

Technology At the Curb

Presented By:

Kelley Watts & David Fullerton



Agenda

- Introduction
- What can technology do for you?
- Building an Accurate Customer Database: A&D
- Maintaining the Database: Work Order/Asset Management
- Leveraging Value of Accurate Database for Collection Data Tracking/Service Verification
- Questions



Introduction

Rehrig Pacific is a 105 year old, family owned & operated company. We have been working in the Waste Industry for the past 25 years with a strong focus on developing technology to help our customers improve efficiencies, profitability, and overall customer satisfaction.

Presented By:

David Fullerton - National Technical Manager
Kelley Watts – Environmental Sales Engineer

What can you see & do with technology?

- Assets – Mobile and non-mobile
- Participation
- Collection contract requirements
- Time of service
- Work orders
- Improve Efficiencies
- Use labor wisely
- Focus on your core profit centers
- Find out why a collection didn't happen
- Quickly access historical data
- Proactively address safety
- Driver accountability



Technology provides actionable business intelligence that empowers communities and haulers with information to make better business decisions.





vision

- 1. Work Order & Inventory Management*
- 2. Service Verification*
- 3. Automatic Vehicle Location & Telematics (in development)*
- 4. Industrial Container Tracking (in development)*

Sophisticated Account Management

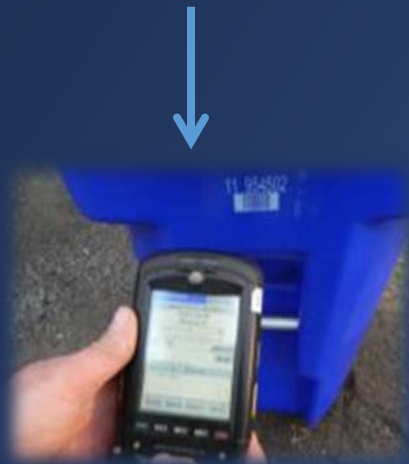
In Field Assignment of Assets Achieved Through

- Assembly & Distribution
- Retrofit / Audit

Simplifying the Process of Asset Assignment & Cart Distribution

Route	City	State	ZIP	Account Number	Street Number	Street Suffix	Street Name	Unit Number	Item Type	Serial Number
122	Fulton	MD	20759	66117	11300		DUKE ST		65R	65R012084
122	Fulton	MD	20759	66125	11304		DUKE ST		65R	65R011837
122	Fulton	MD	20759	66026	11340		DUKE ST		65R	65R012260
122	Fulton	MD	20759	66031	11344		DUKE ST		65R	65R012201
122	Fulton	MD	20759	109568	11364		DUKE ST		65R	65R012259
122	Fulton	MD	20759	109626	7810		EARLY MORNING ST		65R	65R009916
122	Fulton	MD	20759	66080	11308		DUKE ST		65R	65R012170
122	Fulton	MD	20759	66078	11312		DUKE ST		65R	65R011284
122	Fulton	MD	20759	66047	11332		DUKE ST		65R	65R012171
122	Fulton	MD	20759	66028	11336		DUKE ST		65R	65R012266
122	Fulton	MD	20759	83826	11368		DUKE ST		65R	65R012174
122	Fulton	MD	20759	83895	11406		ELLINGTON ST		65R	65R012071
122	Fulton	MD	20759	66124	11320		DUKE ST		65R	65R012082
122	Fulton	MD	20759	66516	11328		DUKE ST		65R	65R012267
122	Fulton	MD	20759	83833	11360		DUKE ST		65R	65R011847
122	Fulton	MD	20759	83839	7802		EARLY MORNING ST		65R	65R011710

By empowering yourself with an accurate data base of your non-mobile assets you are able to more efficiently and effectively manage your operation as it pertains to customer service, billing, inventory, and customer behavior.



City of Indianapolis

- 57K carts Delivered
- Crews added 7,086 addresses by handheld
- 13% additional homes
- In Field Route Audit
- Alignment of homes collected to homes billed

Remove?



MINIMIZE OPERATING COSTS

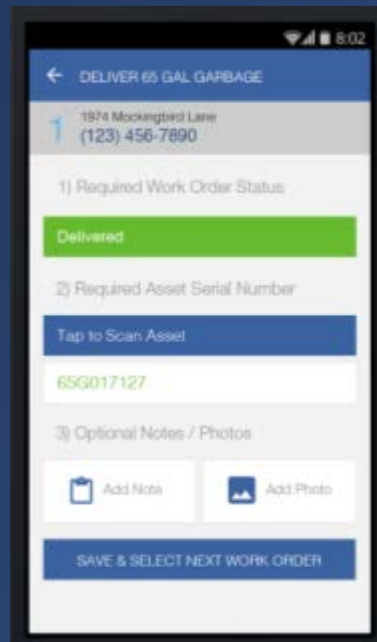
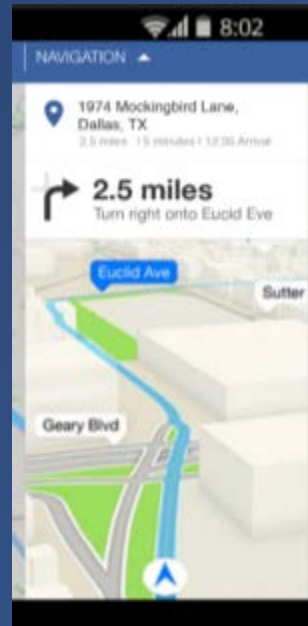
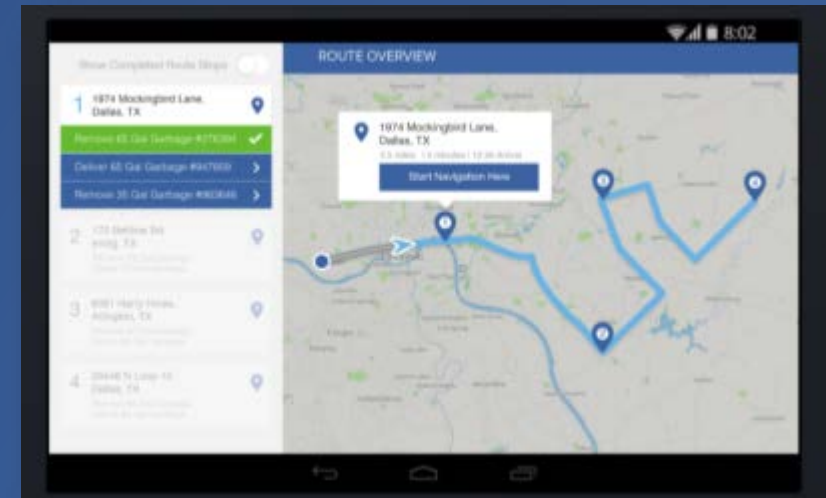
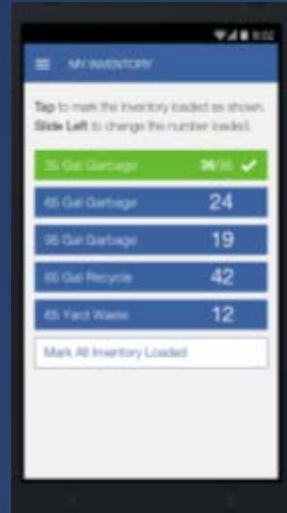
- Improve routing efficiencies
 - Obtain account/asset location (geo-code) for improved route optimization
 - Update route sheets with only accurate accounts in the field
- Dedicated resources and sophisticated technology
 - Reduce managerial, administrative and operational time spent involved with the program
- Increased project status visibility
 - Compare inventory to open delivery requests to better inform container spend decisions

Sophisticated Account Management

Asset/Inventory Controls Achieved Through

- Work Order Management
- Predictive Inventory Tools

Work Order Management – Maintain the Integrity of your Data



The screenshot displays a software interface for managing work orders. A modal window titled "Create New Work Order for 1512 RUSSET ST RACINE WI 53405" is open, allowing for the creation of a new work order. The modal includes the following fields and options:

- Requested Date:** 7/18/2016
- Due Date:** 7/23/2016 (Amount of Days)
- Select Request Type:** NEW ACCOUNT EXTRA LARGE/95GALLON/BLUE BIN
- New Asset Type:** RECYCLING
- New Asset Size:** 95 GALLON
- Work Order Notes:** (Empty text area)
- This is a hot ticket

Buttons at the bottom of the modal include "SAVE", "CANCEL", "SAVE & NEW", and "SAVE & CLOSE WO".

The background shows a table of existing work orders with columns for Work Order #, Status, Request Type, Request Date, Due Date, Action, and Route. The table contains three entries, all for the address "1512 RUSSET ST, RACINE, WI 53405".

Work Order #	Status	Request Type	Request Date	Due Date	Action	Route
30073012	Open				[EDIT]	
30073435	Open				[EDIT]	
30073598	Open				[EDIT]	

At the bottom of the interface, there is a "1 Asset(s)" section with buttons for "MAP ASSETS" and "ADD NEW ASSET".

Technology as simple as a data base can help you improve your capital usage and help you maintain accurate inventory as well as offer predictive ordering channels and improve customer service.

Challenges:

- Manual Process
- Overtime/Increased Admin Time
- Limited Visibility / Communication
- Poor Optimization of Point to Point Stops
- Limited Productivity / KPI Tracking Metrics
- Decreased Driver Efficiency

Rehrig Impact

- Work Order Optimization
- Turn by Turn Directions
- Real Time Visibility
- Route Hot Tickets on The Fly
- Track KPI's / Develop Standards

Collection Service & Productivity Tracking

Could be achieved using these 3 options:

- RFID
- Arm Lift Technology
- Vehicle GPS Tracking

GPS Service Verification \$

✓ Utilizes simplified GPS technology to monitor truck location and vehicle stops on collection routes.

- No linkage to address information, account information or asset information.
- Specific productivity KPIs are limited if available at all.
- No ability to track set-out rate (participation rate)

GPS & Arm Lift Technology \$\$

✓ Utilizes GPS with arm lift technology to monitor truck location, vehicle stops and arm lifts on a collection route.

- Identifies arm lift events (by location and frequency) as they occur during a collection route.
- Provides link to address but no direct link to account information or asset information.
- Ability to track estimated set-out rate (participation rate) based on arm lift events not specific assets.

RFID Service Verification \$\$\$

✓ Utilizes an RFID reader installed on all collection vehicles to read RFID enabled containers on a collection route and provide GPS location of collection vehicles.

****This solution must encompass a full work order and inventory system to maintain an accurate database.**

- Ability to track assets assigned to accounts via RFID tags.
- Provides direct link to account, address and asset.
- Best solution for tracking set-out rate (participation rate) based on actual asset tips.

Rehrig Pacific AVL Telematics with arm lift technology

- ✓ **Minimal upfront capital investment**
- ✓ **System Simplicity and Flexibility**
 - One black box and Rehrig arm lift technology provides your business with service verification information, GPS location as well as telematics driver behavior and vehicle monitoring
- ✓ **Automated Data Delivery**
 - Requires no driver interaction to deliver valuable data for reporting
 - Option for observation reporting
- ✓ **Actionable Business Intelligence**
 - GPS Truck location and speeding information
 - Safety events including backing, harsh braking, harsh acceleration, speeding
 - Operational data including start time, stop time, total run time and idle time for Improved Routing Collection Efficiencies
 - Baseline Productivity Standards



What does it
look like?



RFID Technology - *A lot has changed in a decade*

✓ ***Decreased Installation Costs and Time***

- Less cabling and components promotes easy installation (units can be installed in 2-4 hours)
- Install 3 to 4 All-In-One systems to every 1 traditional system
- Utilize your own personnel for installation to save costs and promote sense of ownership

✓ ***System Simplicity and Flexibility***

- Systems can be easily swapped and/or moved from truck to truck

✓ ***Design: Easier to Install***

- Expedites troubleshooting process and minimizes downtime
- Does not require an expensive technician to visit site for troubleshooting

✓ ***Automated Data Delivery***

- Requires no driver interaction to deliver valuable data for reporting
- Option for Observation Reporting

Service Verification

- Currently Monitoring 2MM carts with 500+ RFID Readers
- One stop for Hardware and Software Integration
- Avoids Liquidated Damages with the Highest Level of Network Security and Most Redundant Data Management Available
- Hardware is Durable, Easy to Swap and Requires Little Maintenance or Oversight
- Very Few Cables Make Installation Times 2/3 the Time of Other Systems
- Service is included with the Contract saving thousands in intermittent costs if failure occurs



State College, PA

- Using RFID Technology on All Commercial Collection Stops and Residential Recycling Routes
- Verify Service Time, Steam, Location
- Manage Drivers Time
- Identify why a Stop was Not Collected or Identify Contamination Using On Board Observation Panels
 - Make More Intelligent Business Decisions
 - Find Billable Opportunities
- Little Driver Interaction makes this System Safer



Successful RFID Programs Require a TRUE WORKING PARTNERSHIP

Customer Responsibilities

- ✓ Determine a method for maintaining an accurate database
- ✓ Dedicate required resources to effectively manage a program
- ✓ Have a good understanding of how RFID works and how the data can be used
- ✓ Provide necessary maintenance and care of hardware



Vendor Responsibilities

- ✓ Provide hardware that is not only robust but also simple and easy to both use and maintain to reduce downtime.
- ✓ Provide excellent customer service and support any challenges customer faces
- ✓ Present data and reports in a meaningful and easy to digest manner; graphical, customizable, exception based, dashboards etc.



If you would like to discuss your collection operation and how technology may help your organization please reach out to:

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