Vara Technology provides complete Solid Waste Management solution using IOT framework, Smart Bins and Weighbridge Integration

Customer Requirements:

The client was looking for a comprehensive solution for the solid waste management for a city.

Problems:

The city managers find it extremely difficult to monitor and manage the solid waste generated everyday in the city. Complaints from the citizens are very common that the bins are not being cleared in time and are getting spilled over frequently. Moreover, the vehicles being used to dump the garbage do not report the right amount of waste cleaned, leading to excess costs to the city managers.
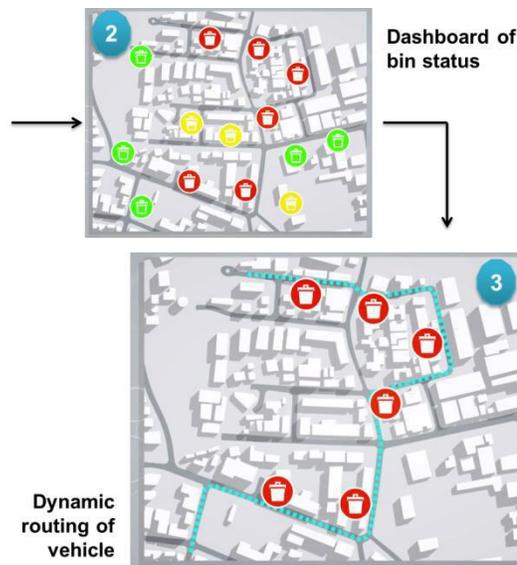
Vara's ISWM Solution

Integrated Solid Waste Management (ISWM) Solution from Vara has the following components:

- Door To Door Collection Monitoring Using RFID
- Bin Monitoring Using Bin Level Sensors
- Vehicle Tracking & Monitoring Using GPS
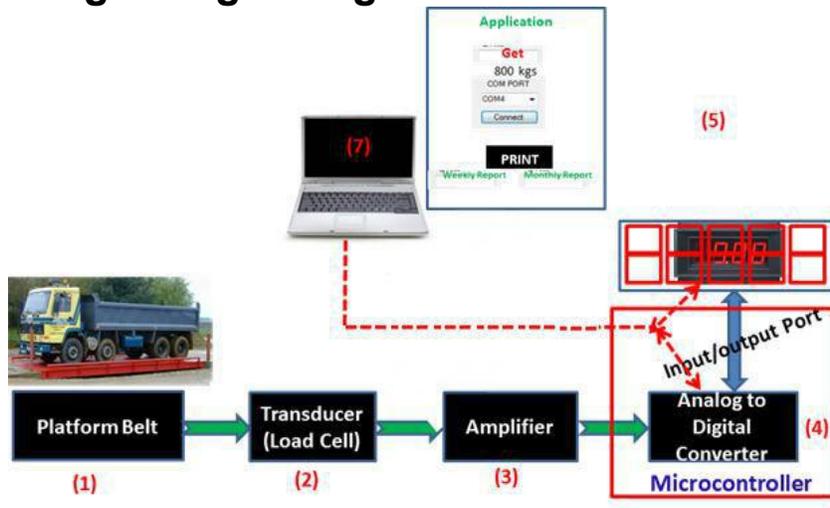- Weighbridge Systems Using RFID & Weight Sensors
- Complaint Management

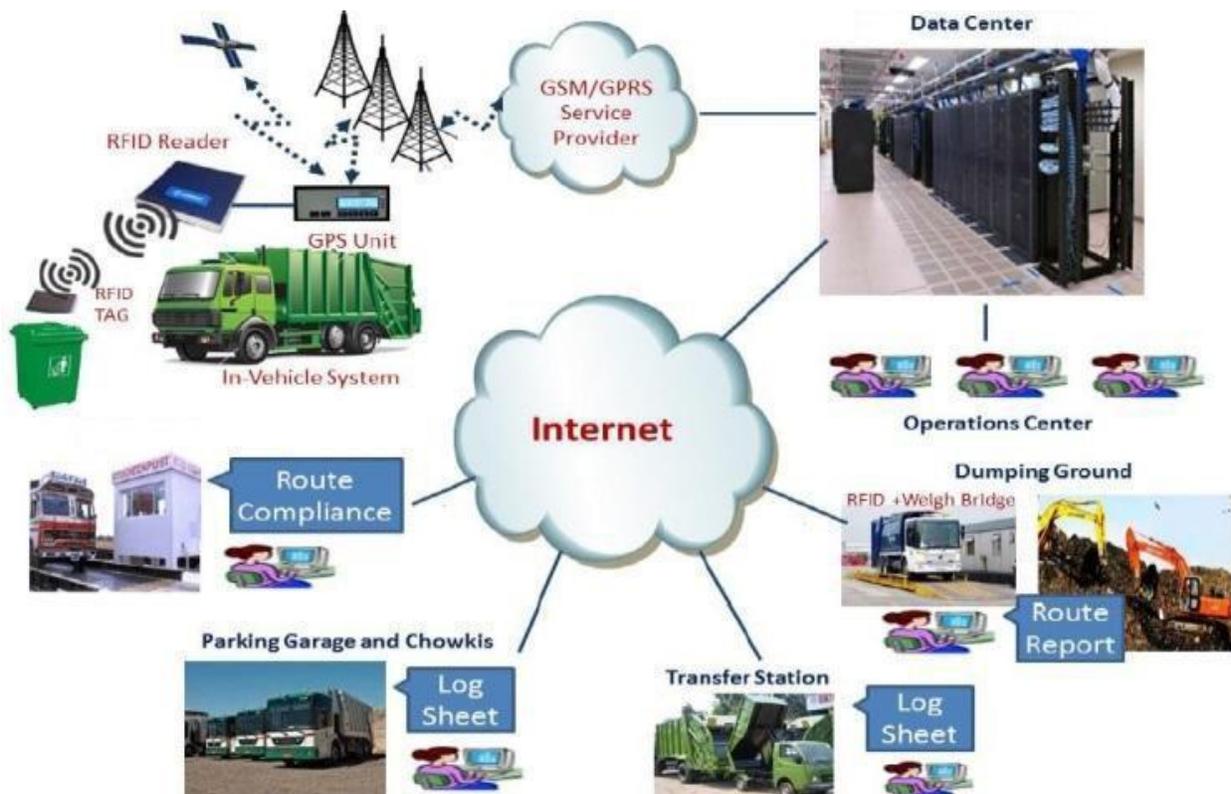Volume Sensor detecting filling status of the bin

Dashboard of bin status

Dynamic routing of vehicle

- Sensors are placed inside the Waste bins
- The sensors communicate through LoRaWAN, NBIoT or other IoT framework
- Before the spill alerts are sent to the nearby trucks
- Routes for the vehicles are dynamically configured to minimize fuel usage

Weighbridge Integration

- Each vehicle has a RFID tag for identification

- When the vehicle collects the wastage from the bin and enters the dump yard, the weight is calculated

- The empty vehicle while leaving dump yard is again weighed on the weighbridge

- The difference, wastage removed is sent to the dashboard for payment

Solution Architecture of the Vara's ISWM

Benefits:

A. Prevent unforeseen waste bin spillage
B. Prevent fuel wastage
C. Prevent excess payment, pay by weight of waste cleaned
D. Improve citizen satisfaction and city sanitation
E. Low cost of operations
F. Happy citizens

Technology Used:

1. Smart Bin sensors to detect any possible overflow / spill over of waste
2. GPS technology to track the vehicles
3. RFID technology to identify the bins, vehicles
4. Weighbridge integration to detect the waste cleaned
5. Citizen centric Complaint Management Portal