

Monitoring underground garbage containers in Tbilisi, Georgia

Challenge

Tbiliservice Group Ltd is the company providing public utility services throughout the Georgian capital Tbilisi: waste collection, management, and recycling, drainage collectors and underground passages maintenance, outdoor lighting networks operation, etc.

A while ago, the company installed a number of underground garbage containers across the city and now needed the [telematics solution](#) allowing the real-time monitoring of all the containers and sending the garbage trucks when containers are full.

Solution

The Wialon partner in Georgia GeoGPS was the only telematics services provider that could develop the necessary solution. Which they did, of course. For this project, GeoGPS specialists created unique ultrasonic sensors working through batteries, GSM technology, and standard micro-SIM cards.

- The sensor is installed under the container's lid. The sensor's transmitter generates ultrasonic impulses that are reflected from the wastes in the container and get back to the sensor. The time spent on that shows the level to which the container is full.
- All sensors are connected to the company's server. They are designed for up to 10,000 data transmissions and up to 100,000 measurements (in case 12 measurements are sent per transmission every 12 hours). Battery working time is up to 10 years depending on the transmission settings. After sending data, sensors go into sleep mode until the next data transmission, saving the battery charge. The partner had to come up with batteries because bringing power to all the garbage containers in the city is associated with great difficulties and costs.



- The solution's interface allows configuring the data sending interval together with the number of measurements stored from transmission to transmission, the interval between measurements, and the sensor calibration. The user can also group sensors by their location (districts, for example) and display them on the map, extract live sensor data, and generate history reports.

It also should be mentioned that the sensor was created by the GeoGPS specialists from scratch including the box design, the PCB diagram, and the firmware. The developed system has its own API that helped to integrate the solution in the end-user's existing system.

Due to the coronavirus, the project lasted longer than planned, which allowed to spend more time testing and ultimately creating a better product.

Results

The Wialon partner's client got an entirely new device tailored to the requirements of this particular project. The software part of the solution provides comprehensive control of the garbage collection.

✔ Online monitoring

Whenever the containers are full, the responsible parties get alert notifications and can take corresponding actions.

✔ Content citizens

Who don't have issues with overfilled garbage containers, unpleasant smell, etc.

✔ 90 controlled garbage containers

But this number is planned to be extended to 200.

Company profile

🏆 **IoT project of the year nomination:** Waste management

Country: Georgia

Industry: Public utilities

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