

Categorie Premio **Accessibilità** **Sostenibilità** **Qualità della vita**

Product Name BESTTM: Batteryless Endoluminal Sensing Telemeter

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Description of innovation social values

- product category
- formal and functional features
- problems solved by innovation
 - user
 - field of application

- New medical diagnosis system
- Our Batteryless Endoluminal Sensing Telemeter (BEST™) system consisting of batteryless wireless sensor implants and a wearable reader for long-term diagnosis of gastroesophageal diseases such as GERD. Our sensor is based on wireless telemetry without the requirement of a transnasally tethered wire so the patients will feel comfortable with the implants in their esophagus for a long period of time. The innovative sensor does not require batteries so the measurement time is not limited and the implant size is smaller.
- Accurately diagnose acid and nonacid reflux episodes in patients with gastroesophageal diseases in order to treat the diseases with proper methods. This can potentially prevents esophageal cancer.
- 60 million people experienced GERD symptoms and 19 million people have daily symptoms in USA. Globally, 15% of population may have GERD. These patients need to be screened. Our system provides a cost-efficient and comfortable screening method for such a large population.
- Gastroesophageal disease diagnosis in out-patient clinics and hospitals.

Description of technical features

- operations
- technology

- Batteryless wireless telemetry micromachined sensor embedded with RFID (radio frequency identification) communication
- Micromachined sensing electrodes
 - More accurate than pH sensing
 - Identify non-acid (neutral/alkaline) reflux
- Passive wireless telemetry
 - No battery needed
 - Long term measurement
- Biocompatible packaging: no rejection for human body
- Miniaturizatiuon: implant size is small so it is comfortable for patient

Dimensions

Implant: 0.5x1x3 cm³

Materials

Electronics. Fabricated by semiconductor processes.

Certifications

Benefits for environment

Environmentally friendly. Low power body network communication so there is no radio frequency interference and damage. Safe to use for human and animals. Use safe and environmentally safe manufacturing processes.

Benefits for human being

Globally, 15% of adult population may have GERD and screening such a large population becomes an issue. Over the past 25 years, the incidence of esophageal cancer has increased 350%, faster than any other malignancy in the western world. Early detection and treatment can prevent esophageal cancer since GERD is the primary risk factor recognized. Our comfortable, safe, cost-effective, disposable yet accurate screening method addresses this dire need for clinical practice in diagnosis of GERD.