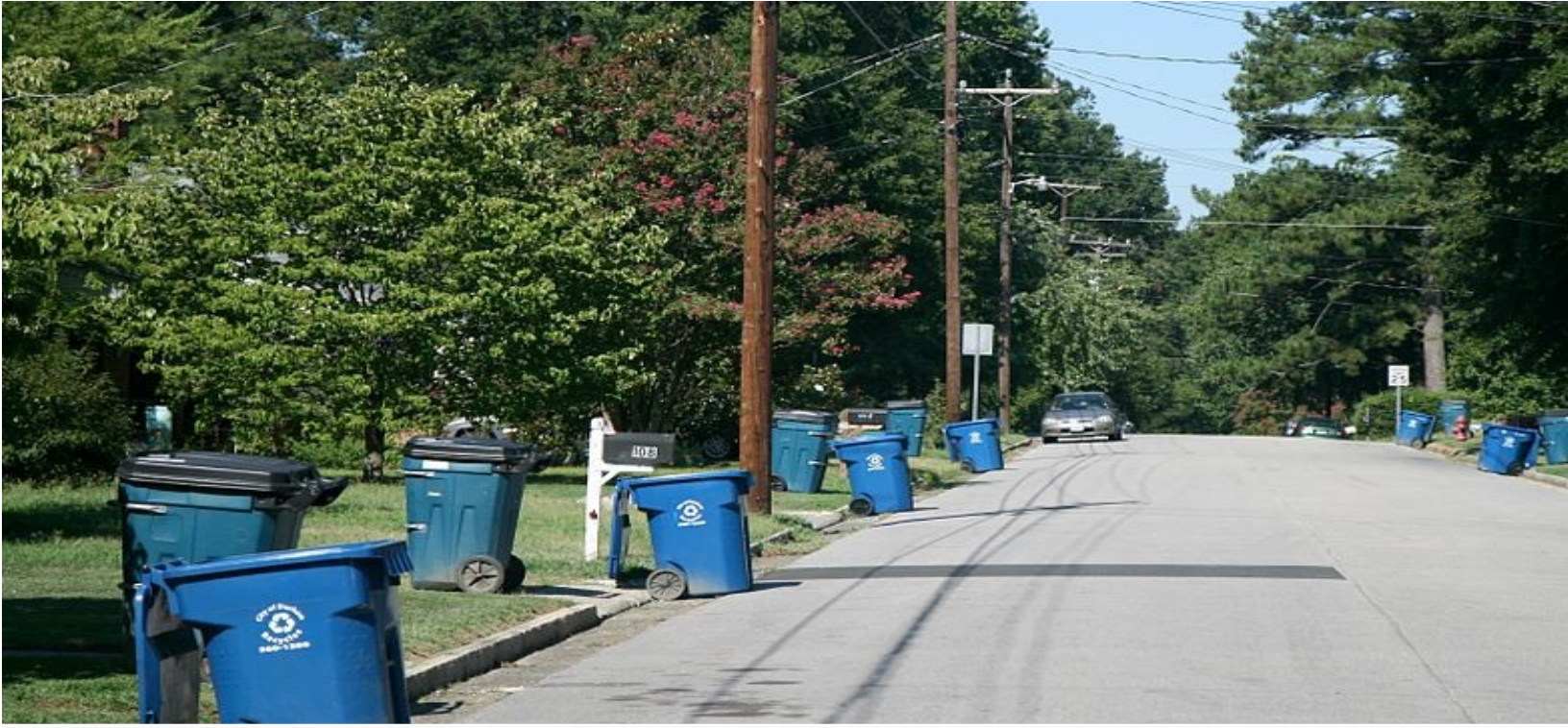

Optimization in Small Towns

GreenQ
Making Garbage Trucks Smarter

GreenQ Ltd.

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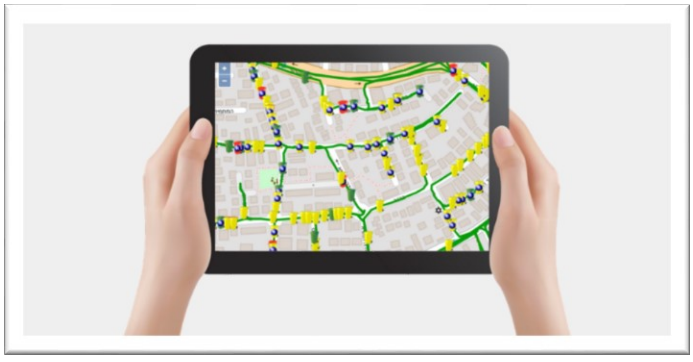


Executive Summary

GreenQ's system was installed on a waste collection truck serving a town of 8,000 inhabitants to optimize collection process and improve household service. The technology allowed the municipality to view the contractor's daily routine, so they could revisit their collection policy and would know if the driver did anything to violate the contract. Also, GreenQ launched a resident satisfaction survey, an integrated street sweeper monitoring module and an advanced inspector reporting app.

- 10% landfill fees saved due to collection vendor monitoring
- Level of service to householders improved
- Efficient reporting tools developed per client needs
- Planning and execution consolidation

GreenQ
Making Garbage Trucks Smarter

> *" I changed my point of view on data. Now that my collection process has turned into a data-driven one, it became efficient very fast. "*
>
> *Mr. Vakill.*
> *Head of Sanitation and Water dept.*

Challenges

1.Residents of the municipality were not satisfied with their waste collection process. Many of them dealt with the problems of full bins, nowhere to put their trash and congestion caused by the garbage truck.

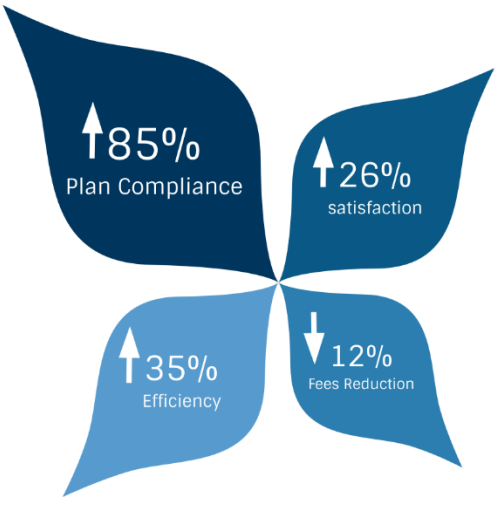
2.The municipality had no control of the contractor's daily routine. This means that the municipality could not see if the contractor's stuck to their pick-up schedules and dumping procedures. The municipality had a proper plan in place, yet there was no way to see if the plan was being executed.

Technical Implantation

The GreenQ Monitoring and Optimization system was installed to daily route execution. Additionally, other advanced reporting modulus was developed and are Street sweepers monitoring: Street sweepers attached to GreenQ main system (without dynamic weighing)

- Real time control: Client is automatically notified for contract violation and can authorize \ unauthorize specific cases via SMS.
- A householder satisfaction survey that was sent to residents' mobile phones to measure satisfaction
- Reporting mobile app for municipality inspector. Data flows from the inspector's mobile device into the main system

Values Derived From Project



Results, ROI, and Future Plans

The mobile phone survey effectively measured client satisfaction rates and identified specific cases of client dissatisfaction due to overfilled bins. The results suggest adding extra bins to those specific locations. Resident complaints about pick up times were also considered and will contribute to the future waste collection plans of the municipality.

The Municipality also gained more control over the contractor's daily routine. Any changes to the waste collection schedule would be sent to the client via SMS (in this case the municipality) and the client would have to approve the change. In addition, GreenQ's system identified a few instances where the contractor did not go directly to the landfill following waste collection from a particular area, violating the contract.
This study has already led to the addition of more bins and the SMS system for contractors to receive.