

# Autonomous Positioning System for Ingestible Medical Devices

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## Executive Statement:

An advanced medical capsule designed for precise and autonomous localization within the gastrointestinal tract to improve diagnostics and treatment.

## Description:

This medical capsule employs an odometry-based system with a dissolvable suture thread spool for precise tracking within the gastrointestinal tract. Its design simplifies data transmission and operates independently of external systems, offering accurate localization capabilities. The capsule's distance covered is wirelessly transmitted to an external device, enhancing the diagnosis and treatment of gastrointestinal diseases.

## Key Advantages:

- Simplifies the data transmission process.
- Operates independently from large external sensor arrays.
- Provides consistent and accurate localization.
- Minimal average localization error.
- Capable of precise tracking over significant distances.
- Designed to function effectively in diverse environments.

## Problems Solved:

- Overcomes complexities and errors associated with electromagnetic and magnetic field tracking technologies.
- Improves the accuracy of gastrointestinal disease diagnostics and interventions.
- Eliminates the need for invasive and complex external systems for device tracking.

## Market Applications:

- Diagnostic procedures for gastrointestinal diseases.
- Treatment and intervention planning for gastrointestinal conditions.
- Research and development in ingestible medical devices.
- Enhanced patient monitoring and care in gastrointestinal health.