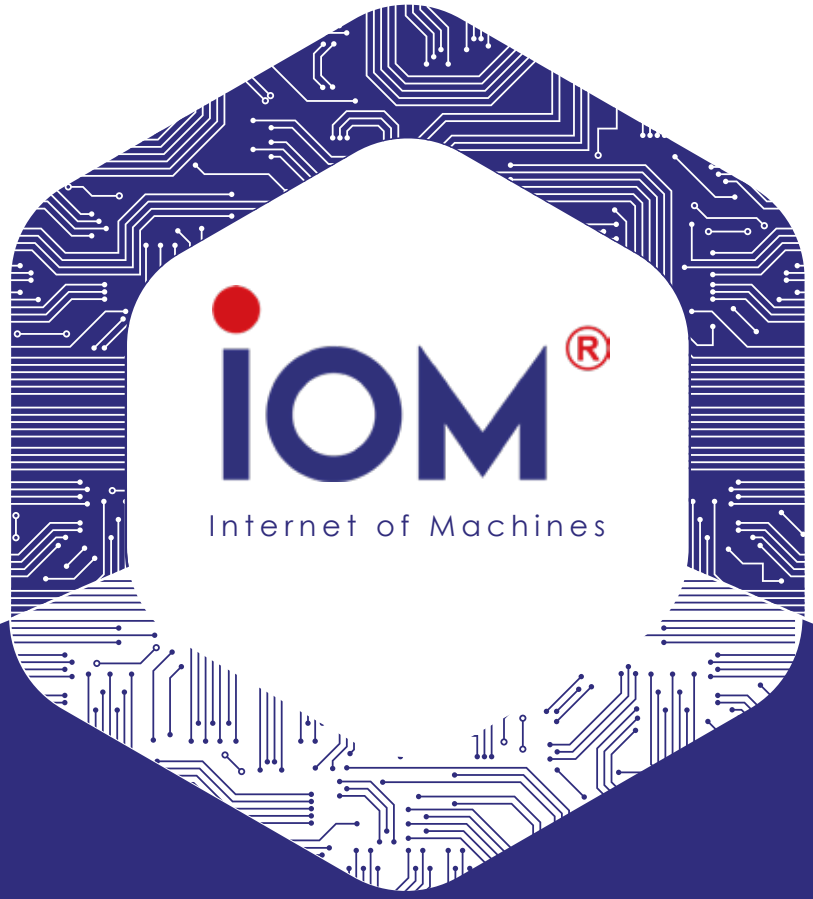
INNOVAL®
Value of Innovation



Remote Monitoring System +Anti Collision

www.innoval.biz

INNOVAL®

ABOUT US

Innoval was born from ***30years of experience*** of its technical and operational team in electronic Systems for industrial mobile vehicles.

We design all our products by ourselves, ***hardware*** and ***software***, for this reason our strong points are the customization and flexibility.

30+
years of experience

5000
systems

80
customers

11
countries

INNOVAL®

OEM

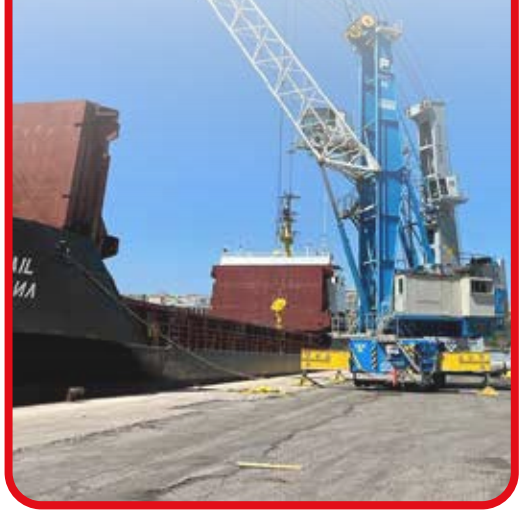
We supply our systems to manufacturers of industrial mobile vehicles to have global control of the vehicle in real time, with Windows CE operating system, CAN-bus communication, CANopen, J1939, FMS protocols.

iOM®

We offer our electronic systems to end customers to be able to remotely monitor all the industrial mobile vehicles in their fleet with only ONE system that is the same for all brands.

REVAMPING

To ensure that the vehicles are efficient and functional even after several years, we carry out a complete electronic revamping of port mobile cranes and stackers of different brands.



iOM®

"***Internet of Machines*** is a next generation machine telemetry and fleet remote monitoring System that can satisfy customer needs''

Industries


Ports
& Logistics


Construction
& Oil and Gas


Steel mills
& Heavy Industries


Quarries
& Mining

What do customers want?

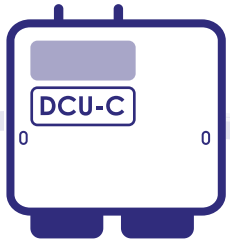
- Know if the machine is working
- Know if the machine is operating correctly
- Know the position of the machine
- Inspect malfunctions easily and rapidly
- Plan machine maintenance in advance
- Quickly monitor all vehicles

What do INNOVAL provide?

- Faster response to machine problems
- Historical data for machine efficiency analysis
- Machine fault predictions
- Control unit with GPS/LTE on the machine
- Real time alerts and warnings
- 24/7 monitoring
- A single interface to remote monitor all vehicle

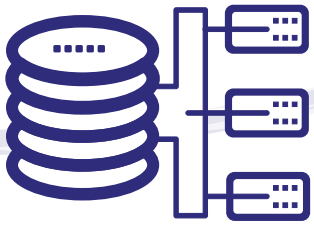
Innoval System includes:

CONTROL UNIT



Deployment of ***DCU-C V2 control unit*** in the machine and a VGA display (optional)

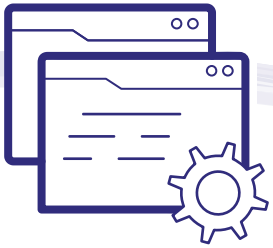
DATA COLLECTOR



DC runs ***On Premise*** or on ***AWS Cloud***

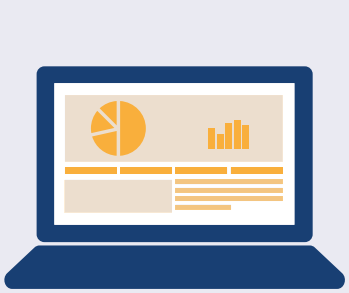
Records machine data in a database allowing big data elaborations such as KPI (Key Performance Indicator) computation and long term analysis

DASHBOARD

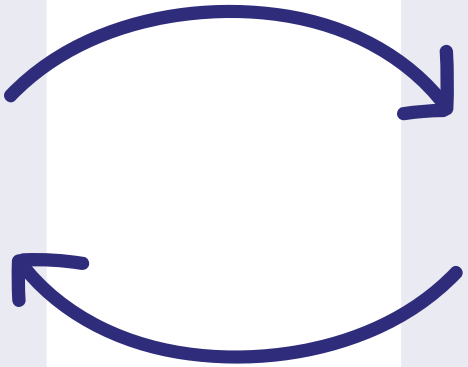


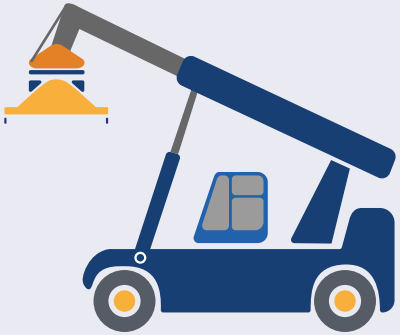
Interactive ***dashboard*** for end user to view the interest data

“Two ways” communication System:



Allows the user to remotely perform commands while machine is being used





Allows the reception of telemetry (status) from the machines

What WE MANAGE

START

- User authentication by NFC badge
- Management of operator list enabled to the utilization
- Checklist for the vehicle start
- Operator detection (sensor located on the driver seat)

SAFETY

- Recording and sending images in case of bumps
- Inhibition to start the machine from remote
- Recording of all faults, alarm, system by-pass
- Pre alarms and alarms based on abnormal conditions
- Spreader Status (TL seated, TL locked, TL unlocked)
- Tires pressure and temperature monitoring TPMS
- Stability Reserve Status

GPS

- Real time position of the machine via GPS tracking
- Acceleration/Speed reduction based on areas
- Trace route of veichles
- Geofencing

LABOR

- Signalization for motor speed at minimum for long time
- Date and Time of container handling start and ending
- Travelled Distance of the machine during the handling
- Container pick up and release height
- Container Heandling time duration
- Handled Container Size and Weight
- Burnt fuel during the handling
- Boom Angle and Extension
- Lifting Height of Spreder
- Actual Load Lifted

ENGINE

- Engine Oil Pressure and Temperature
- Engine Coolant Temperature
- Hydraulic Lift Cylinders Pressure
- Engine Fuel Level
- Engine Torque
- Engine Rpm

REMOTE

- Real Time graphic monitoring of parameters and recording
- Data encryption and compression before being sent to Server
- Remote file updating
- Remote software updating
- Multi language software
- VNC Virtual Network Computing

Hardware on board

DCU-C V2

Master Control Unit

DESCRIPTION:

The DCU-C V2 is a fully programmable automotive grade controller designed to be used as high performance master controller and Man-Machine-Interface (combined with an external VGA display) in industrial vehicles.

FEATURES:

CPU master: NXP i.MX6DL (2 x Cortex-A9 @ 800Mhz), Internal memory:

144 kByte RAM (OCRAM), 32i + 32d kByte L1 Cache, 512 kByte L2 Cache

CPU slave (supervisor): NXP LPX5526 150 MHz (Cortex-M33), Memory: 256 kByte Flash, 144 kByte RAM

3 axis accelerometer, 3 axis gyroscope

3 axis magnetic-sensor (optional)

miniPCIe slot for **LTE/4G** with **micro SIM**-Holder M.2 slot

GPS module

Dashboard

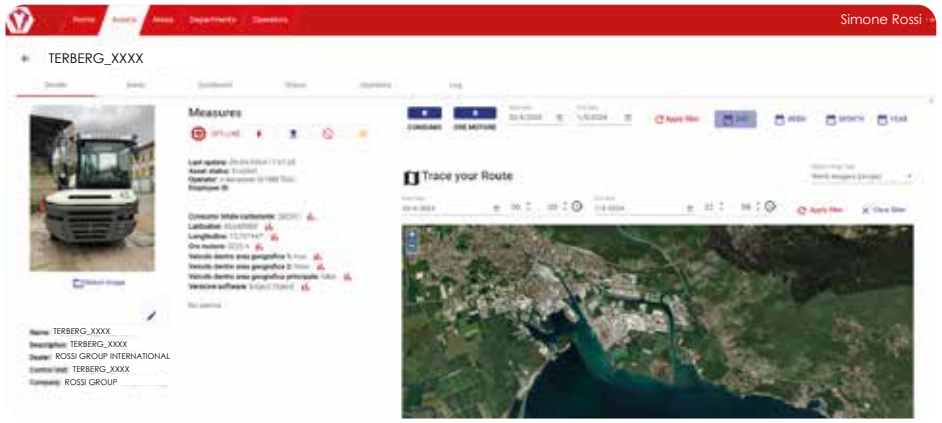
Customer may develop its own dashboard by accessing the saved machine data or INNOVAL can supply its own dashboard

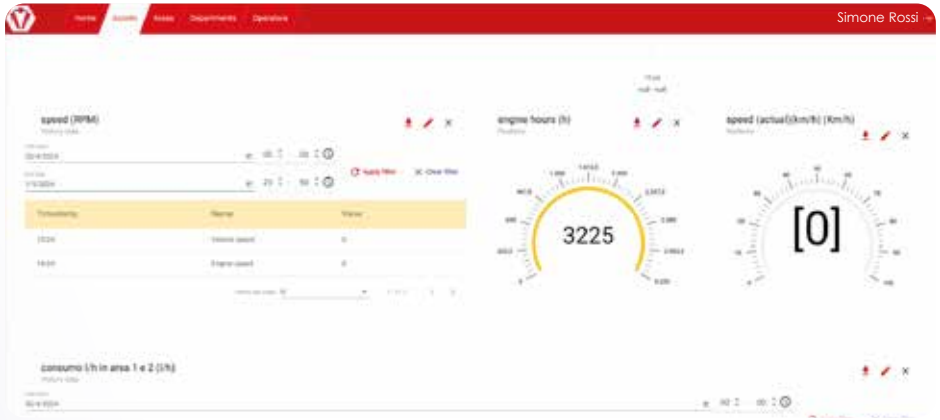
WEB PORTAL BASED
(rest API based)

CUSTOMIZABLE
layout

CONFIGURABLE
machine report measures

MULTI
user/customer/dealer





ANTI-COLLISION SYSTEM

The Anti-Collision system can be **“standalone”** or integrated in our Remote Monitoring System

Ultra wide band (UWB) based **Anti-collision system** for Harbor Vehicles

The system is based on 4 UWB transceivers mounted on the 4 extremities of the Vehicle, for example on a Straddle Carrier on the 4 legs or on the Bumpers. Mounted like this the system will measure the distance to any equipped service Vehicle or person in a range of up to 20 meters around the Vehicle.

PRE-ALARM & ALARM

The Client can define two different distances one for a pre-alarm and one as alarm, this gives the possibility to inform the Operator on the vehicle early enough to react on the alarm, but will prevent false alarms.

In opposite to camera based systems the UWB system can (with some limitations) see “around corners” and warn the Operator about a Service Vehicle or a Person out of sight.

Further the system generates virtually non falls alarms as it depends on a transceiver on the Service Vehicle or the Person (TAG).

The user can exclude the detection of certain types of Vehicles, for example to prevent constant alarms if a group of Vehicles works in close proximity, but remains active for other types of Vehicles and Persons.

RED ZONE
System

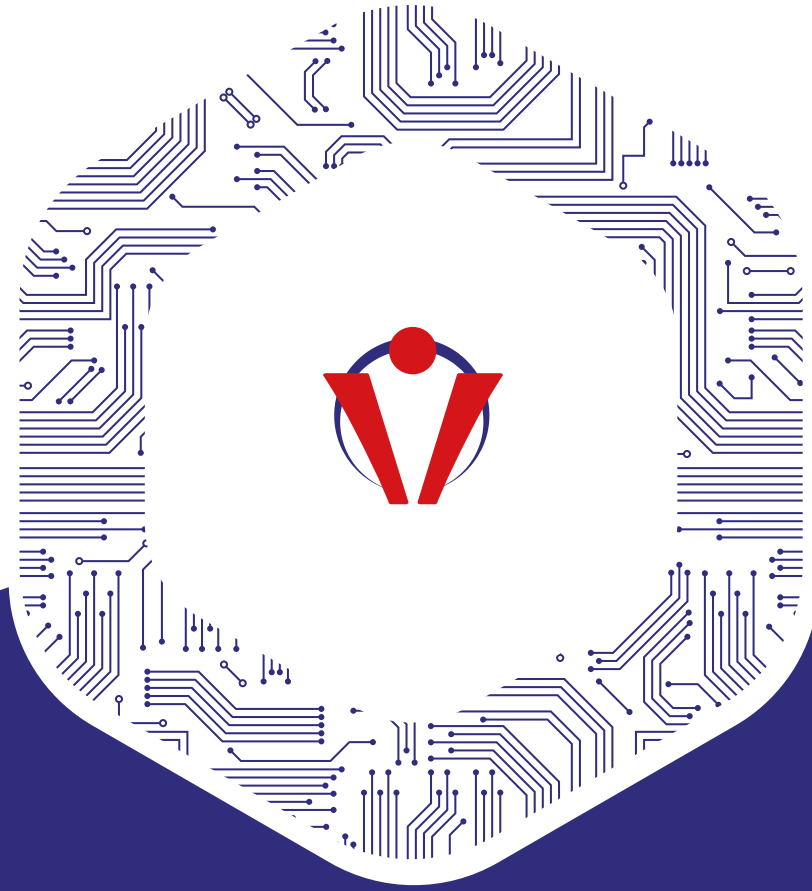
In some Harbor areas any entering Service Vehicle has to be recognized, and all Shuttles (Straddle Carriers or Reach Stackers) have to stay still, until the Service Vehicle leave the working area.

This is normally archived by radio communication between the Supervisor and the Operators on the Machines, but this can lead to misunderstanding (the operator did not hear the communication for some reasons).

To “automate” the transmission of the command our Remote Monitoring system can be enhanced by a system that gives the Supervisor the possibility to block certain Geographic areas (Zones) via a hand held Computer (or tablet).

INNOVAL
System can:

- Show the position of all Vehicles in the Area in real-time
- Block a Zone by simply touching the zone on the Tablet
  (the Operator has a visual and auditive warning in the cabin)
- Verifying that the command was received by all Vehicles in real-time
- Release the blocked Zone
- The system can handle multiple zones and multiple Supervisors / Tablets.



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