

TRAQbin 

Integrated Waste Management System

 **PROUD TECHNOLOGIES**
FLEXIBLE, RELIABLE, EFFICIENT

About Proud Technologies

- Founded in the year 2009, Proud Technologies has established itself as a name that is now synonymous with being the ultimate end-to-end IT solution provider. We have efficaciously strengthened our roots across Africa with our ever-evolving applications, digital imaging and communication through a combination of technical know-how, domain and process expertise.
- The urban development idea of a 'Smart City' integrates Information and Communications Technology to manage the assets and functioning of a city in a low-cost, efficient and secure manner. From Smart Schools to Smart Transportation, from Revenue Collection to Integrated Waste Management - Proud Technologies provides the digital architecture for every step of creating a smart world.
- Over the past decade, with a list of eminent and impressive clientele and a widespread global presence, we have literally left our 'digital footprints' in the IT sector. We have been assessed at leading global quality benchmarks and standards including ISO 9001:2015.

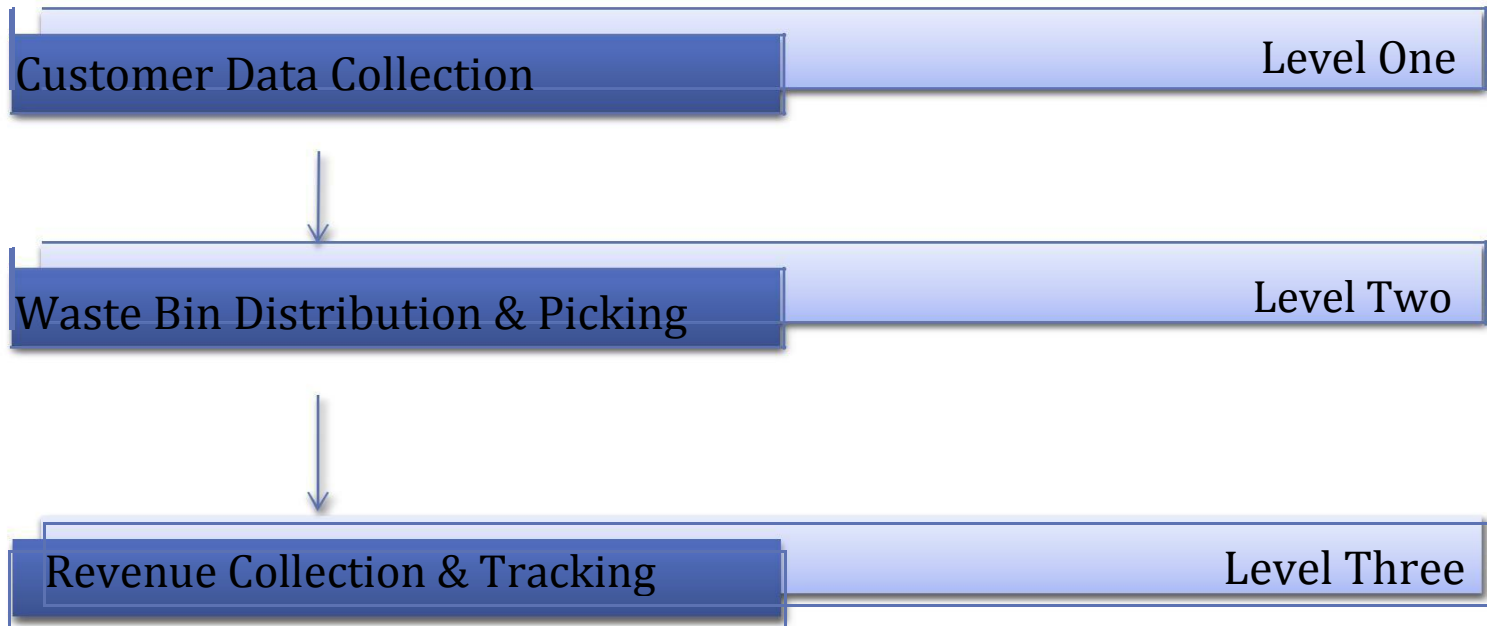
Integrated Waste Management Solution

Traqbin is our state of art solution for effective waste management which includes both collection as well as scientifically managed disposal which is successfully under implementation in Ghana ,Africa. We provide comprehensive technology solutions and application with hardware and other IT requirements to facilitate.



- Mapping of streets, verifying of customers and households.
- Distribution of Bins to households & locality.
- Assigning of areas and agents.
- Providing training to local staff and agents.
- Maintenance of bins and revenue by RFID chip installed in the Waste bins.
- GPS Enabled trucks the movement and location.

TRAQBIN IMPLIMENTATION:



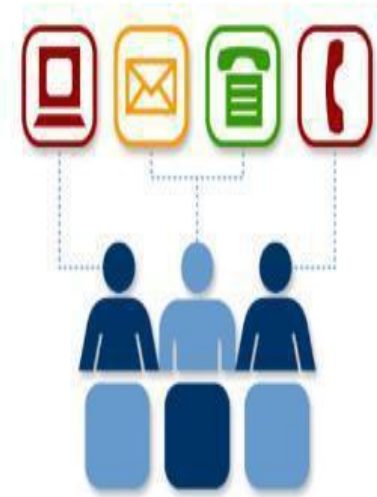
The platform that brings the whole Traqbin

Live is the secure web portal Enabling optimal management of your up to 50% savings in collection costs.

Traqbin solution together, that the sensor reports to. container assets & bringing

Just some of the Traqbin Live features:

- **Grievances Management for customer**
- **Easy monitoring of service delivery by RFID Reader Installed in the trucks.**
- **Optimized Collection Routes**
- **Performance Analysis**
- **Operations Overview**
- **Traqbin Mobile**



Control Room for SWM

Waste Bin collection application installed on the front panel inside the truck, the driver knows exactly which Bin to pick

- **Reducing miles driven and vehicle maintenance costs**
- **Minimizing dependency on dispatch and scheduling**
- **Improving customer satisfaction with faster response**
- **Drivers keeping eyes on the road for safer vehicle operation**
- **Managing compliance - commercial vehicle restrictions routing**



- **RFID based attendance system for the Janitors compactors(Trucks).**

Monitoring of your containers with Traqbin means

- Routes are serviced only when needed
- Overspills, overfills and emergencies are eliminated
- Fuel cost drop significantly
- Volume per mile driven increases
- Trucks wear and emissions are minimized
- Provide a world class service
- Reduce your company's carbon footprint
- Send routes directly to drivers
- Track drivers as they service their smart routes
- Analyze and benchmark the performance of your operation
- Know the volume and value of routes before you go
- Inform your strategy with detailed KPI reports
- Customer and communities are happier



It Is A Total Solutions For All Manner Of The Waste & Recycling.

General waste

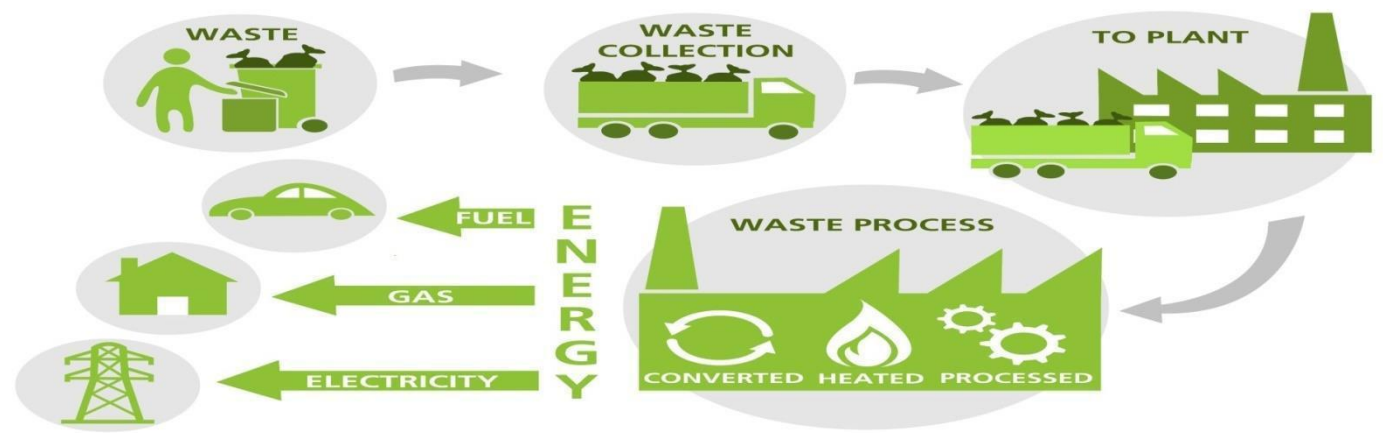
Used/waste Oil

Clothing/Textiles

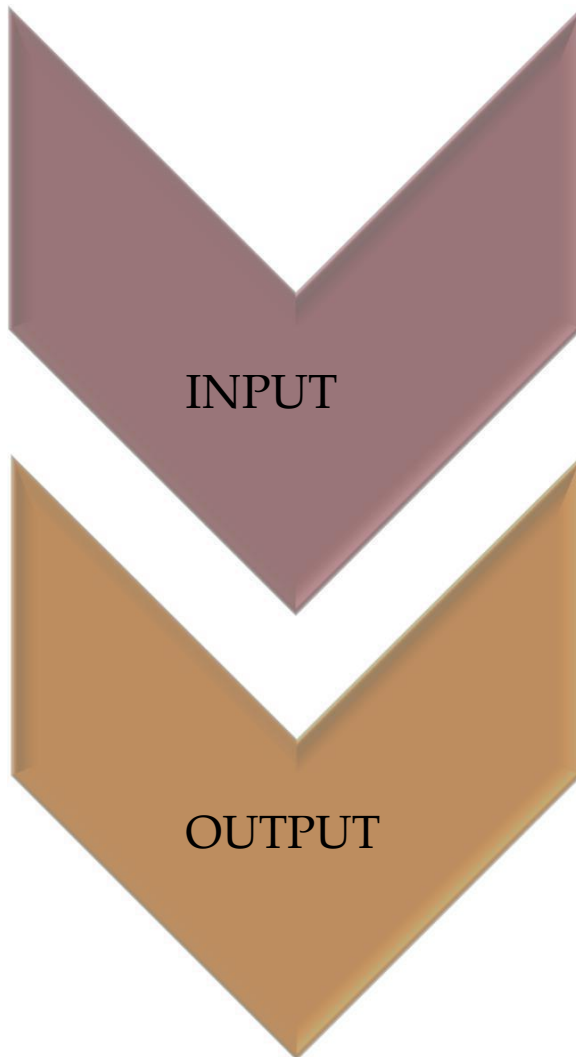
Glass/Recyclables

E-Waste

Clinical Waste



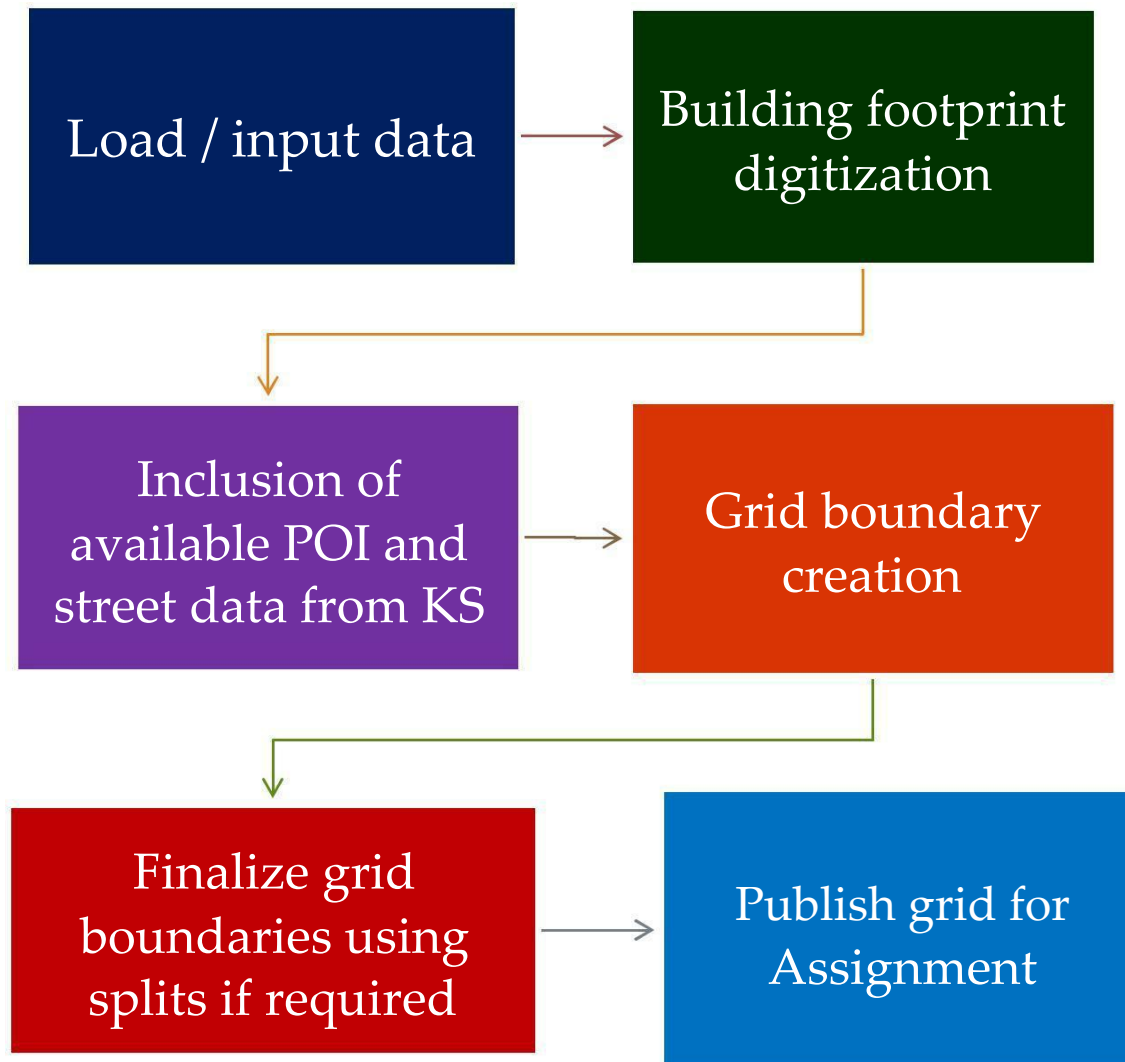
GIS Process :



- Process of digitization & grid creation based on OrthoMaps
- Grid assignment
- Tab based survey
- Data validation (call centre)
- Map update

- Building footprint along with panorama
- Building data with household details
- Points of interest, street names
- Lead generation for bin distribution

GIS Based Assign The Grid To Surveyor

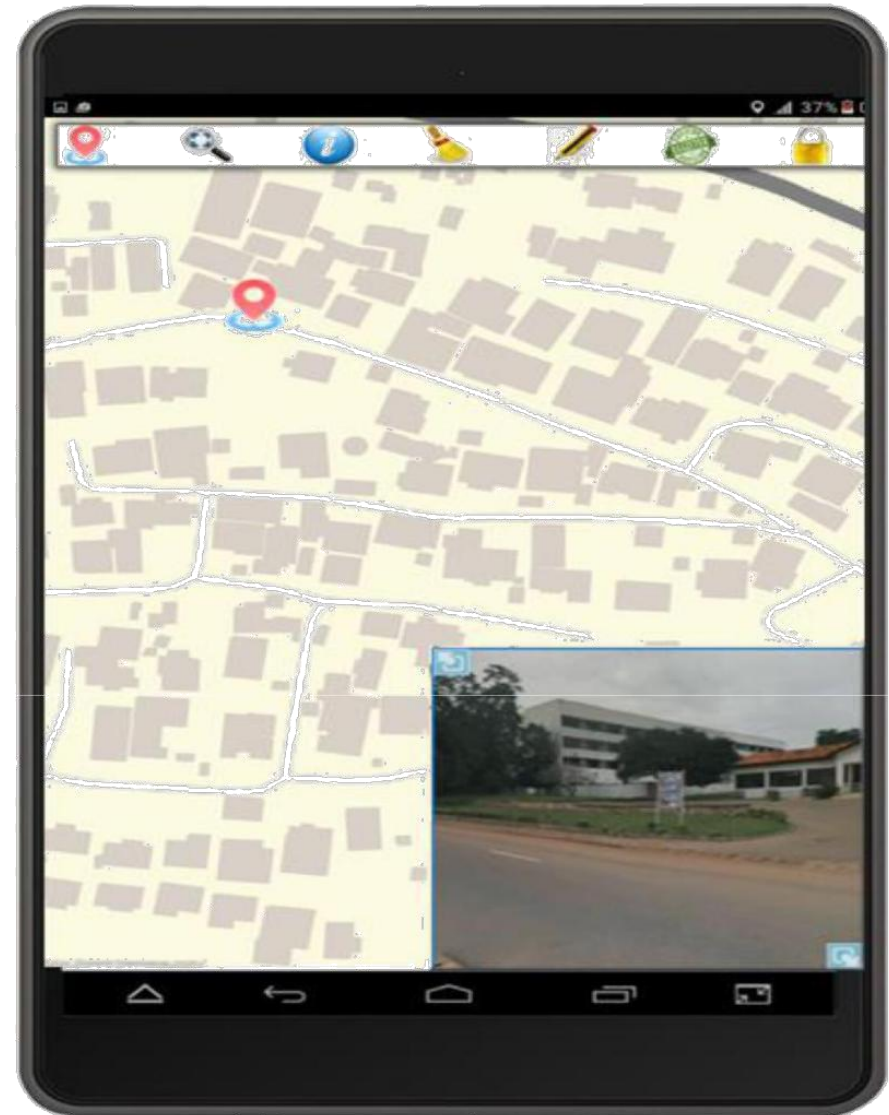


GIS Landbase Map Creation

Ortho images from drones are processed and then digitized using GIS application (like ArcMap).

All the structures are captured and encoded with GPS coordinates and spatial information.

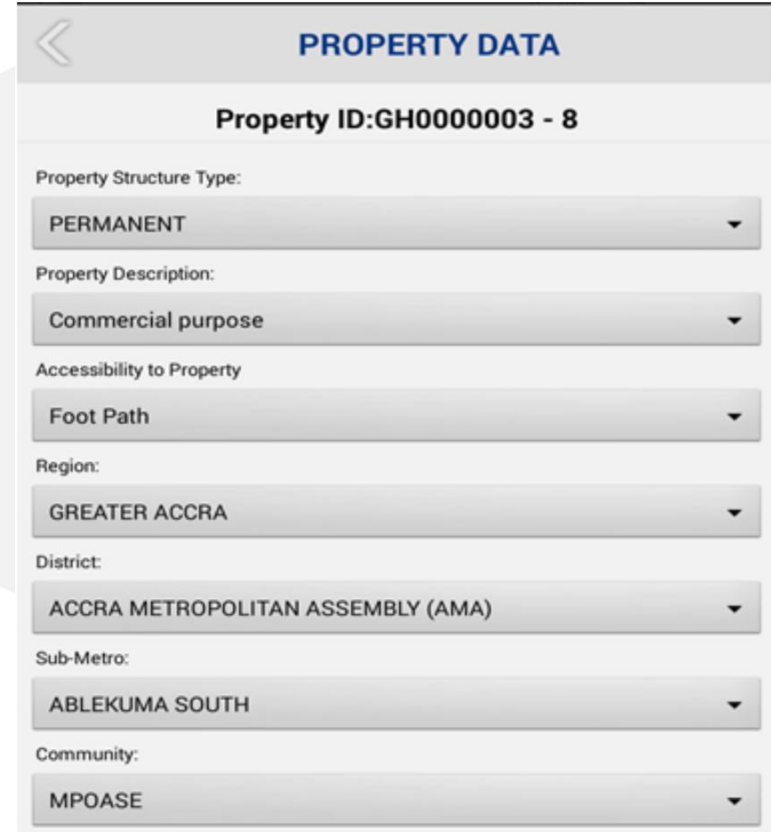
Different map layers are developed and implemented into one integrated application for field resources and clients.



Registration of Customers



The screenshot shows the 'Na Wa Bin' application interface. At the top, there is a header with the Na Wa Bin logo and the text 'Na Wa Bin'. Below this, the main heading is 'NAWABIN CUSTOMER REGISTRATION'. Underneath the heading is the Na Wa Bin logo with the text 'NATIONAL WASTE BIN DISTRIBUTION PROGRAMME' and 'NaWaBin'. Below the logo are four blue buttons with white text: 'Register New Property', 'Add HouseHold To Registered Property', 'View Property', and 'Point Of Interest'.



The screenshot shows the 'PROPERTY DATA' form. At the top, there is a back arrow and the text 'PROPERTY DATA'. Below this, the property ID is displayed as 'Property ID:GH0000003 - 8'. The form contains several dropdown menus with the following values:

- Property Structure Type: PERMANENT
- Property Description: Commercial purpose
- Accessibility to Property: Foot Path
- Region: GREATER ACCRA
- District: ACCRA METROPOLITAN ASSEMBLY (AMA)
- Sub-Metro: ABLEKUMA SOUTH
- Community: MPOASE

Interested customers are registered using the customized application on tablets or smartphones.

Complete information of the property including the approach (community, area and street) are captured for further processing. Waste Bins and invoice related information is tagged with this customer information for unique identification.

Registration of Customers: HH

HOUSE HOLD DATA

Property ID:GH0000002 - 110 - 1

Registration Type:
Residential

Building Unit:
3 Basement

First Name:

Last Name:

Contact Person's Name:

Contact Person's Tel. No.:
233

Telephone No.1:
233

Telephone No.2:
233

E-mail Address:

Family Size:

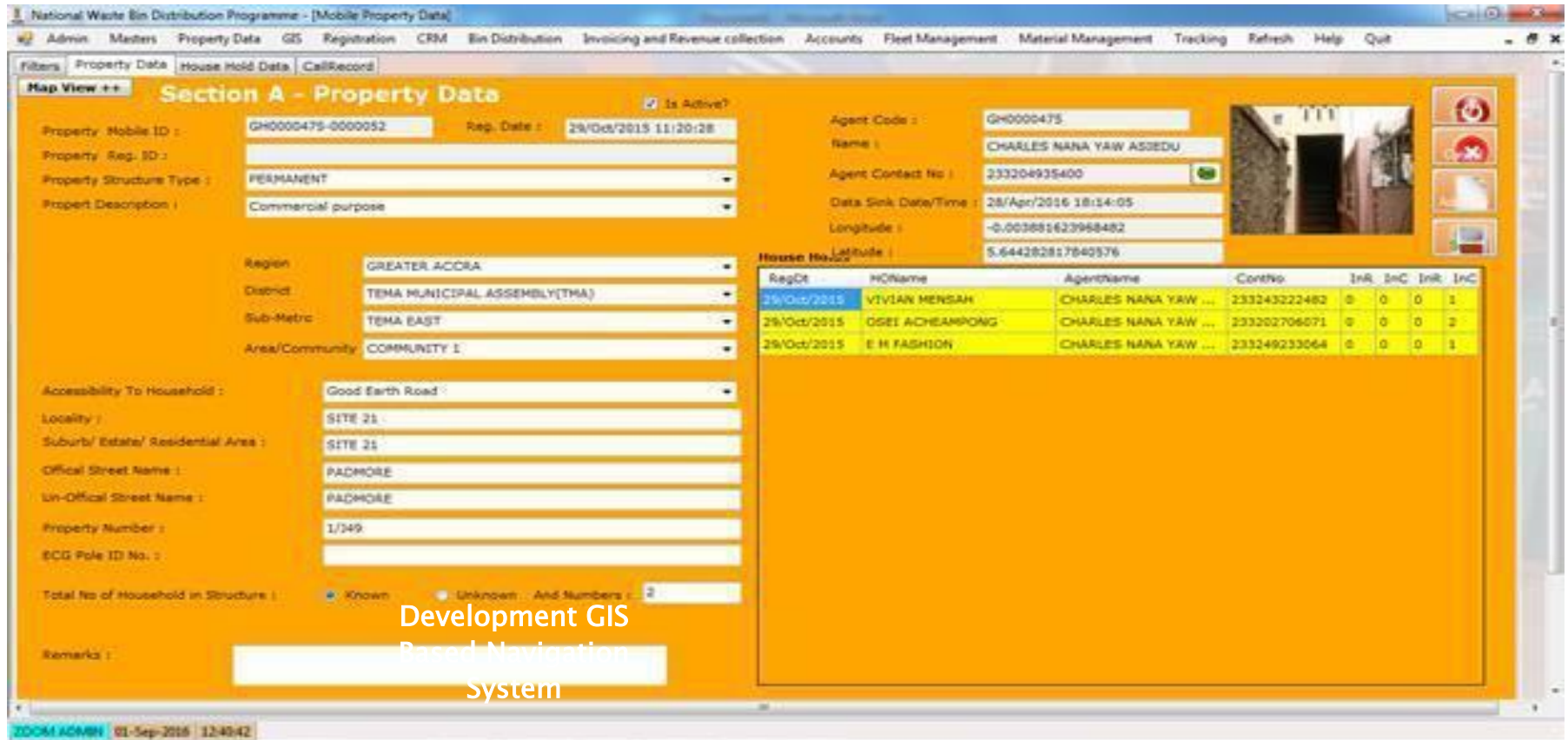


Customer personal details are collected for further communication from Call Centre and Client Command Centre.

Data Quality checks are also performed basis the validated customer personal information.

CRM – Data Update

Complete customer information is recorded from field and updated on the main servers. Call Centre validates 100% sample and updates any inaccuracies found in customer personal information, or interest in the product



Section A - Property Data Is Active?

Property Mobile ID : GH000475-000052 Reg. Date : 29/Oct/2015 11:20:28

Property Reg. ID :

Property Structure Type : PERMANENT

Property Description : Commercial purpose

Agent Code : GH0000475

Name : CHARLES NANA YAW ASSEDU

Agent Contact No : 233204935400

Data Sink Date/Time : 28/Apr/2016 18:14:05

Longitude : -0.003881623968482

Latitude : 5.644282817840576

Region : GREATER ACCRA

District : TEMA MUNICIPAL ASSEMBLY(TMA)

Sub-Metro : TEMA EAST

Area/Community : COMMUNITY 1

Accessibility To Household : Good Earth Road :

Locality : SITE 21

Suburb/ Estate/ Residential Area : SITE 21

Official Street Name : PADMORE

Un-Official Street Name : PADMORE

Property Number : 1/349

ECG Pole ID No. :

Total No of Household in Structure : Known Unknown Add Numbers : 2

Remarks :

RegDt	HName	AgentName	ContNo	InR	InC	InIt	InC
29/Oct/2015	VTIVIAN MENSAH	CHARLES NANA YAW ...	233243222482	0	0	0	1
29/Oct/2015	OGEE ACHEAMPONG	CHARLES NANA YAW ...	233202706071	0	0	0	2
29/Oct/2015	E H FASHION	CHARLES NANA YAW ...	233249233064	0	0	0	1

Development GIS Based Navigation System

ZDORU ADMIN 01-Sep-2016 12:43:42

Waste Bin – Preparation



Waste Bins are first prepared for distributed. RFID tags are installed on the bins to identify each bin and monitor its usage from Command centre.

All the bins are updated in the central inventory database which is linked with the GIS Landbase Map server



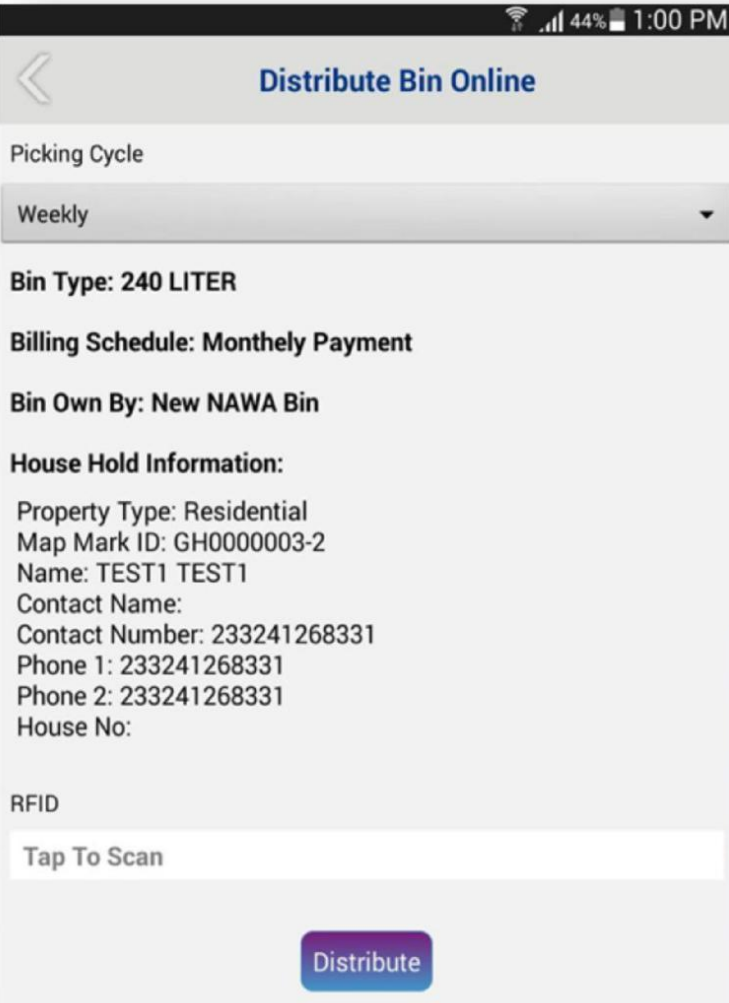
Waste Bin – Distribution

Data of “Interested Customers”, which has been validated by the Call Centre is uploaded to the Waste Bin Distribution server.

Bin distribution team then distributed the Waste bins using the GIS Landbase Map to find the location of the interested customer.

At the time of distribution, the Waste Bins are scanned and the RFID of that particular bin is then linked to the Customer whom it is being delivered.

This enables the client at the command centre to monitor each and every Waste bin and its related customer information



Distribute Bin Online

Picking Cycle
Weekly

Bin Type: 240 LITER

Billing Schedule: Monthly Payment

Bin Own By: New NAWA Bin

House Hold Information:

Property Type: Residential
Map Mark ID: GH0000003-2
Name: TEST1 TEST1
Contact Name:
Contact Number: 233241268331
Phone 1: 233241268331
Phone 2: 233241268331
House No:

RFID
Tap To Scan

Distribute



Waste Collection

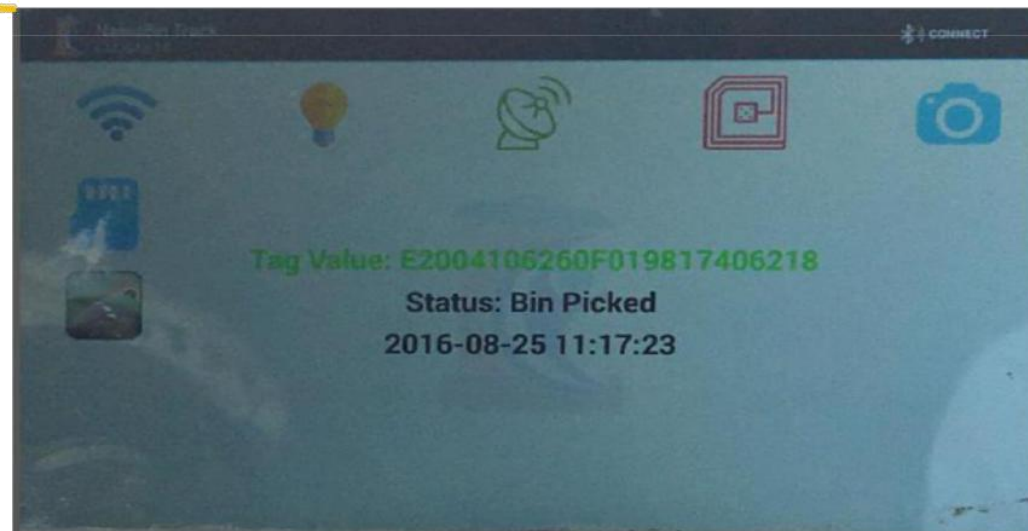
Guided by the Waste Bin collection application installed on the front panel inside the truck, the driver knows exactly which Bin to pick.

Live Waste Bin Picking:

Green: When the light bling's green it means that you have to pic the bin.

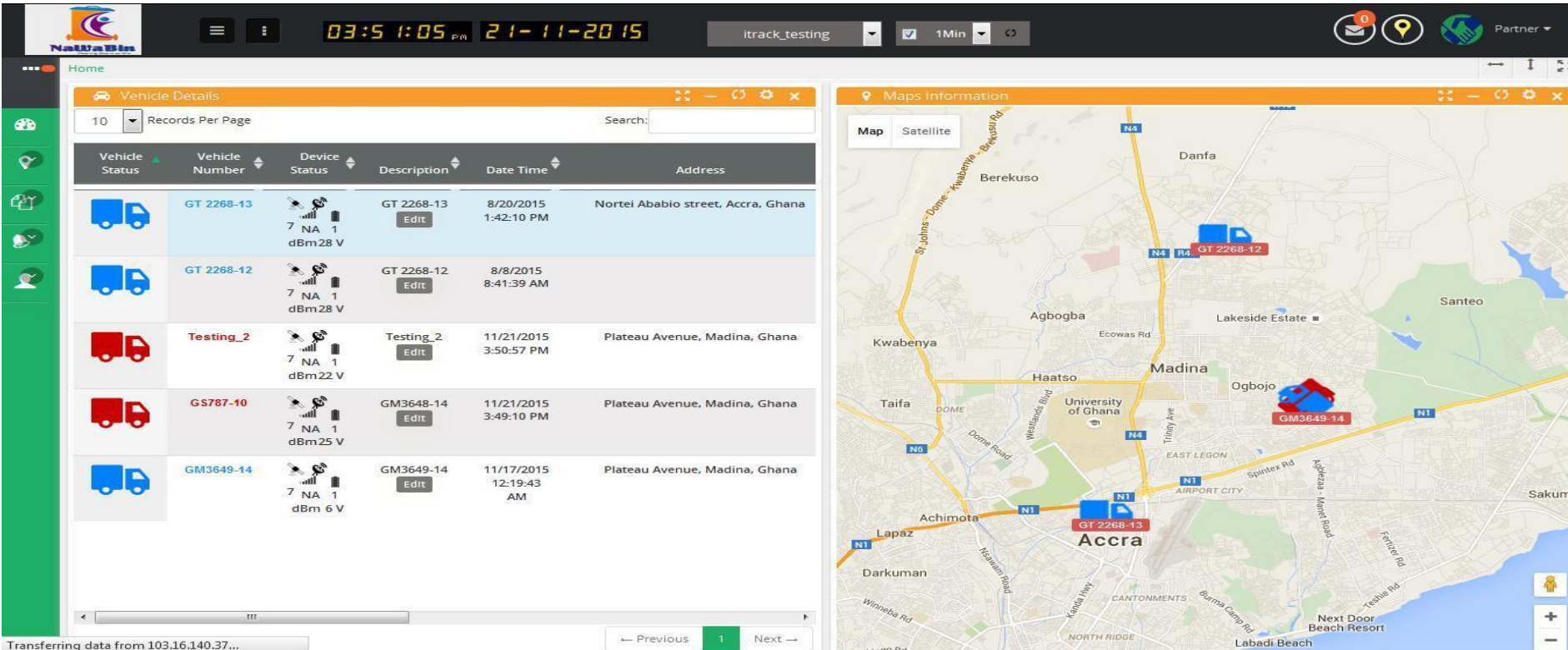
Red: When the light bling's RED it means that you don't have to pic the bin because this customer is a defaulter.

Blue: Blue light means the data of this bin is not in the system so don't pic the bin.


















Development G
Based Navigatio
System

Waste Collection Truck Vehicle Tracking System (VTS)



The screenshot displays the VTS web application interface. At the top, there is a header with the company logo, a clock showing 03:51:05 PM on 21-11-2015, and a user profile for 'itrack_testing'. Below the header, the 'Vehicle Details' section features a table with columns for Vehicle Status, Vehicle Number, Device Status, Description, Date Time, and Address. The table lists five vehicles, including GT 2268-13, GT 2268-12, Testing_2, GS787-10, and GM3649-14. To the right of the table is a 'Maps Information' section showing a map of Accra, Ghana, with several vehicle icons (GT 2268-12, GM3649-14, GT 2268-13) indicating their current locations. The interface also includes a search bar, a 'Records Per Page' dropdown, and navigation controls at the bottom.

Vehicle Status	Vehicle Number	Device Status	Description	Date Time	Address
	GT 2268-13	  7 NA 1 dBm 28 V	GT 2268-13 Edit	8/20/2015 1:42:10 PM	Nortei Ababio street, Accra, Ghana
	GT 2268-12	  7 NA 1 dBm 28 V	GT 2268-12 Edit	8/8/2015 8:41:39 AM	
	Testing_2	  7 NA 1 dBm 22 V	Testing_2 Edit	11/21/2015 3:50:57 PM	Plateau Avenue, Madina, Ghana
	GS787-10	  7 NA 1 dBm 25 V	GM3648-14 Edit	11/21/2015 3:49:10 PM	Plateau Avenue, Madina, Ghana
	GM3649-14	  7 NA 1 dBm 6 V	GM3649-14 Edit	11/17/2015 12:19:43 AM	Plateau Avenue, Madina, Ghana

All the Waste Bin Picking vehicles are tracked from Client Command Centre real-time and VTS team assigns the routes and is able to make changes by sending new route plan to individual trucks from VTS. Complete history and pending collections of each truck can also be monitored.

Client Dashboard – Bin Tracking



We have developed customized dashboard for the client, which is controlled from the Client Command centre. Real-time information about Interested Customers, Bins distributed, Waste Bins collected per schedule and even the Revenue collected can all be monitored from one Dashboard.

Revenue Collection

Revenue collection team is driven and governed by RMS and tracking of every pence is real-time.

All revenue collectors are equipped with POS devices, which are tagged and GPS enabled, and capable of collecting revenue from various platforms.



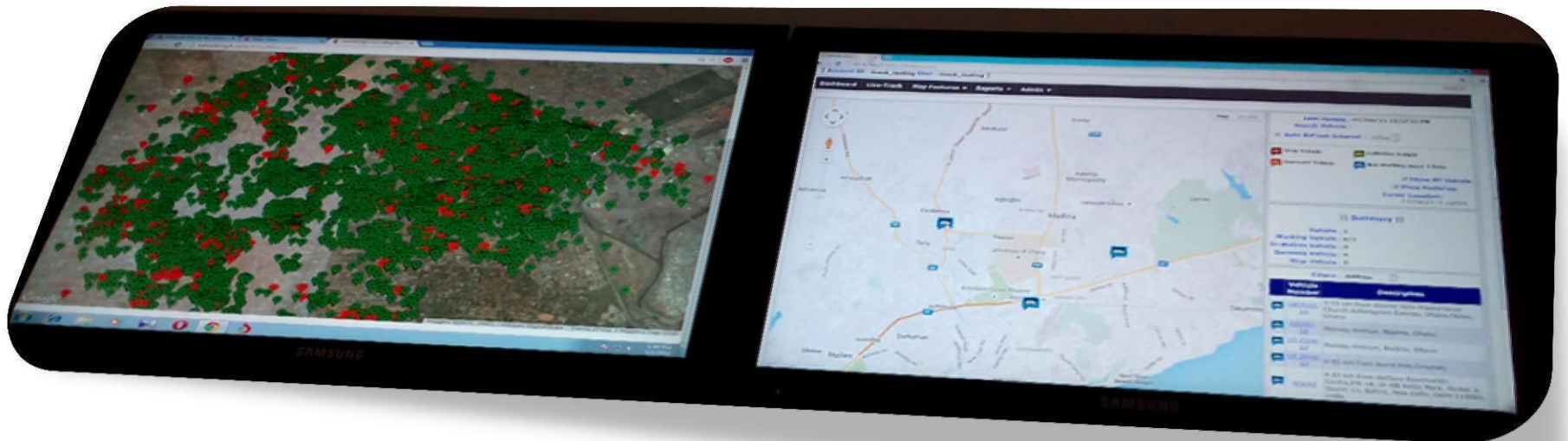
1. Cash
2. Mobile money
3. Credit card
4. Debit card
5. USSD
6. Cheque



Client Command Centre

Governance and ROI tracking is the objective of the Client Command Centre, which has been developed for the Waste Management Program.

- Target segment of customers covered and not covered is available
- Inventory and Distributed Bin status is available
- Waste collection, with schedule and frequency, is available for each route
- All vehicles (vendor and in-house) are tracked for operation and efficiency
- Revenue collection on hourly basis and invoice defaults are updated real-time



Thank
you

