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CAPPA

Innovation Through Light

Upper Gastrointestinal Bleeding (UGIB) Sensor



Irish MedTech Awards 2017 Category Finalist

CAPPA and EnteraSense have been shortlisted as one of three finalists in the category **Academic Contribution to MedTech** for the Irish MedTech Awards 2017. The nominated project is developing a swallowable capsule which is capable of monitoring gastrointestinal bleeding for up to three days, communicating externally via a wireless Bluetooth connection. The technology will eliminate unnecessary endoscopies and speed up diagnosis.

The Problem: Identifying Gastrointestinal Bleeding

Acute gastrointestinal bleeding is a potentially life-threatening abdominal emergency that remains a common cause of hospitalization. Upper gastrointestinal bleeding (UGIB) is defined as bleeding arising from the oesophagus, stomach and duodenum; peptic ulcers are a common cause.

Today, diagnosis is achieved through a combination of clinical factors including patient history, physical examination and lab tests, but a full endoscopic examination is required as a conclusive means of diagnosis. This means that **every patient with a suspected bleed needs to undergo endoscopy**. Endoscopy is not always promptly available, is expensive and invasive.

The EnteraSense Solution

EnteraSense is developing an ingestible capsule and external receiver to identify and monitor UGIB without the need for endoscopy. The capsule contains an optical-based sensor which gathers data from the environment and uses an algorithm to determine if blood is present. This is then transmitted wirelessly to a receiver (e.g. PC, smartphone) for real-time diagnosis. The product addresses UGIB both as in-patient and in triage setting



www.enterasense.com

EnteraSense Limited is a medical device diagnostic company founded in 2015 by Donal Devery, Dr. Chris Thompson and Dr. Marvin Ryou from Brigham and Women's Hospital in the United States. The company is based in Galway, Ireland and has a licensed technology agreement from Brigham and Women's Hospital/Harvard Medical School which enables the company to develop devices for diagnosing and monitoring Upper Gastric Bleeds.

CAPPA has assisted EnteraSense with:

- Improving signal detection of the sensor
- Developing a simplified system for prototype design => working demonstrator
- Optimising component layout for efficiency and minimum footprint
- Teaming with the TEC Gateway (also at CIT) to develop the wireless comms and GUI



Benefit for Patients

- By providing a prompt diagnosis, enables the patients to receive immediate treatment. This reduces risk of death, complications and potentially the length of stay.
- Patients are better screened and receive endoscopy only when necessary.

Benefit for Healthcare System

- By identifying false re-bleeders, it allows immediate saving of unnecessary endoscopy, estimated at over €700M.
- Further savings due to the potential reduction of length of stay.
- Better use of endoscopy resources and hospital beds.



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