate detection of biochemical agents at target sites
- Low-cost, time-efficient and disposable devices
- Increased sensitivity, stability, selectivity and durability of the device

STAGE OF DEVELOPMENT
Prototype

INTELLECTUAL PROPERTY STATUS
PCT Patent Application

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