Real-time Indoor Wheel-Based Asset Localization System

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Problem Statement

- Tracking assets without a system in place is an ongoing struggle for many industries, resulting in significant expenditure of time and resources to locate valuable assets.
- Existing Asset Tracking Systems:
  - Expensive RFID Chips
  - Poor indoor accuracy
  - Reliance on GPS
  - Prone to human error
  - Contract driven services

Nurses could be spending the equivalent of 40 hours per month searching for equipment and in 16% of cases, they give up the search. (NursingTimes.net)

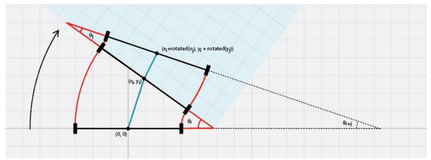
Real-time tracking of equipment is an essential part of smart factories to increase manufacturing efficiency and reduce costs.

Our Solution

- We have created a novel and accurate wheel-based asset localization system that can track movement of an asset in real-time using a gyroscope sensor.
- Features:
  - Sensor-agnostic
  - Fine-detail accuracy in indoor settings
  - Used on any two-wheeled asset
  - Responsive UI for real-time tracking
  - Self-contained system

Algorithm

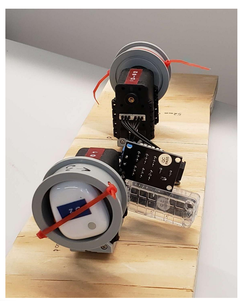
Heading is determined by the addition of the current and last turn heading. New coordinates are determined by addition of the two sets of vector coordinates, rotating the new set around the origin of the previous heading angle.

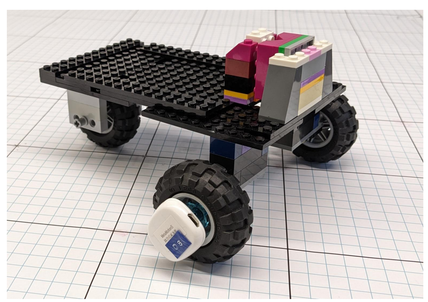


Value

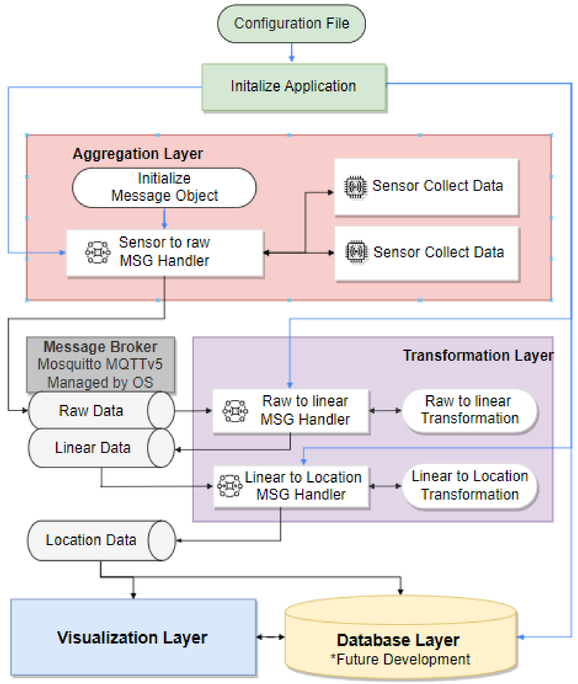
- Less time searching for assets and more time on operational excellence
- Greater asset efficiencies
- Managing inventory
- Predictive maintenance and repairs

Test Bed Development





System Design



Customizable User Interface,
Real-time tracking and historical log view

Application Uses

Highly flexible application useable in a wide variety of industries and assets, such as:

- Hospitals, Health Clinics
- Warehouses
- Manufacturing Facilities
- Educational Institutes
- Motor Vehicles

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