Smart Wastes Management

IoT helps to make waste management more efficient

by Pavel Yalovol, VP of Geosolutions
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About Authors

Pavel Yalovol,  
VP of Geosolutions

• 15+ years of experience in geospatial industry
• currently responsible for the operational performance the Digital and Geo Solutions
• is in charge of the day-to-day operations management and the department's strategy development and execution.

Oleg Seliverstov,  
IoT Lead

• Leading Intetics Center of Excellence on geospatial IoT
• 15+ years in projects related to geography and cartography, 5+ years as a field expert
• Geospatial technology evangelist who believes that intelligent sensors and machine learning will dramatically enhance the quality of maps
A Story of a Beautiful City
How it should look like?
Best Solution:

Best solution to solve waste issues is to not generate wastes!
Functional Elements of Waste Management

- waste generation
- waste handling and sorting, storage, and processing at the source
- collection
- sorting, processing and transformation
- transfer and transport
Collection and Transportation
How IoT Can Help To Make Waste Sorting Efficient?

- Fleet Tracking/Monitoring
  - Real-Time Location, Safety, Vehicle vitals, Alerts, Drivers Behavior
- Container (Waste) Tracking/Monitoring
  - Levels, Collections, Fires, Vandalism -> Status, Reports, Alerts
  - Sensor placement: Vehicle, Container, Stationary on Poles
  - Battery and Solar
  - Communication: 2G, 3G, NB-IoT
- Planning Collection Routes
  - Trucks capacity and availability
  - Season and Weather dependencies
  - Traffic jams and Road restrictions
  - Work hours and Launch breaks
  - Container types...
- Predictive Analytics / Data-driven Insights & Recommendations

Up To 70% Reduced Collections
Up To 65% Reduced Collection Cost
What was Intetics solution?

• Low cost & quick implementation
• Ultrasonic and IR sensors for fill level
• Only for indoor recycling bins
• Cloud Azure IoT Hub
• 3G and LTE
What was Intetics solution?

- Simple PowerBI Dashboard
- Containers and Vehicle Tracking
- HERE Maps for Routing

65% Collections
Reduce

40% Collection
Cost

Data Driven
Decisions

Engaged
Householders and
Office Workers

IoT hub
Summary: The developed system allows

local service organizations to:

a) permanently monitor how full are all serviced bins,
b) collect only full bins,
c) know precisely how much trash of each type was collected, and
d) enable the trucks to follow an optimal route

end users to:

a) be sure there are no bins overloading
b) know precisely how much trash collected on every month/week/day
c) compete with other users on recycling
Thank You!

Questions?

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