

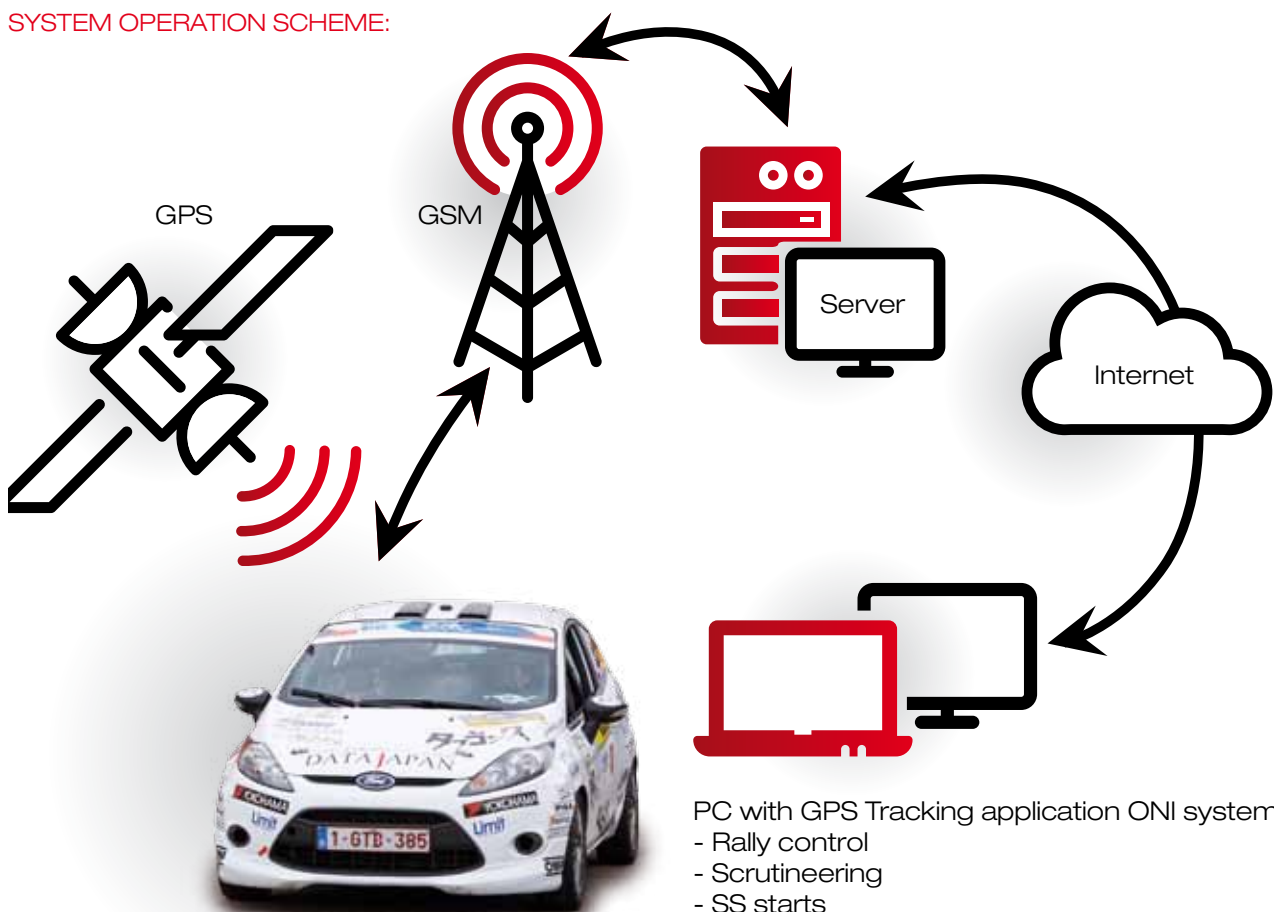


## SAFETY IN RALLIES

### ONI SYSTEM - RALLY MONITORING

ONI system is a system for monitoring vehicles and mobile structures. Through a web application it provides online information about the movement of vehicles and displays their location in a detailed map data. For the organizers of the rally races it enables them to fulfill the FIA safety standards. Drivers often drive through towns and villages, the stages are driven in the country and it is necessary to oversee the public and racers safety. The event is attended by a lot of people and others that need to be coordinated remotely - dispatchers, marshals, ambulances, helicopters and racers.

#### SYSTEM OPERATION SCHEME:



- PC with GPS Tracking application ONI system:
- Rally control
  - Scrutineering
  - SS starts
  - Doctor's stand
  - Producer's supervision of the system operation



# SIMPLIFIED RALLY ORGANIZATION

## Instant overview

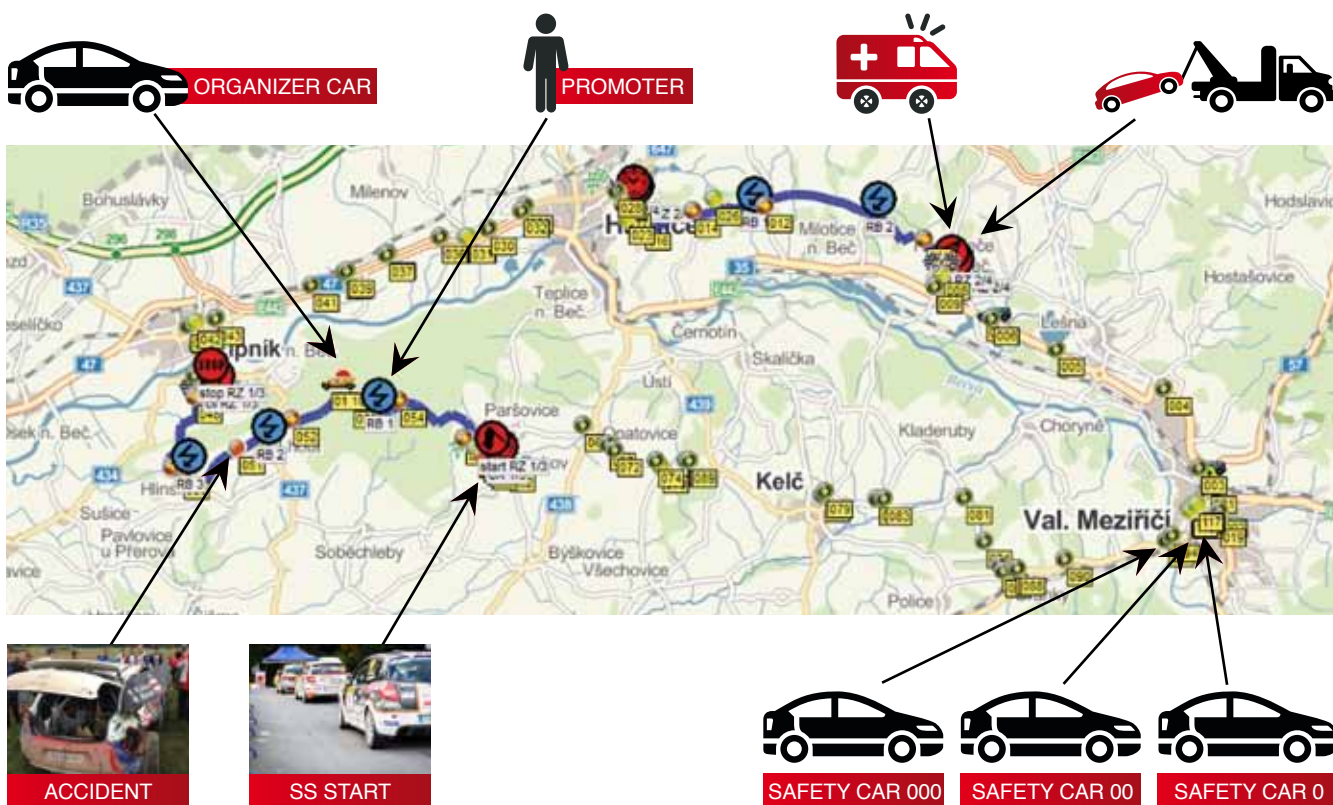
ONI system units, which are installed in cars, send data to the server, which the organizers access via Internet. Dispatchers, through a web portal [www.onisystem.net](http://www.onisystem.net), overview the online movements of individual vehicles. Dispatching of rally follows the movement of drivers on the route, automatically receives information about the accident, an obstacle on the route and unscheduled rally cars stop. He is able to immediately send a warning to selected vehicles in the stage and prevent further unnecessary accidents.

### BENEFITS FOR RALLY DIRECTOR AND ORGANIZERS:

- Overview of:
  - rally cars
  - zero cars
  - ambulance cars
  - tow trucks
  - organizers' cars
- Communication between dispatchers, marshals and competitors
- Confirmation of acknowledgement of the electronic Yellow Flag
- Ability to show the cars on SS to public

### MONITORING SYSTEM SPECIFICATIONS:

- Web based portal in English with Google Maps and online data
- Positions sent every 5 seconds (or TBC later)
- SIM card and related charges included
- Free updates
- 24 hours monitoring and support





# RALLY PREPARATION

## GSM signal quality measurements and reconnaissance

Being able to monitor cars via GPRS net, the availability of GSM signal on all special stages must be measured before each race. In places, where there is not sufficient coverage quality of the GSM cellular network, there is necessary to ensure a greater number of marshals to deal with crisis situations.

### RALLY PREPARATION:

- Measuring the quality of GSM signal
- The identification of places without coverage, where is necessary to ensure a higher number of marshals
- Marking the start and finish of SS



Unit for measuring the quality of GSM signal

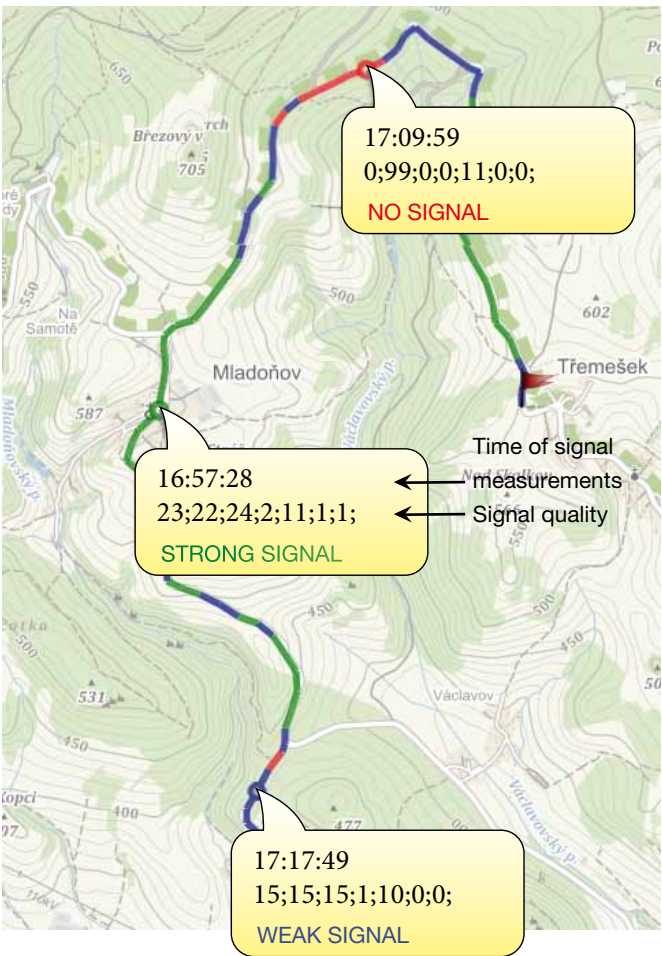
### RECONNAISSANCE

All drivers and co-drivers have the right to drive the route several times before the rally. Competing cars drive in everyday traffic and must obey the traffic regulations and safety of residents. Drivers must use the ONI system unit during reconnaissance. Rally organizers check data from GPS units recorded during the trial ride. If the crews do not respect the rules, they will receive fines according to the regulations of the rally.



Unit for reconnaissance

### Coverage overview of GSM signal





## NECESSARY RALLY CAR HARDWARE EQUIPMENT

### THE RALLY WITH AN EXTERNAL GPS AND GSM MAGNETIC ANTENNA

- Internal back-up battery with up to 10 hours of active run (if not connected to car battery)
- Linking with the control panel with emergency button and the light and sound indication of the Yellow Flag LED
- Automatic switch between the rally stage and transfer
- Easy and quick assembly and disassembly of GPS units within 10 seconds. No tools are required

### TECHNICAL SPECIFICATIONS

Parameter	Value
Power supply voltage	10 – 42 VDC
Power supply current	max. 400 mA / 12 VDC
Operating temperature range	From -25 °C up to +65 °C
<b>Size:</b>	
Unit	148 × 110 × 115 mm without fixtures and connectors
Panel	130 × 65 × 27 mm without cable
Antena	55 × 55 × 30 mm without cable
<b>Weight:</b>	
Unit	800 g
Panel	210 g
Antena	190 g
Communication channels	GSM/GPRS (SMS/GPRS data) GPS



Dashboard panel (Yellow Flag, buzzer, button)





## THE DRIVERS' SAFETY IN THE RALLY

An immediate stop of the rally in case of an accident

ONI system provides information about when the crew stops the car as planned and does not need assistance (eg. a flat tire), or when the accident happens, which may pose a danger to other cars on the route. The system automatically detects a car crash, immediately notifies the dispatching centre, that solves the problem immediately by the safety regulations of the race.

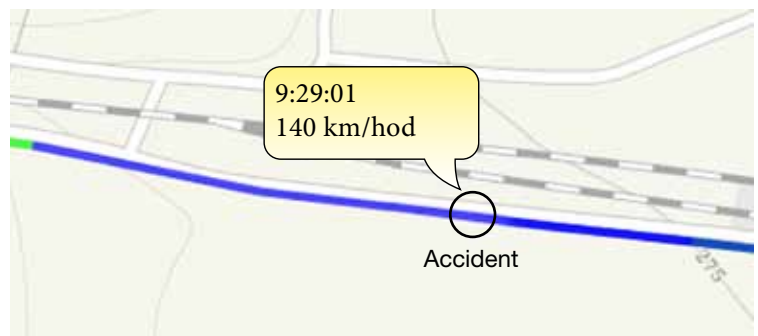
### BENEFITS FOR DRIVERS:

- Automatic accident reporting on the route and in transit between the stages and the accident site
- Automatic call for help when stops on the stage, if is not called off by help button
- Call for help by pressing a button on the dashboard panel for 3 s
- Canceling the call for help by pressing
- Information of the announcement of a Yellow Flag for selected cars on the route
- Automatic recording of the vehicle crossing the start or finish of SS

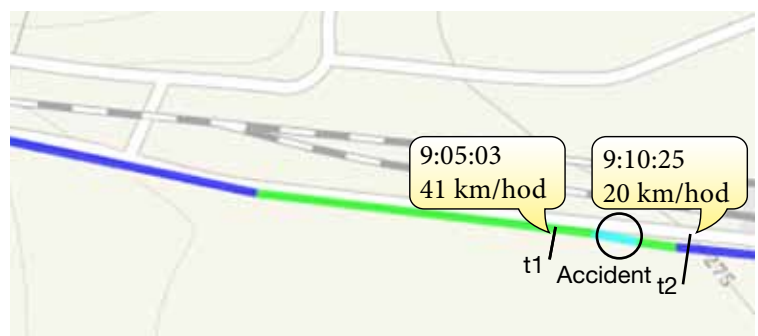


### BENEFITS FOR STEWARDS:

- The system helps to determine whether race car drivers stops at the accident and how long it has been there.
- Steward deducts the driver, who provides assistance, time spent at the accident.



The graph shows that the race car failed to stop at an accident at all, but continued driving.



The graph shows that the race car stopped at the accident.



# DETAILS OF A CAR CRASH

Place, G-force and speed at the moment of a crash

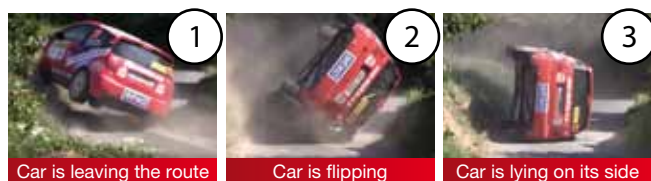
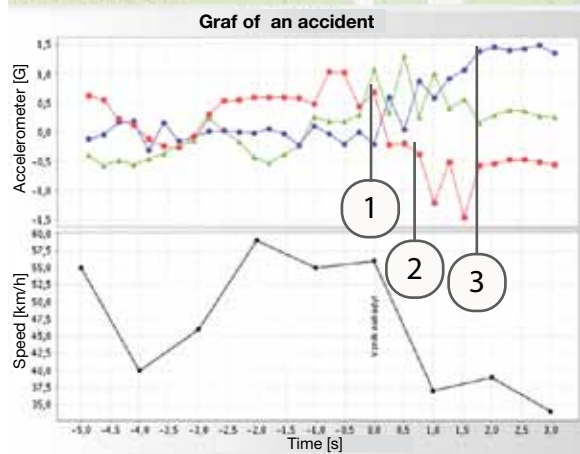
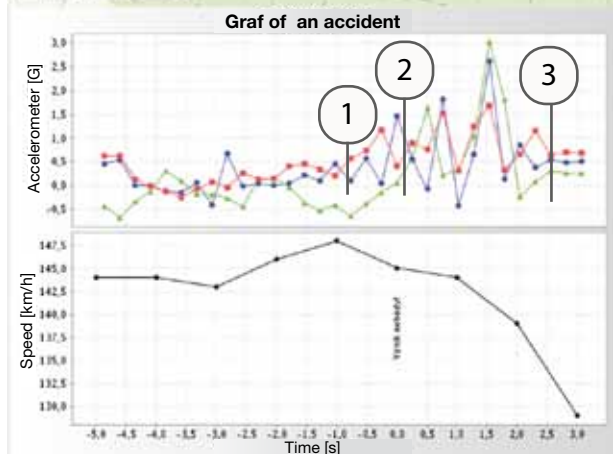
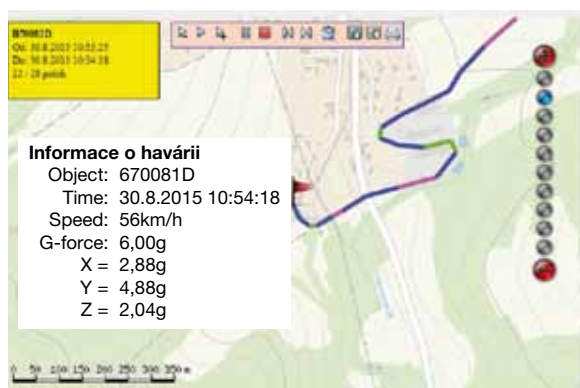
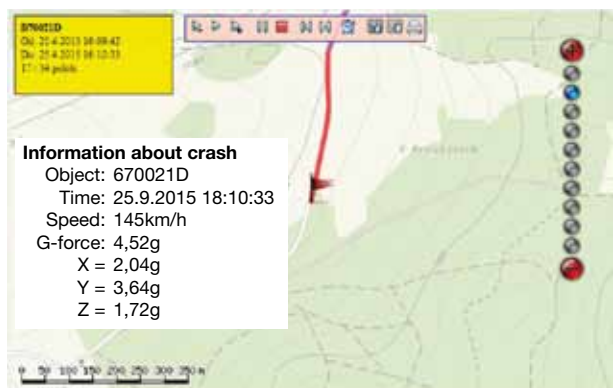
If the unit recognizes the great G-force and simultaneously the car stops, it is sent to the control room, as the state of emergency. The scale and process of G-force is sent to the server.

## ACCIDENT AT HIGH SPEED BUT LOW G-FORCE

The crew was not hurt

## ACCIDENT AT LOW SPEED BUT HIGH G-FORCE

The car overturned on its side, the possible danger to the crew





## RALLY MONITORING PROVIDING

### Leasing and testing

#### How to get the rally monitoring to your country?

The cheapest way is to purchase one set for all of the rally racing. Count the number of race cars in the biggest rally, add ambulance cars, tow trucks, safety cars, zero cars.

1. Have the purchase and operation of the units estimated by the ONI system representatives
2. Find an investor, an operator and a security control room operator in your country.

#### **BEFORE BUYING, TRY THE ENTIRE PROCESS OF MONITORING AT ONE RALLY FOR FREE**

Agree on a potential monitoring operator and with a security control room operator and invite us to one rally for a free trial. We will bring 50 pieces of units that will be installed to zero cars, a tow truck, an ambulance car, a marshal car + 40 race cars.

#### Conditions for free trial

1. You have one person of the local rally operator available
2. You have one person at the safety control room who has studied the ONI system portal manual available
3. You have an investor
4. You have arranged a presence of a Chief Scrutineer
5. You arrange computer with Internet and projector in a security control room
6. You arrange and pay for accommodation for the Oni system representatives, all other expenses will be paid by Oni system producers

We are able to guarantee your date if you notify us 3 months in advance. In case of not sufficient advance notification, we are able to visit you only in case of vacant date and availability of monitoring units.

#### Activities of the individual rally organizational units

##### **Rally operators in your country:**

- Have a computer + Internet connection at the point of scrutineering
- Define the starting numbers in the rally project
- Distribute the monitoring units before the race
- Register which car- which unit
- Collect money for the unit leasing, if it is not already included in the entry fee
- Collect deposit or license for the leased unit
- Check the on switch and functionality of the units at scrutineering
- Collect units, return deposits and licenses after the race
- Check returned units
- Have the defective units repaired

##### **The organizer of the rally:**

- Arrange to ride along the routes with the RECORD unit

##### **The activities of the security service dispatcher:**

- Has a computer + Internet connection
- Evaluates accidents
- Communicates with a Clerk of the Course
- Communicates with radio points
- At the order of the Clerk of the Course sends of a Yellow Flag, stops SS, finishes the race
- Organizes safety cars on the routes



# NAM SYSTEM

25 years of monitoring technology development

ONI system is a trademark of NAM system, Inc. a respected manufacturer and supplier of custom hardware and software monitoring technologies solutions.

We have been on the market since 1990 and focus on security applications. We offer technologies and services designed for surveillance and monitoring of stationary and mobile objects. These are custom product solutions - CMS, systems of monitoring vehicle location and communication equipment for data transfer in various applications. For greater security, we not only use the GSM network operators, but also own radio network with nationwide coverage.

**REFERENCE:** The operator in the Czech Republic: Rallye Zlín spol.s r.o., contact information: Jan Regner, jan.regner@czechrally.com, www.rallyzlin.cz

## EXPERIENCES:



2007 - 2016

Barum Czech Rallye Zlín  
One of the most important automobile events in the Czech Republic.

[www.czechrally.com](http://www.czechrally.com)



2007 - 2016

AUTOKLUB OF CZECH REPUBLIC  
Member of the following international organizations: FIA, FIA/CIK, FIM, UEM  
[www.autoklub.cz](http://www.autoklub.cz)



2013 - 2016

Wings Team Offroad  
Czech racing team of Intercontinental Rally Dakar  
Almeria Offroad and endurance marathon.

[www.wings-team.cz](http://www.wings-team.cz)



2014 - 2016

Competition for the most economical way of driving Škoda cars.

[www.economyrun.cz](http://www.economyrun.cz)

CONTACT US, IF YOU WANT TO START USING THE ONI SAFETY RALLY SYSTEM



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Slovenia, Croatia, BiH, Serbia, Bulgaria, Albania,  
Kosovo, Greece, Turkey, Cyprus

**oni system**

Trademark of NAM system company



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