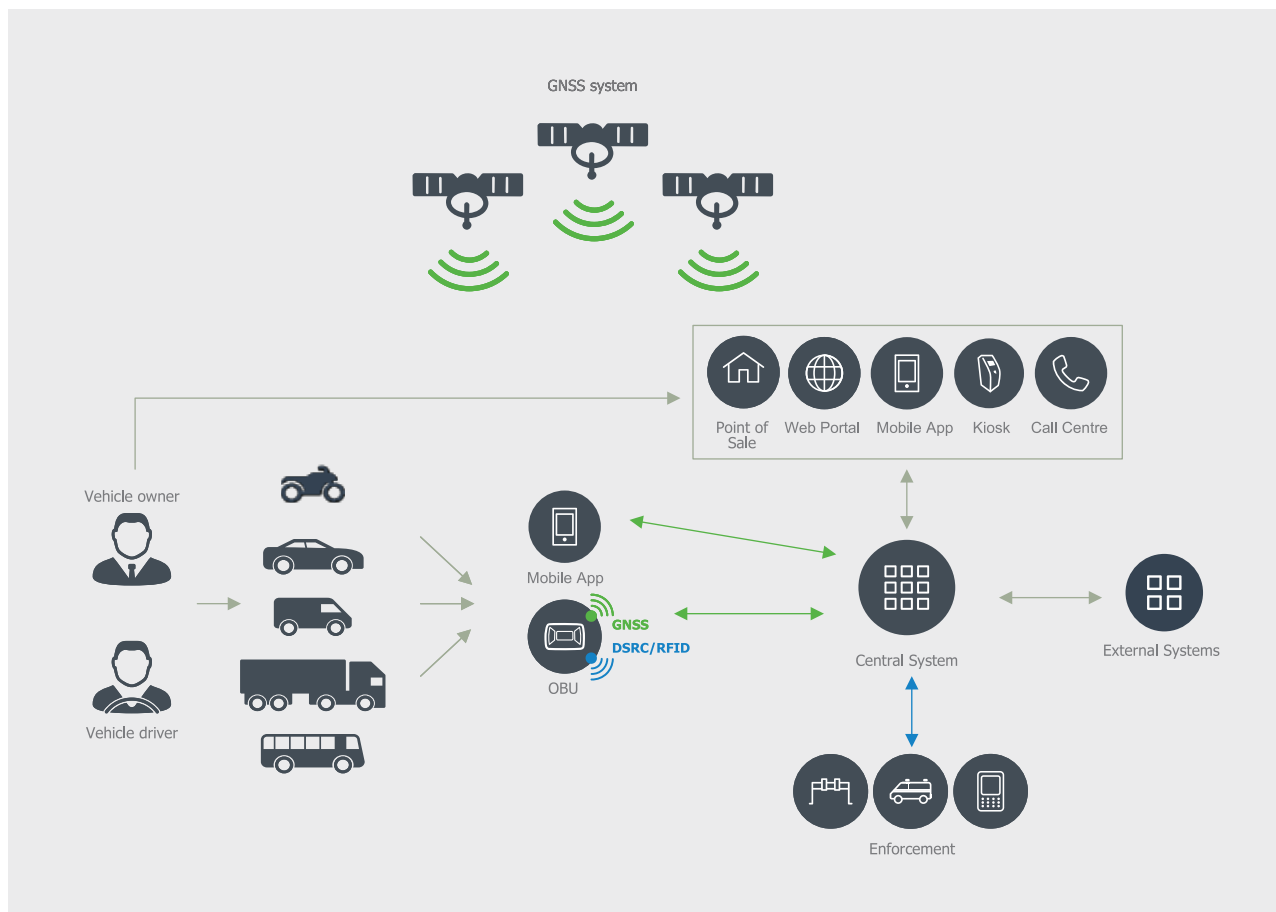


Platform

Satellite Based Electronic Toll Collection (GNSS)

The application of the satellite technology allows the toll collection during free flow of traffic in multiple lanes with no need to change the speed or the direction of driving vehicle. GNSS Tolling provides flexibility in implementing new system extensions, allowing the system to keep up with changing requirements without the burden of building a time and cost-demanding infrastructure.



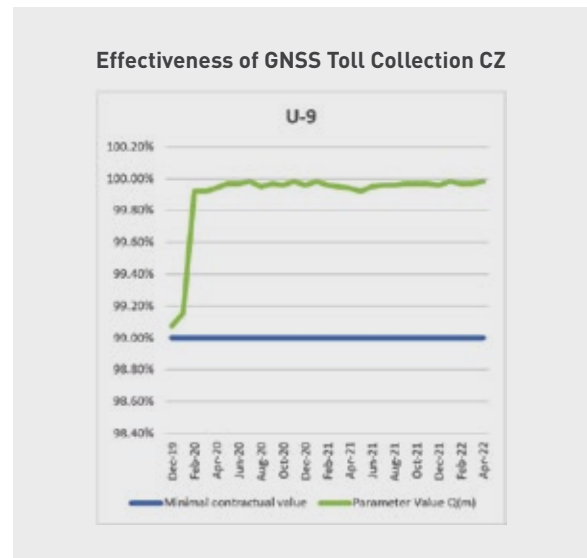
More information:
qrfy.com/p/2023_trc_p8

GNSS tolling, or Global Navigation Satellite System tolling, is a technology that utilizes satellite positioning to collect tolls from vehicles based on their geographic location. It enables precise and automated toll collection by accurately determining a vehicle's position and calculating toll charges accordingly.

The satellite-based technological solution does not require building toll gantries or toll plazas, which significantly reduces resources such as costs and time associated with building roadside objects or infrastructure of a non-satellite-based tolling system.

Furthermore, using a satellite-based tolling system provides a unique flexibility in changing the range of a toll road network, which helps to make changes in the toll road network quickly with no need for an additional cost-demanding and time-consuming road-side technology. Utilization of the satellite-based tolling is efficient in countries where development of new toll roads is planned.

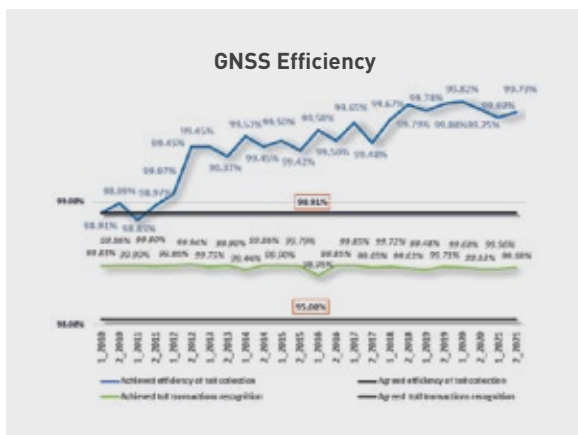
GNSS tolling is based on the cutting-edge, reliable and future-oriented technologies.



Key benefits

- **Efficient toll collection**
- **Non-discriminatory and quick access** for road users to meet the terms and conditions for usage of the toll road network
- **Permanent, error-free and continuous operation** of tolling infrastructure and systems resulting in increased comfort for users of the toll road network
- **Low investment and operating costs**
- **Cost and time-efficient** implementation of legislative changes related to toll roads
- **Efficient provision** of revenue from toll collection

Moreover, following the effective integration of the satellite-based tolling solution, additional advantages can be unlocked through a range of value-added services leveraging vehicle position data. This paves the way for numerous novel business prospects, including options like real-time traffic updates, automatic emergency notifications, and usage-based car insurance. GNSS tolling allows to flexibly define toll rates based on several parameters and combinations thereof.



Parameters for flexible toll

- Road type (highway, motorway, lower road classes)
- Vehicle category (the combination of vehicle type and vehicle weight)
- Vehicle emission class (such as EURO emission classes)
- Number of axles
- CO2 emissions
- Noise level (e.g. for night and day)
- Season, month, day of the week, hours during a day
- Current traffic intensity
- Current traffic speed

Utilizing GNSS for collection of data regarding the usage of the toll road network implies that every vehicle, which is liable to pay toll, is obliged to be equipped with an On-Board Unit (OBU) or mobile app before entering the toll road network. The installation of OBU is simple, allowing it to be performed by vehicle drivers.

From the technical point of view the GNSS tolling is a technological complex consisting of several information subsystems and specific applications that ensure all operational processes of toll collection and allow easy integration with external systems. The solution can be easily adapted to the national legislation concerning toll collection.

Components

- **Central Information System**

A complex IS supporting all business activities of a company involved in electronic toll collection (customer care, billing, payments processing, etc.)

- **Event Collection System**

System made up of OBU (OBU device or mobile app) and Proxy takes care of collection of information about usage of toll roads and delivery of the information to CIS

- **Enforcement System**

Carry out verification of the compliance with obligations given to vehicle owners and drivers in the context of electronic monitoring and identify non-compliance

