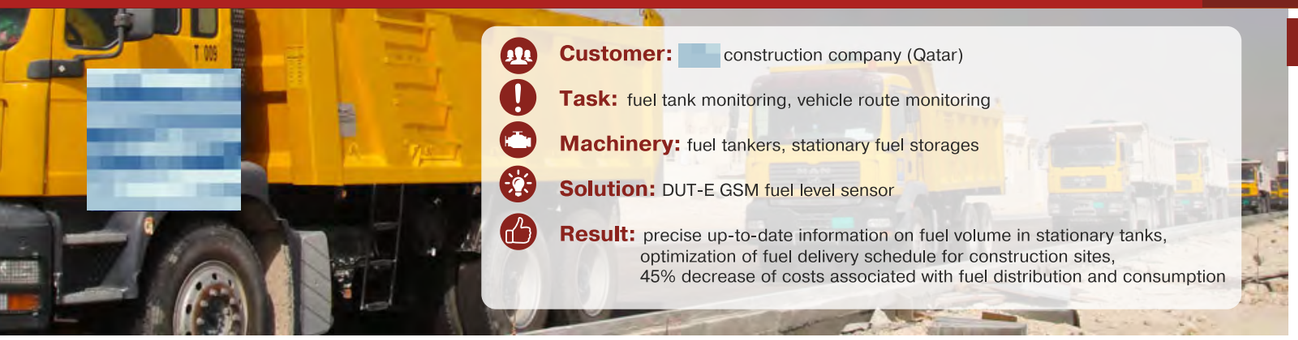

Customer: [redacted] construction company (Qatar)

Task: fuel tank monitoring, vehicle route monitoring

Machinery: fuel tankers, stationary fuel storages

Solution: DUT-E GSM fuel level sensor

Result: precise up-to-date information on fuel volume in stationary tanks, optimization of fuel delivery schedule for construction sites, 45% decrease of costs associated with fuel distribution and consumption

CUSTOMER

[redacted] was established in Qatar in 2007. The company is a member of [redacted] group of companies operating in USA, Africa and the Middle East.

Specialists from 17 countries of Europe and Asia work in QBS International: C-levels, project managers, engineers, builders, drivers, plant operators, tractor operators, support personnel. The company has built several modern enterprises for building materials production (asphalt and concrete plants, crushing and sorting lines for crushed stone production).

QBS International portfolio includes several dozens of major projects implemented in Qatar: highways, airfields, roads in cities.

- **1700+** employees
- **280+** machinery units
- **5** building materials manufacturing factories
- **10+** years of success

MACHINERY

The company owns road construction machines, dump trucks, special machinery, buses, cars.

Almost all machinery is equipped with diesel engines. Often, work is carried out in remote locations where no gas stations are located. To ensure uninterrupted supply of diesel fuel, stationary fuel storages (fuel tanks) and fuel tankers (vehicles carrying fuel) are used.

Stationary fuel storages have a volume of up to 50,000 liters. Fuel tanker produced by Gorica (UAE) on Toyota Dyna chassis. The truck is equipped with a diesel engine (4 cylinders, volume 2.5 liters, power 75 kW). The volume of single-compartment fuel tank is 3000 liters.

TASK

Some difficulties, which cannot be solved with the help of standard on-board equipment, arise in operation of fuel storages and fuel tankers.

The peculiarity of Middle East climate is strong temperature fluctuations of fuel. During the day, air temperature can "jump" to 40 degrees, what leads to a significant expansion of the fuel. When refueling tanks and giving out fuel, the level of fuel is measured by a standard sensor or a measuring pole (for stationary tanks). Temperature expansion of fuel is considered by means of correction tables.

This method is labor intensive, since the numbers are manually typed on calculator and written down in spreadsheets – that gives a big inaccuracy error. At stationary storages, which are 3 meters high, the measurement error is almost 1000 liters. This inaccuracy is used by unfair employees who are taking fuel for their own needs or for sale, usually it happens when fuel is given out.

Another important task is to determine location and route of fuel tankers.

Real time monitoring of these data allows to optimize delivery schedule of fuel to construction sites and reduce direct costs for transportation of fuel, as well as indirect costs – salary of drivers can be related to the amount and quality of work done.

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TECHNOTON
FUEL MONITORING EXPERT

SOLUTION

For accurate monitoring of fuel volume in stationary storages and fuel tanks, as well as to monitor the route and location of fuel tankers over GPS/GLONASS, DUT-E GSM fuel level sensors were installed.

DUT-E GSM – is a two-in-one device: fuel level sensor and vehicle telematics unit in one body. DUT-E GSM has significant advantages over standard combination "sensor + tracker": DUT-E GSM is installed, connected and configured quicker because twice less operations should be performed.

DUT-E GSM measures fuel volume in the tank with high accuracy. Measurement inaccuracy is less than 1%. The sensor measures ambient temperature and makes an automatic data correction to provide customer with clear and solid information on fuel volume.

For stationary storages DUT-E GSM with long measuring probe is needed. To reduce costs of delivery to customer's location, 1-meter long sensor together with additional sections is shipped. The sensor is easily assembled by installation specialist at the place of sensor installation.

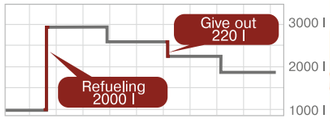
DUT-E GSM sends real-time on-board Reports to ORF4 telematics service. Onboard Reports contain:
- fuel level (mm) and fuel volume (l) in the tank;
- Notifications on Events: "refueling ", "giving out fuel" and "fuel drain", indicating the time and place of the Event;
- route, location and speed of fuel tanker.

DUT-E GSM

DUT-E GSM fuel level sensor

ORF4

Visualization: ORF4 telematics service



Change of fuel volume in fuel tanker's cistern

Fuel tanker's route monitoring

[redacted], Technoton's partner*

"For several years our company has been a partner of Technoton. We decided to install DUT-E GSM sensors on QBS International's machinery. This decision was influenced by three reasons.

First, the "two-in-one" design is very convenient. Functionality is the same as for "FLS + tracker" combination, but installation takes twice less time.

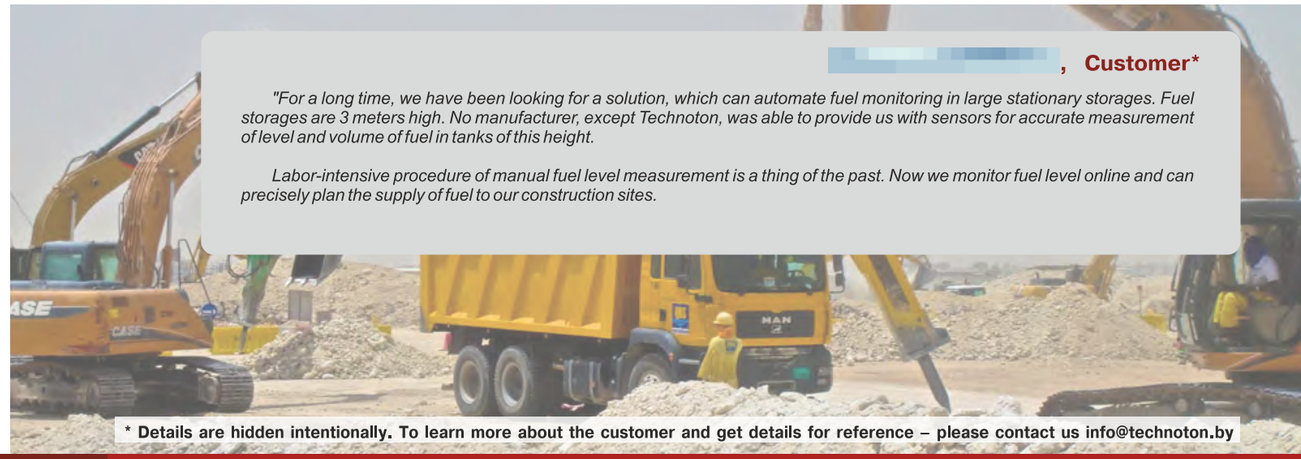
Second, the sensor itself is not long and it is delivered with additional sections. The sensor can be easily transported, and quickly assembled on site to fit a high fuel tank.

Third, unique mechanism of thermal compensation ensures stable operation of electronics even under scorching summer sun. This is extremely important for our region."

RESULT

At the beginning of the project, DUT-E GSM fuel level sensors were installed in six tanks and cisterns. QBS International's dispatch service monitors real fuel volume at any moment of time - this allowed to optimize fuel tankers' routes of movement and precisely plan schedule for fuel delivery.

Thanks to precise monitoring of refueling and fuel draining volumes, t**he number of unauthorized fuel drains from stationary storages was minimized.** In addition, by abandoning procedure of manual fuel level measurement and data entry, it became possible to exclude errors in calculations and save many working hours of company's employees. **These measures led to a 45% reduction in costs associated to fuel distribution and consumption.**



[redacted], Customer*

"For a long time, we have been looking for a solution, which can automate fuel monitoring in large stationary storages. Fuel storages are 3 meters high. No manufacturer, except Technoton, was able to provide us with sensors for accurate measurement of level and volume of fuel in tanks of this height.

Labor-intensive procedure of manual fuel level measurement is a thing of the past. Now we monitor fuel level online and can precisely plan the supply of fuel to our construction sites.

*** Details are hidden intentionally. To learn more about the customer and get details for reference – please contact us info@technoton.by**